UNIVERSITY OF PIRAEUS
DEPARTMENT OF BUSINESS ADMINISTRATION

PHD THESIS

"The implementation and impact of accounting standards on Greek Small and Medium-sized entities"

Trahanas D. Emmanuel

Piraeus, December 2021

Παράρτημα Β: Βεβαίωση Εκπόνησης Διδακτορικής Διατριβής

ΠΑΝΕΠΙΣΤΗΜΙΟ ΠΕΙΡΑΙΩΣ
ΣΧΟΛΗ ΟΙΚΟΝΟΜΙΚΩΝ ΕΠΙΧΕΙΡΗΜΑΤΙΚΩΝ ΚΑΙ ΔΙΕΘΝΩΝ ΣΠΟΥΔΩΝ
ΤΜΗΜΑ ΟΡΓΑΝΩΣΗΣ ΚΑΙ ΔΙΟΙΚΗΣΗΣ ΕΠΙΧΕΙΡΗΣΕΩΝ

ΒΕΒΑΙΩΣΗ ΕΚΠΟΝΗΣΗΣ ΔΙΔΑΚΤΟΡΙΚΗΣ ΔΙΑΤΡΙΒΗΣ

(περιλαμβάνεται ως ξεχωριστή (δεύτερη) σελίδα στο σώμα της διδακτορικής διατριβής)

Δηλώνω υπεύθυνα ότι η διδακτορική διατριβή για τη λήψη του διδακτορικού τίτλου, του Τμήματος Οργάνωσης και Διοίκησης Επιχειρήσεων του Πανεπιστημίου Πειραιώς, με τίτλο "The implementation and impact of accounting standards on Greek Small and Medium-sized entities", («Η εφαρμογή των Λογιστικών Προτύπων και η επίδρασή τους στις ελληνικές μικρομεσαίες επιχειρήσεις»), έχει συγγραφεί από εμένα αποκλειστικά και στο σύνολό της. Δεν έχει υποβληθεί ούτε έχει εγκριθεί στο πλαίσιο κάποιου άλλου διδακτορικού, μεταπτυχιακού προγράμματος ή προπτυχιακού τίτλου σπουδών, στην Ελλάδα ή στο εξωτερικό, ούτε είναι εργασία ή τμήμα εργασίας ακαδημαϊκού ή επαγγελματικού χαρακτήρα.

Δηλώνω επίσης υπεύθυνα ότι οι πηγές στις οποίες ανέτρεξα για την εκπόνηση της συγκεκριμένης εργασίας, αναφέρονται στο σύνολό τους, κάνοντας πλήρη αναφορά στους συγγραφείς, τον εκδοτικό οίκο ή το περιοδικό, συμπεριλαμβανομένων και των πηγών που ενδεχομένως χρησιμοποιήθηκαν από το διαδίκτυο. Παράβαση της ανωτέρω ακαδημαϊκής μου ευθύνης αποτελεί ουσιώδη λόγο για την ανάκληση του διπλώματός μου.

Υπογραφή Διδάκτορα .....

Ονοματεπώνυμο.....ΤΡΑΧΑΝΑΣ ΕΜΜΑΝΟΥΗΛ.....

Ημερομηνία.....22/12/2021.....

ABSTRACT

The enactment of Law 4308/2014 ("Greek Accounting Standards"), which implements the accounting provisions of the new European Accounting Directive (EU Directive 2013/34/EU of the European Parliament and of the Council of 26 June 2013), has resulted in significant changes to Greece's accounting framework.

Law 4308/2014, which takes effect for periods beginning after 31.12.2014, is regarded one of the numerous structural reforms implemented in Greece since the start of the debt crisis in 2010, as it includes terms and principles identical to those used in International Financial Reporting Standards (IFRS). Moreover, Law 4308/2014 incorporates novel features such as the option for companies (or entities) to seek guidance in the International Financial Reporting Standards, as long as IFRS regulations are in accordance with the Law.

Global accounting harmonization has as its primary purpose the reduction of accounting differences and the improvement of the comparability of accounting information. Formal (or de jure) harmonization, which refers to the degree of harmonization between accounting standards, is an important aspect of worldwide accounting convergence. As a result, the examination of formal (or de jure) harmonization between national and international accounting standards not only reveals the progress made in the international accounting harmonization process, but it also provides fertile ground for improving national accounting standards through a more accurate and correct implementation of the practices and rules embodied in international accounting standards.

In light of the foregoing, the first chapter of the thesis examines the degree of harmonization between Greek Accounting Standards and International Accounting Standards/International Financial Reporting Standards (IFRS), specifically with regard to accounting measurement issues. We concentrate on accounting measurement rules contained in Greek Accounting Standards that apply to Small and Medium-sized Enterprises (SMEs), owing to their economic importance to Greece.

The empirical evidence suggests that Greece's new accounting framework has certain similarities with the IFRS framework that result in a medium level of harmonization with IAS/IFRS. The empirical evidence also shows that the observed dissimilarities between the two accounting frameworks are due to non-inclusion of specific IAS/IFRS accounting treatments in Greek Accounting Standards rather than differentiation between them.

The second chapter of the thesis explores the effect of country-specific factors on the observed deviation of Greek Accounting Standards from IAS/IFRS. We combine several measures that are representative of major country-specific factors such as culture, level of book-tax conformity, financial orientation and governance quality and conclude that the role of a country's distinct characteristics should not be overlooked when examining its accounting framework. This assertion is supported by the findings of our research, which confirm the impact of country specific factors on the formulation of national accounting standards, in general and the new Greek Accounting Standards, in particular.

The third and last chapter of the thesis investigates the existence of tax-motivated earnings manipulation during the period 2016-2018 among Greek Small and Medium-sized (SMEs) private companies, immediately following the introduction of the new Greek Accounting Standards. In doing so, we construct a unique sample of Greek SMEs with both positive and negative earnings and assess whether they engaged in tax-induced financial misstatement practices, by combining earnings manipulation and tax aggressiveness measures. Our results provide evidence that tax-motivated income decreasing practices are prevalent among Greek SMES, irrespective of the introduction of the new Greek Accounting Standards.

ΠΕΡΙΛΗΨΗ

Η θέσπιση του ν. 4308/2014 (Ελληνικά Λογιστικά Πρότυπα) που ενσωμάτωσε την νέα Ευρωπαϊκή Λογιστική Οδηγία (Οδηγία 2013/34/ΕΕ του Ευρωπαϊκού Κοινοβουλίου και του Συμβουλίου της 26ης Ιουνίου 2013) επέφερε δραστικές αλλαγές στο λογιστικό πλαίσιο της Ελλάδας.

Ο ν. 4308/2014 εφαρμόζεται για περιόδους που άρχονται μετά την 31.12.2014 και θεωρείται ως μια από τις πολλές διαρθρωτικές αλλαγές που εφαρμόσθηκαν στην Ελλάδα, μετά την έναρξη της κρίσης χρέους το έτος 2010, καθώς εισάγει όρους και κανόνες που είναι όμοιοι με τους αντιστοίχους των Διεθνών Προτύπων Χρηματοοικονομικής Αναφοράς (ΔΠΧΑ). Επιπροσθέτως, ο ν. 4308/2014 ενσωματώνει καινοτόμα χαρακτηριστικά όπως η χορήγηση της δυνατότητας στις επιχειρήσεις (ή οντότητες σύμφωνα με το νόμο) να αναζητούν καθοδήγηση στα Διεθνή Πρότυπα Χρηματοοικονομικής Αναφοράς (ΔΠΧΑ), υπό την προϋπόθεση ύπαρξης συμβατότητας των κανόνων των ΔΠΧΑ με τις διατάξεις του ν. 4308/2014.

Ο βασικός στόχος της διεθνούς λογιστικής εναρμόνισης είναι ο περιορισμός των διαφορών μεταξύ των επιμέρους λογιστικών κανόνων καθώς και η αύξηση της συγκρισιμότητας των λογιστικών πληροφοριών. Η τυπική (formal) (ή εκ του δικαίου/de jure) λογιστική εναρμόνιση, η οποία συνίσταται στον βαθμό της εναρμόνισης μεταξύ λογιστικών προτύπων, αποτελεί μια σημαντική πτυχής της παγκόσμιας λογιστικής σύγκλισης. Συνεπώς, η εξέταση του βαθμού της τυπικής (ή εκ του δικαίου/de jure) λογιστικής εναρμόνισης μεταξύ των εθνικών και διεθνών λογιστικών προτύπων όχι μόνο καταδεικνύει την πρόοδο που έχει συντελεστεί στην εξέλιξη της λογιστικής εναρμόνισης των προτύπων σε διεθνές επίπεδο αλλά επιπροσθέτως, παρέχει γόνιμο έδαφος για την βελτίωση των εθνικών λογιστικών προτύπων, μέσω της ακριβέστερης και ορθότερης εφαρμογής των πρακτικών και κανόνων που ενσωματώνονται στα διεθνή λογιστικά πρότυπα.

Κατόπιν των προεκτεθέντων, το 1ο κεφάλαιο της παρούσας διατριβής διερευνά τον βαθμό εναρμόνισης των Ελληνικών Λογιστικών Προτύπων (ν. 4308/2014) με τα Διεθνή Λογιστικά Πρότυπα (ΔΛΠ)/Διεθνή Πρότυπα Χρηματοοικονομικής Αναφοράς (ΔΠΧΑ), όσον αφορά τους κανόνες επιμέτρησης. Επικεντρωνόμαστε ιδιαιτέρως, στους κανόνες επιμέτρησης που περιλαμβάνονται στα Ελληνικά Λογιστικά Πρότυπα (ν. 4308/2014) και εφαρμόζονται από τις Ελληνικές Μικρομεσαίες επιχειρήσεις, λόγω της εν γένει, σημασίας αυτής της κατηγορίας των επιχειρήσεων για την Ελληνική Οικονομία.

Τα αποτελέσματα της εμπειρικής έρευνας δείχνουν ότι το νέο λογιστικό πλαίσιο της Ελλάδος παρουσιάζει ορισμένες ομοιότητες με το πλαίσιο των Διεθνών Προτύπων Χρηματοοικονομικής Αναφοράς, οι οποίες οδηγούν σε ένα μέτριο επίπεδο εναρμόνισης με τα Διεθνή Λογιστικά Πρότυπα/Διεθνή Πρότυπα Χρηματοοικονομικής Αναφοράς. Επίσης, τα αποτελέσματα της εμπειρικής έρευνας καταδεικνύουν ότι οι παρατηρούμενες διαφορές μεταξύ των δύο λογιστικών πλαισίων οφείλονται στη μη συμπερίληψη συγκεκριμένων λογιστικών κανόνων των ΔΛΠ/ΔΠΧΑ στα Ελληνικά Λογιστικά Πρότυπα παρά στην ουσιώδη διαφοροποίηση τους.

Το 2ο κεφάλαιο της παρούσας διατριβής ερευνά την επίδραση των ιδιαίτερων εθνικών χαρακτηριστικών/παραγόντων (country-specific factors) στη διαμόρφωση της παρατηρούμενης απόκλισης των Ελληνικών Λογιστικών Προτύπων από το πλαίσιο των ΔΛΠ/ΔΠΧΑ. Συνδυάζοντας διάφορους δείκτες που είναι αντιπροσωπευτικοί βασικών εθνικών παραγόντων όπως η εθνική κουλτούρα (culture), το επίπεδο σύγκλισης μεταξύ των λογιστικών κανόνων και φορολογικών διατάξεων (the level of book-tax conformity), ο προσανατολισμός της οικονομίας (financial orientation) και η ποιότητα της διακυβέρνησης (governance quality), εξάγεται το συμπέρασμα ότι κατά τη διερεύνηση του λογιστικού πλαισίου μιας χώρας, ο ρόλος των εθνικών χαρακτηριστικών δεν θα πρέπει να παραβλέπεται. Τα σχετικά ερευνητικά αποτελέσματα όχι μόνο καταδεικνύουν το προαναφερθέν συμπέρασμα αλλά επιπλέον επιβεβαιώνουν την επίδραση των παραγόντων αυτών στη διαμόρφωση των εθνικών λογιστικών προτύπων εν γένει, και ιδιαίτερα των Ελληνικών Λογιστικών Προτύπων.

Το 3ο και τελευταίο κεφάλαιο της παρούσας διατριβής επικεντρώνεται στη διερεύνηση της ύπαρξής χειραγώγησης των κερδών λόγω ύπαρξης κινήτρων μείωσης των φόρων (tax-motivated earnings manipulation), από τις Ελληνικές Μικρομεσαίες επιχειρήσεις για την περίοδο 2016-2018, ακριβώς μετά την θέσπιση των νέων Ελληνικών Λογιστικών Προτύπων. Για το σκοπό αυτό, κατασκευάσθηκε ένα μοναδικό δείγμα κερδοφόρων και ζημιογόνων Ελληνικών Μικρομεσαίων επιχειρήσεων και ερευνάται, μέσω της χρήσης δεικτών χειραγώγησης των κερδών και φορολογικής επιθετικότητας (tax aggressiveness), εάν οι επιχειρήσεις αυτές προέβησαν σε χειραγώγηση των κερδών τους με σκοπό την μείωση των φόρων. Τα σχετικά ερευνητικά αποτελέσματα αποδεικνύουν ότι οι πρακτικές μείωσης των φόρων μέσω μείωσης του δηλούμενων κερδών (tax-motivated income decreasing practices) είναι ευρέως διαδεδομένες μεταξύ των Ελληνικών Μικρομεσαίων επιχειρήσεων, ανεξαρτήτως της θέσπισης των νέων Ελληνικών Λογιστικών Προτύπων.

ACKNOWLEDGEMENTS

First of all, I would like to thank my supervisor Professor Ioannis Sorros for believing in me, mentoring, and guiding me all these years. I was lucky enough to be one of his students.

I would also like to thank my family, friends and beloved ones who stood by me through this journey and supported me every time I was ready to give up.

God bless you all.

LIST OF FIGURES

CHAPTER 1

CHAPTER 2

CHAPTER 3

LIST OF TABLES

CHAPTER 1

CHAPTER 2

TABLE OF CONTENTS

Chapter 1: Assessing the conformity of Greece's new accounting framework with International Financial Reporting Standards from the standpoint of small and medium-sized enterprises

1.1. Introduction

The value placed on high-quality accounting information continues to grow in today's integrated global economy. International accounting standards are highly valued by investors worldwide because they provide high-quality information that is critical for decision-making and investing.

The need to achieve convergence of accounting standards and comparability of financial statements has been highlighted through a variety of initiatives on both a European and worldwide level. For example, pursuant to Regulation (EC) No 1606/2002 of the European Parliament and Council of 19 July 2002, all publicly traded EU companies were obliged to prepare their consolidated financial statements in accordance with International Financial Reporting Standards (IFRS) beginning on or after 1 January 2005. Additionally, Regulation (EC) No 1606/2002 gave Member States the option of allowing or requiring the adoption of IFRS for unlisted companies, as well.

Additionally, in 2002, the US Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) issued the Norwalk Agreement[1] which represented a collaborative effort by the two major global accounting standard-setters to make their respective financial reporting standards fully compatible.

Apart from the aforementioned initiatives, which mostly targeted publicly traded companies, further efforts have been made to develop high-quality international accounting standards for small and medium-sized unlisted businesses.

In response to the need for a set of simplified and internationally accepted accounting standards for unlisted companies, the International Accounting Standards Board (IASB) issued the International Financial Reporting Standard for Small and Medium-sized Entities (IFRS for SMEs) in July 2009. IFRS for SMEs is applicable to Small and Medium-sized Entities that *"(a) do not have public accountability and (b) publish general purpose financial statements for external users (creditors, credit rating agencies etc.)*"[2].

Similarly, in June 2013, the American Institute of Certified Public Accountants (AICPA) issued the Financial Reporting Framework (FRF) for Small and Medium-Sized Entities. As stated in the

[1] https://www.fasb.org/resources/ccurl/443/883/memorandum.pdf

[2] https://www.ifrs.org/supporting-implementation/supporting-materials-for-the-ifrs-for-smes/2009-development/

Preface of FRF, "*the FRF for Small and Medium-Sized Entities is a framework without quantified size criteria for the determination of a small or medium sized entity, developed for private, owner-managed, profit firms that do not require GAAP-based financial statements*". Despite the fact that the FRF has not been approved by any technical committee of the AICPA or the Financial Accounting Standards Board and thus lacks official or authoritative status, it represents an attempt to alleviate the burden of excessive accounting requirements on small and medium-sized businesses, which numbered approximately 20 million in 2013[3].

Numerous impediments exist to global accounting harmonization. For example, the convergence project between US GAAP and IFRS remains stagnant, since excitement for IFRS adoption by domestic US issuers appears to be waning following 2012 (Ortega, 2017). Additionally, the two major standard-setters (AICPA and IASB) have developed their own set of accounting standards for small and medium-sized businesses. Despite the hurdles and hazards associated with accounting harmonization, accounting harmonization of private non-listed firms has attracted increased attention, as SMES account for the vast majority of business entities globally.

The current chapter examines whether Greece has benefited from the ongoing global accounting harmonization process, following the enactment of Law 4308/2014 (Greek Accounting Standards), which not only incorporates the provisions of the new European Accounting Directive but also includes terms, practices, and treatments based on the IFRS accounting framework. By comparing the accounting treatments contained in Law 4308/2014 that apply to Small and Medium-sized entities (SMEs) to their IAS/IFRS equivalents, we will be able to determine the degree of alignment between Greek Accounting Standards and the IAS/IFRS framework. We place an emphasis on SMEs since their contribution to the Greek economy is invaluable.

1.2. EU Directives' categorization of Small and Medium-Sized Entities

In the European Community (EC), accounting harmonization began with the Fourth Directive of 25 July 1978 on the annual accounts of limited liability companies (Van Hulle, 1992). This Directive served as the foundation for a number of subsequent accounting Directives, including the Seventh Directive of 13 June 1983 on consolidated accounts (Van Hulle, 1992).

According to Soderstrom and Sun (2007), the Fourth and Seventh Directives had the most influence on the early phases of financial reporting convergence in the EU. Thus, the 4th Council Directive (78/660/EEC of 25 July 1978 on the annual accounts of certain types of

[3] https://www.aicpa.org/interestareas/frc/accountingfinancialreporting/pcfr/frf-smes-faq.html

companies) and the 7th Council Directive (83/349/EEC of 13 June 1983 on consolidated accounts), established the European accounting framework, respectively.

The new Accounting Directive 2013/34/EU of the European Parliament and of the Council of 26 June 2013 replaced the previously-mentioned EU Directives on the annual and consolidated financial statements. A review of Directive 2013/34/EU demonstrates unequivocally that Small and Medium-sized Enterprises (or undertakings as defined in the Directive) are at the forefront of European Union activities aimed at further strengthening their position in the European economic environment.

As Jovanović (2014) notes, the necessity for a simplified accounting framework for small firms has been recognized since the enactment of the 4th Council Directive 78/660/EEC of 25 July 1978. According to the 4th Accounting Directive, small and medium-sized businesses should be granted exemptions from financial statement presentation and publication requirements.

After being revised by Directive 2006/46/EC of the European Parliament and of the Council of 14 June 2006, the 4th Accounting Directive indirectly determined entity size (Articles 11 and 27) using the balance sheet total, net turnover, and average number of employees (shown in Table 1.1).

Table 1.1: Enterprise Size Criteria set by the 4th Council Directive

Enterprise size	**Balance Sheet Total**	**Net Turnover**	**Average number of employees during the financial year**
Small (Article 11)	< 4.400.000	< 8.800.000	< 50
Medium (Article 27)	< 17.500.000	< 35.000.000	< 250

Several derogations for companies not exceeding the limits of two of the three criteria mentioned above are included in the 4th Accounting Directive, such as:

- Drawing an abridged Balance Sheet & abridged Notes On the Accounts (Articles 11 - Article 44).
- Adoption of different layouts for the presentation of the P&L account (Article 27).
- Limitation or omission of certain disclosure requirements regarding notes on the accounts (Article 43 & 45).
- Exemption from preparing annual reports (Article 46).
- Publication of an abridged Balance Sheet and abridged Notes On the Accounts (Article 47).

Nonetheless, as noted in the European Commission's Consultation Paper on the Review of the Accounting Directives of February 26, 2009, the 4th Accounting Directive was based on a "top-down" approach, beginning with the reporting needs of major corporations. Furthermore, the 4th Accounting Directive included exemptions for small and medium-sized companies in several areas, most notably the presentation and publication of financial statements, but did not give a precise definition of these companies.

The European Commission issued Recommendation 96/280/EC of 3 April 1996 in response to the need to establish a clear definition of small and medium-sized enterprises in the European Union and to reduce inconsistencies created by the various SME definitions used in different EU countries.

According to Commission Recommendation 96/280/EC, enterprises must be classified as Micro, Small or Medium based on their Average Number of Employees (considered the primary and imperative criterion), annual Balance Sheet Total and/or Annual Turnover, as well as their degree of independence (Commission Recommendation 96/280/EC criteria presented in Table 1.2, below).

Table 1.2: Enterprise Size Criteria set by Commission Recommendation 96/280/EC

Enterprise size	Annual Balance Sheet Total	Annual Turnover	Average number of employees during the financial year	Independence
Micro	-	-	< 10	-
Small	< 5.000.000 ECU	< 7.000.000 ECU	< 50	Not owned as to 25% or more of the capital or the voting rights by one or jointly by several enterprises (excluding public corporations, venture capital companies, institutional investors and cases when capital ownership cannot be determined due to its spread)
Medium	<2 7.000.000 ECU	< 40.000.000 ECU	< 250	

Additionally, pursuant to Commission Recommendation 96/280/EC, the size of an enterprise changed if it exceeded certain thresholds (ceilings) for two (2) consecutive fiscal years, while

Member States, the European Investment Bank, and the European Investment Fund had the option of categorizing business entities using lower ceilings.

While Commission Recommendation 96/280/EC established the micro enterprise category, it lacked detailed and specific criteria for this company size. Moreover, in light of the fact that the size criteria for enterprises needed to be revised due to changes in prices and productivity, the European Commission issued Recommendation 2003/361/EC of 6 May 2003[4] regarding the definition of micro, small, and medium-sized enterprises, effective for periods beginning on 1 January 2005.

The new Commission Recommendation included a more precise definition of the Micro enterprise by specifying Annual Balance Sheet Total and Annual Turnover thresholds for that type of enterprise. Furthermore, financial criteria thresholds (Annual Balance Sheet Total & Annual Turnover) have been increased significantly (as shown in Table 1.3) and a transparent method for calculating Staff Headcount (number of annual working units) has been introduced.

Certain provisions of the previous European Commission Recommendation (96/280/EC) remained effective in light of the new Commission Recommendation, including the Member State option to set lower thresholds for entities' size criteria and the requirement to exceed the Commission Recommendation's thresholds for two (2) consecutive financial years in order to change size.

Commission Recommendation 2003/361/EC also established a comprehensive framework for the independence criterion, defining an autonomous enterprise, a partner enterprise, and a linked enterprise, allowing enterprises to efficiently determine whether they met the Commission Recommendation's thresholds.

Table 1.3: Enterprise Size Criteria set by Commission Recommendation 2003/361/EC

Enterprise size	**Annual Balance Sheet Total**	**Annual Turnover**	**Staff Headcount** (number of annual working units)
Micro	< €2.000.000	< €2.000.000	< 10
Small	< €10.000.000	< €10.000.000	< 50
Medium	< €43.000.000	< €50.000.000	< 250

The need for a comprehensive SME policy framework that promoted SME entrepreneurship and implemented the "Think Small First" principle in law and policymaking was expressed by the

[4] Recommendation 2003/361/EC of 6 May 2003 replaced Recommendation 96/280/EC

"Small Business Act" (SBA) for Europe. The European Commission (EC) launched this initiative on June 25, 2008 and established a set of ten principles to guide the development and implementation of policies at the EU and national levels[5].

One of these principles, which was incorporated into the Small Business Act for Europe, concerned the development of legislative rules in accordance with the "Think Small First" principle, taking into account the characteristics of SMEs and simplifying the existing regulatory environment[6]. These legislative rules were formalized with the publication of Directive 2012/6/EU of March 2012, which amended the 4th Council Directive, regarding micro enterprises.

Not only did Directive 2012/6/EU established lower size criteria (as shown in Table 1.4) for Micro enterprises, but it also recognized the need to provide a simplified and less burdensome accounting framework for these entities, by amending the 4th Council Directive.

Table 1.4: Micro entities Size Criteria set by Directive 2012/6/ EU

Entity size	Balance Sheet Total	Net Turnover	Average number of employees during the financial year
Micro	< €350.000	< €700.000	< 10

SMEs' existing regulatory environment was further simplified with the adoption of the new Accounting Directive 2013/34/EU, which was part of the European Union's program to enhance SME entrepreneurship through the simplification of accounting requirements (Kaufhold, 2015).

Additionally, modernization of the existing Accounting Directives was necessary not only to facilitate cross-border investments and enhance financial statement comparability across the EU, but also to increase the Directives' validity as documents containing high-quality information with a consistent content (Mate et al., 2015).

1.3. The new European Accounting Directive

This section summarizes the provisions of the new Accounting Directive 2013/34/EU of the European Parliament and the Council of 26 June 2013. This brief presentation will lay the groundwork for an overview of Law 4308/2014 (Greek Accounting Standards), which adopted the new European Accounting Directive's provisions.

The 4th and 7th Accounting Directives, which served as the foundation for the European Union's accounting framework, have been replaced by the new Accounting Directive 2013/34/EU of the

[5] https://ec.europa.eu/commission/presscorner/detail/en/IP_08_1003

[6] https://op.europa.eu/en/publication-detail/-/publication/f64cbad3-4b26-4e88-8e67-a706a48cd035/language-en.

European Parliament and of the Council of 26 June 2013 on the annual and consolidated financial statements.

The new Accounting Directive applies to S.A. companies, limited liability companies, limited partnerships, general partnerships, and limited partnerships by shares, among others, and categorizes entities by size (micro, small, medium, and large undertakings) based on their balance sheet total, net revenue, and average number of employees over the course of the financial year[7].

Table 1.5: Entity size criteria according to the new Accounting Directive 2013/34/EU

Entity size	Balance Sheet	Net Turnover	Average number of employees during the financial year
Micro	< €350.000	< €700.000	< 10
Small	< €4.000.000	< €8.000.000	< 50
Medium	< €20.000.000	< €40.000.000	< 250
Large	> €20.000.000	> €40.000.000	> 250

The size of entities is defined as not exceeding the limitations of at least two of the three criteria (Table 1.5) on their Balance Sheet date for two consecutive financial periods, whereas Member States do not have the option of determining entities' size criteria[8]. Additionally, the Directive contains provisions on the presentation of financial statements, general reporting principles, measurement bases and simplifications, and requirements particular to the size of an entity.

Beyond presenting a true and fair view of an entity's assets, liabilities, financial position, and profit or loss, financial statements must be viewed in their entirety and must include at a minimum, and regardless of size, the Balance Sheet, the Profit & Loss account, and the Notes to the financial statements. Additionally, deviations from the Directive's provisions are permitted to achieve a true and fair view and must be disclosed in the notes to the financial statements.

Article 6 of the Directive contains critical general financial reporting principles, including the going concern assumption, consistency in the application of accounting policies, prudence in the recognition and measurement procedure, and the use of the accrual basis of accounting for balance sheet and profit and loss account items. Moreover, the fundamental measuring basis is purchase price or production cost, and the substance over form principle is applied to all Balance Sheet and Profit & Loss items.

[7] The size categorization of groups of entities is carried out by using the same criteria.
[8] Except for the size criteria of small companies.

Member states may allow set-offs between assets and liabilities or between revenue and expense items. Additionally, Member States may permit the recognition of contingent assets and liabilities and limit the application of materiality (as it relates to recognition, measurement, presentation, disclosure, and consolidation) to presentation and disclosure issues.

The new EU Accounting Directive gives Member States the option of using alternative measurement bases for fixed assets and financial instruments. Member States may, for example, permit or require all entities, regardless of size, to measure fixed assets at revalued amounts and record differences between measurements in the revaluation reserve under "Capital and reserves" on the Balance Sheet.

Equally, Member States may permit or require all entities, regardless of size, to measure financial instruments at fair value, including derivative financial instruments and other assets. Also, Member States are free to adopt either the layouts provided in the Directive's Annexes or alternative presentations for the Balance Sheet and Profit & Loss statements, according to the Directive's provisions.

In addition, the Directive contains provisions on the presentation and treatment of specific Balance Sheet items, which allow Member States to choose whether or not to implement them in their respective jurisdictions. Such items include the following:

- Own shares (presentation only under the items prescribed for that purpose) and rights to immovables (shown under "Land & Building"),
- Fixed assets (value adjustments in order for them to be valued at the lower figure at Balance Sheet date),
- Current assets (value adjustments in order for them to be valued at the lower market value at Balance Sheet date),
- Interest on capital borrowed to finance the production of fixed or current assets (inclusion within production costs – up to Member States),
- Valuation of stock of goods (using the weighted average method, FIFO or LIFO – up to Member States),
- Intangible assets (writing off through useful economic life and up to a 10 year period when useful life cannot be estimated in a reliable way) and,
- Provisions (clearly defined relation with liabilities and expenses - up to Member States).

Besides that, the new EU Accounting Directive allows Member States to grant (or not grant) Micro entities specific exemptions and simplifications regarding financial statement presentation

(e.g., abridged Balance Sheet - abridged Profit & Loss account) and accounting rules and practices (e.g., prohibition of fair value measurement of financial instruments and other assets).

1.4. The development of accounting in Greece

The purpose of this chapter is to examine the factors that influenced the development of the Greek accounting environment. To aid in the comprehension of this evolutionary process, a variety of research papers conducted by eminent Greek and foreign academics will be utilized. The review of preceding literature reveals that there is near-unanimity among Greek researchers regarding the effect of Greece's particular traits on the development of accounting.

According to Tsalavoutas (2017), previous to the enactment of Law 4308/2014, the following were the primary accounting and tax regulations:

- Company Law 2190/1920 (governing matters related to companies with the legal form of Société Anonyme);
- Company Law 3190/1955 (governing matters related to companies with the legal form of a Limited Liability Company (or Société à responsabilité limitée));
- Presidential Decree (PD) 186/1992 (also known as Code of Books and Records) which contained tax rules for bookkeeping and the issuance of invoices[9];
- Law 1041/1980 that adopted a General Accounting Plan.

Karampinis and Hevas (2011) also identify the Greek Tax Code (or Income Tax Code) as a significant source of financial reporting in Greece. Therefore, Greece's accounting standards were developed through a fusion of principles established in the Greek General Accounting Plan, the Company Law 2190/1920, the Greek Tax Code, and the Greek Code of Books and Records (Karampinis and Hevas, 2011). This was the state of the accounting framework in Greece prior to the enactment of Law 4308/2014.

Dritsas (2018) provides an overview of the Greek accounting and auditing environment following the implementation of Law 4308/2014, highlighting the considerable changes in accounting and company law, as well as auditing. He views the Greek legal and regulatory framework for accounting and auditing as being composed of three primary pillars: accounting; auditing; and finally, company law.

According to Dritsas (2018), Law 4308/2014 regulates the accounting pillar, which is critical for maintaining accounting records and preparing statutory financial statements. The auditing pillar, as defined by Law 4449/2017, governs the operation of the auditing profession and lays the

[9] The Code of Books and Records was replaced in 2013 by Law 4093/2012-Code of Tax Reporting of Transactions.

groundwork for the independent statutory audit procedure. (Dritsas, 2018). Finally, as Dritsas (2018) argues, the key legal axes of the company law pillar are Laws 4548/2018[10], 4541/2018[11], and 4072/2012[12].

After a quick overview of the evolution of accounting, auditing, and company law in Greece from a legal standpoint, we will look at the factors that influenced the development of accounting in Greece, beginning with Europe's influence.

As stated on the official website of the Greek Ministry of Foreign Affairs (www.mfa.gr), Greece's European perspective clearly extends beyond the country's relationship with and subsequent entrance to the European Community/Union, as proven by the evolution of accounting over time.

According to Nobes (1998), one of the primary determinants of a country's financial reporting and accounting system is the so-called colonial inheritance. As Nobes (1998) notes, certain characteristics of particular countries, such as their small size, destitute economy, or colonial background, have rendered them extremely sensitive to exceptionally powerful external cultural influences that moulded their accounting environment.

Despite the fact that Greece was not colonized, it remained a small, impoverished state without a tradition of accounting or commercial law until 1821, when the Ottoman Empire was defeated, and the modern Greek State was established. Indeed, it was precisely the characteristics highlighted by Nobes (1998), such as Greece's underdeveloped state, lack of history in accounting and commercial law, that paved the way for the adoption of the Greek Commercial Code in 1835, which was a translation of the French Commercial Code, according to Ballas (1994).

As Ballas et al. (1998) observe, France exerted considerable influence in Greece, as the country adopted not only the French Commercial Code but also the French Plan Comptable as its new General Accounting Plan in 1980 (Ballas, 1994). Thus, even prior to Greece's 1981 accession to the European Community, it is clear that the European school of thought, particularly the French, had a significant influence on the development of Greek commercial and accounting law.

Greece, as Tsipouridou and Spathis (2014) note, is a continental European country with a diverse range of economic and sociopolitical characteristics. Apart from Europe's influence, these

[10] Law 4548/2018 is in effect from 1 January 2019 and has replaced the existing company Law 2190/1920.

[11] Law 4541/2018 amended Law 3190/1955 on Limited Liability Companies.

[12] Law 4072/2012 introduced a new company form (i.e., IKE) in the Greek corporate environment.

characteristics shaped Greek accounting, with the emphasis on tax legislation and the resulting high degree of alignment between tax and accounting laws serving as a major determinant.

For instance, Ballas (1994) asserts that the tax code is the most powerful law guiding the conduct of Greek businesses, as evidenced by the fact that the majority of corporations adhered to tax law regulations even when reporting to shareholders. Koumanakos et al. (2005) emphasize the close connection between accounting and taxation in Greece, claiming that Greek accounting regulation is particularly procedural in nature, owing primarily to the obligation to report to tax authorities. Karampinis and Hevas (2013) rank Greece as a country with a high level of book-tax conformity for two reasons: the primary role of financial statements in calculating taxable income; and Greek accountants' frequent practice of adhering to tax rules in accounting areas where Greek tax legislation and the Greek General Accounting Plan diverge, as a result of the imposition of harsh fines for non-compliance with orderly bookkeeping.

Stamatopoulos et al. (2017) identify the Greek tax system as a major impediment to entrepreneurship in Greece because of the compliance costs incurred by businesses as a result of the tax system's complexity. Tsalavoutas (2017) attributes Greece's extensive accounting regulation to the close relationship between taxation and accounting, as well as the fact that company and tax laws have not been comprehensively amended to reflect contemporary economic activity and business requirements.

Several other significant features of Greece that influenced the development of accounting include the bank's critical role in financing Greek enterprises (Robinson and Venieris, 1996; Tzovas, 2006); the small size of Greek companies and the simplicity of their organizational structures (Robinson and Venieris, 1996; Ballas et al., 1998); the involvement and authority of the government in accounting standard setting (Robinson and Venieris, 1996; Caramanis and Spathis, 2006; Dimitropoulos et al., 2013); the high concentration of ownership and the direct involvement of owners in corporate management (Robinson and Venieris, 1996; Ballas et al., 1998; Tsalavoutas and Evans, 2010); the influence of civil (Roman) law (Caramanis and Spathis, 2006; Tsalavoutas and Evans, 2010); as well as Greece's cultural proclivity for uncertainty avoidance (Robinson and Venieris, 1996) and the inadequate enforcement of accounting standards (Tsalavoutas and Evans, 2010).

To acquire a better understanding of the impact of Greece's country-specific characteristics on the development of accounting, two significant critical events in Greek accounting history will be analyzed. The first significant event occurred in 1980, with the adoption of the Greek General

Accounting Plan[13]. The Greek General Accounting Plan underwent a second edition in June 1987 to incorporate revisions made in response to the adoption of the 4th and 7th Accounting Directives. On January 1, 1991, pursuant to Law 1882/1990, the General Accounting Plan became mandatory for corporations audited by SOL members (Ballas, 1994).

What is most surprising is that the adoption of the Greek General Accounting Plan was motivated by political considerations rather than a desire to modernize Greek accounting. According to Ballas et al. (1998), the Greek General Accounting Plan garnered political attention as a result of Greece's impending accession to the European Union, despite the fact that it was not a required condition of membership. As a result, it is highly doubtful that the State would have demonstrated such resolve in setting the groundwork for an accounting plan had Greece not become an EU member. The modernization of accounting during that era appears to have been a State-led process, although for reasons unrelated to the overall improvement of accounting in Greece.

The second significant accounting event is Greece's adoption of IAS/IFRS following the publication of EU Regulation 1606/2002. Article 13 of Law 3229/2004 mandated the adoption of IFRS by all Greek publicly traded companies for periods beginning on or after 1 January 2005, as well as the optional adoption of IFRS by non-publicly traded companies (Tsalavoutas, 2017). Following the mandated adoption of IFRS by listed firms in Greece, the mandatory adoption of IFRS by public interest entities was enacted[14].

Ballas et al. (2010) assess the applicability of IFRS in emerging markets, with a particular emphasis on Greece. Despite the fact that Ballas et al. (2010) observe a favorable attitude toward IFRS among Greek accountants, they conclude that the Greek context is incompatible with IFRS for a variety of reasons, including Greece's cultural incompatibility with a financial reporting system that requires managers of reporting organizations to make multiple decisions.

Karampinis and Hevas (2011) examine the impact of Greece's mandatory IFRS adoption on all publicly traded enterprises between 2002 and 2007. They conclude that implementing IFRS had a negligible effect on the value relevance and conditional conservatism of accounting income in Greece, emphasizing the importance of concurrent infrastructure changes to achieve meaningful financial reporting improvements.

Thus, Ballas et al. (2010) and Karampinis and Hevas (2011) reach similar conclusions, not only regarding the considerable influence of Greece's unique characteristics on IFRS adoption, but

[13] Relevant Law 1041/1980 and Presidential Decree 1123/1980.
[14] Relevant Law 4308/2014, as amended by Law 4410/2016.

also regarding the necessary structural reforms that should be made to enhance IFRS effectiveness.

To gain a better understanding of the development of accounting in Greece, we enrich our analysis with Harrison and McKinnon's (1986) research. Harrison and McKinnon (1986) emphasize the critical role of interaction between corporate reporting regulation and neighboring political, legal, and business systems (what they refer to as trans-system activity) in the development of corporate reporting regulations and accounting policy at the country level.

Following Harrison and McKinnon's (1986) line of thinking, we consider a country's accounting and auditing systems as neighboring and interacting systems, and hence any action or change in one system would almost certainly affect the other. As a result, examining the evolution of auditing in Greece can shed light on the evolution of accounting in the country. While Greece enacted mandatory auditing legislation in 1931, the Greek audit services market arose in 1955 with the establishment of the state-controlled Body of Sworn-in Accountants (SOL) (Koumanakos et al., 2008).

Europe's influence is also visible in the subject of auditing. Caramanis (1997) states that the model for SOL's structure was devised by British chartered accountants sent to the British Economic Mission in Greece following World War II. During the early years of SOL's functioning, these British Chartered Accountants functioned as the Technical Council of Certified Accountants and the Greek government (Vrentzou and Daskalakis., 2012).

State interference is also evident in the development of auditing in Greece. Caramanis (1998) states that the Body of Sworn-in Accountants (SOL) was established as a state organization serving the public interest by conducting audits to verify compliance with corporate, tax, labor, and other laws. Additionally, Ballas (1998) argues that the State intended for auditors to be perceived as independent of the State by referring to them as civil functionaries, despite the fact that the State's ultimate objective was to control the audited entity through the auditors.

Greece liberalized the auditing profession in 1992, after nearly four decades of governmental involvement (Caramanis, 1997; Caramanis, 1998). Following SOL's dissolution and the deregulation of the audit market, the government established a new accounting agency, SOEL, to self-regulate the audit profession, while many former SOL employees founded a single large Greek audit firm, SOL S.A. (Caramanis and Lennox, 2008). Since 2005, the Greek audit company ecosystem has consisted of SOL S.A., the country's largest Greek audit company, four global audit firms (PwC, Deloitte Touche Tohmatsu, Ernst & Young, and KPMG), and 15 Greek and international second-tier audit firms (Tsipouridou and Spathis, 2012).

Apart from the state, other factors influencing the development of accounting in Greece appear to have been equally significant in the development of auditing. For example, Koumanakos et al. (2008) discuss the effect of socioeconomic factors on auditor independence and audit quality, in light of the fact that many Greek enterprises are held by a small number of shareholders who typically exercise extensive operational control. Also, Tsipouridou and Spathis (2012) highlight the shortcomings of Greece's compliance authority (i.e., the Committee on Accounting Standards and Auditing - ELTE) in terms of efficiently carrying out its duties and addressing concerns regarding audit quality and financial reporting reliability.

As a result, it is clear that the accounting system's primary determinants (e.g., State influence) not only interact but also have a significant impact on the Greek auditing system, corroborating Harrison and McKinnon's (1986) argument concerning trans-system activity.

Not only Greek scholars, but also international researchers, have emphasized the importance of country-specific factors in accounting evolution. Hofstede (1984)[15] as Robinson and Venieris (1996) indicate, laid the groundwork for the majority of cross-cultural accounting studies. According to Hofstede, each country has four value dimensions that reflect the facets of a shared cultural structure. These dimensions are as follows:

- *Individualism versus Collectivism* refers to the *"degree of interdependence a society maintains among individuals*" (Hofstede, 1984, p. 83). As Robinson and Venieris (1996, p. 122) mention, this dimension "*opposes "I, alone" societies to "We, together" societies*").
- *Large versus Small Power Distance* reflects *"how a society handles inequalities among people when they occur*" (Hofstede, 1984, p. 83). Hofstede asserts that this dimension has apparent implications for how individuals construct their institutions and organizations;
- *Strong versus Weak Uncertainty Avoidance* reflects *"the degree to which the members of a society feel uncomfortable with uncertainty and ambiguity that the future is unknown*" (Hofstede, 1984, p. 83). As Hofstede notes, Uncertainty Avoidance, like Power Distance, has ramifications for how individuals develop their institutions and organizations;
- *Masculinity versus Femininity*: *"Masculinity stands for a preference in society for achievement, heroism, assertiveness, and material success while Femininity, stands for a preference for relationships, modesty, caring for the weak, and the quality of life*" (Hofstede, 1984, p. 84).

Hofstede ranks fifty countries and three multi-country regions based on their scores on the four aforementioned dimensions. Greece's scores are presented in the Table 1.6:

[15] Hereafter, 'Hofstede' refers to Hofstede (1984), unless noted otherwise.

Table 1.6: Greece's scores regarding Hofstede's four dimensions

Dimension	Index Score	Rank	Range of Indexes
Individualism	35	22	6-91
Power Distance	60	26-27	11-104
Uncertainty Avoidance	112	50	8-112
Masculinity	57	32-33	5-95

Sources: Hofstede (1984, p. 85) & Robinson and Venieris (1996, p. 125)

Greece ranks towards the median in terms of power distance, individualism, and masculinity, but has the greatest level of uncertainty avoidance (Robinson and Venieris, 1996).

Greece's cultural scores in regard to accounting can be viewed in light of Gray's pioneering work (1988)[16], which sheds light on the relationship between cultural values and accounting. According to Gray, the accounting subculture's most essential societal values are uncertainty avoidance and individualism. Gray contends that, while power distance and masculinity are similarly significant in some ways, masculinity appears to play a lesser role in the system of accounting values.

Gray (1988, p. 8) distinguishes four major accounting values/dimensions as follows:

- *"Professionalism versus Statutory Control: a preference for the exercise of individual professional judgment and the maintenance of professional self-regulation as opposed to compliance with prescriptive legal requirements and statutory control*".
- *"Uniformity versus Flexibility: a preference for the enforcement of uniform accounting practices between companies and for the consistent use of such practices over time as opposed to flexibility in accordance with the perceived circumstances of individual companies*".
- *"Conservatism versus Optimism: a preference for a cautious approach to measurement so as to cope with the uncertainty of future events as opposed to a more optimistic, laissez-faire, risk-taking approach*".
- *"Secrecy versus Transparency: a preference for confidentiality and the restriction of disclosure of information about the business only to those who are closely involved with its management and financing as opposed to a more transparent, open, and publicly accountable approach*".

Gray's preference for professionalism above statutory control as a critical accounting aspect is based on the fact that accountants are seen to have autonomous attitudes and apply their professional judgements. Also, Uniformity versus Flexibility is an important accounting value

[16] Hereafter, 'Gray' refers to Gray (1988), unless noted otherwise.

dimension according to Gray, who states that uniformity, consistency, and comparability are core characteristics of accounting principles.

With regard to Conservatism versus Optimism, Gray points out that conservatism is viewed as a core characteristic of accountants around the world. Finally, Gray asserts that the significance of the Secrecy versus Transparency dimension is determined by the volume and quality of information disclosed.

Gray develops four hypotheses based on his analysis of the most relevant accounting dimensions, tying his accounting dimensions to Hofstede's country ratings per cultural value. Gray's four hypotheses are the following:

- "*H_1: The higher a country ranks in terms of individualism and the lower it ranks in terms of uncertainty avoidance and power distance then the more likely it is to rank highly in terms of professionalism*" (Gray, 1988, p. 9).
- "*H_2: The higher a country ranks in terms of uncertainty avoidance and power distance and the lower it ranks in terms of individualism then the more likely it is to rank highly in terms of uniformity*" (Gray, 1988, p. 10).
- "*H_3: The higher a country ranks in terms of uncertainty avoidance and the lower it ranks in terms of individualism and masculinity then the more likely it is to rank highly in terms of conservatism*" (Gray, 1988, p. 10).
- "*H_4: The higher a country ranks in terms of uncertainty avoidance and power distance and the lower it ranks in terms of individualism and masculinity then the more likely it is to rank highly in terms of secrecy*" (Gray, 1988, p. 11).

Robinson and Venieris (1996) are the first authors to apply Grays' research framework to Greece. Robinson and Venieris (1996) make a comparison of the Greek and Canadian accounting environments and base their conclusion on the differences between the two national systems as defined by Gray's hypotheses.

Moreover, Tsakumis (2007) applies Gray's cultural accounting theory to ascertain whether Greek accountants are more conservative and hesitant than their American counterparts when it comes to recognizing and disclosing contingent assets and liabilities under IAS 37. His findings indicate that while culture, particularly Secrecy, can influence accountants' disclosure decisions (as demonstrated by Greek accountants' reluctance to disclose contingent assets and liabilities in comparison to their American colleagues), accountants' conservatism in recognizing contingent assets and liabilities is not related to culture but to other institutional factors.

However, in Greece, Uniformity, Conservatism, and Secrecy dominate Flexibility, Optimism, and Transparency. In Greece's hyper-legalistic environment, uniformity of accounting practices is the norm rather than the exception. Conservatism is also dominant in Greece, as evidenced by the application of tax rules for financial reporting purposes in order to avoid the enforcement of severe penalties for tax infractions.

Similarly, in Greece which ranks highest in Hofstede's Uncertainty Avoidance Index, Statutory Control outweighs Professionalism in that accounting standards are developed by the state and accountants' efficiency is measured in terms of compliance with legal requirements rather than their professional judgment in complex accounting issues.

Secrecy in Greece may be explained by the fact that disclosure requirements are minimal, as the majority of Greek enterprises are family-owned, with the exception of listed corporations, which are subject to a distinct accounting and corporate governance regime. Additionally, Secrecy concerning corporate disclosures may be driven by a classic Greek behavioral tendency stating that the less information disclosed, the less information is available to outsiders, including tax authorities.

Apart from the obvious influence of cultural values on the development of accounting in Greece, there are additional factors that have been investigated by international researchers that contribute significantly to the understanding of the evolutionary process of accounting in Greece. One such study is Nobe's (1983)[17] seminal research.

Nobes categorizes the countries studied in his research as Macro-Based (e.g., France, Belgium, Spain, Germany, Japan, Sweden) or Micro-Based (e.g., Netherlands, UK, Ireland, Australia, New Zealand, Canada, USA, Canada) by assigning each country a score (from 0 to 3) in nine distinct factors. The greatest score in these factors results in a country being classified as Micro-based, and vice versa. Despite the fact that Nobes excludes developing countries (such as Greece) from his classification for a variety of reasons (e.g., small number of public companies), several of his nine distinct factors are prevalent in the Greek context.

Table 1.7 summarizes four of Nobe's distinct factors, together with their corresponding scoring ranges, that aid in comprehending Greece's accounting environment. If Greece was included in Nobe's research, it would almost certainly be categorized as a Macro-based country and given a zero in LAW, TAX, CONSERVATISM, and UNIFORMITY, owing to the Greek accounting environment's hyper-legalistic, tax-based, and conservative accounting environment.

[17] Hereafter, 'Nobes' refers to Nobes (1983), unless noted otherwise.

Table 1.7: Nobe's Factors and scoring range

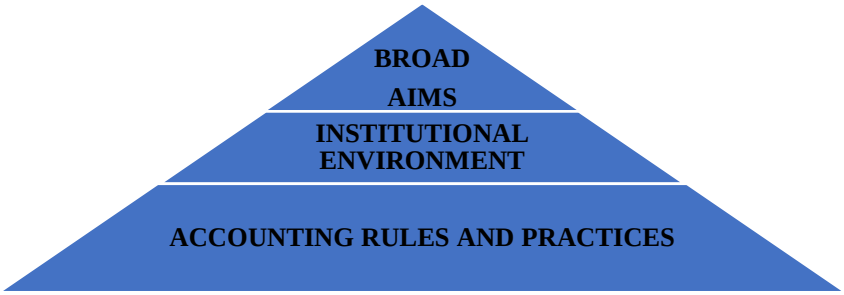
Nobe's Factor (No)	Abbreviation	Factor Name	Scoring Range			
			0	1	2	3
2	LAW	Degree to which law or standards prescribe in detail and exclude judgement	Detailed prescription			Lack of prescriptions, much room for judgement
3	TAX	Importance of tax rules in measurement	Nearly all figures determined			No figures determined
4	PRU	Conservatism/prudence	Heavy conservatism			Dominance of accruals
9	UNI	Uniformity between companies in application of rules	Compulsory accounting Plan			No standardized format, rules or defmitions

Source: Nobes (1983, p. 8-9)

Thus, even if Nobes excluded developing countries and unlisted companies from his research, his factors and country classification remain vital to understanding the evolution of accounting in Greece.

Craig and Diga's (1999)[18] research is another significant study that sheds light on the evolution of accounting in Greece. Craig and Diga provide an alternative framework for describing national financial accounting systems, based on an archetype of the following three layers: broad aims relating to the national accounting system's macro- or micro-user orientation; institutional environment; and accounting rules and practices. The archetype developed by Craig and Diga is presented below:

Figure 1.1: Craig and Diga's archetype



Source: Craig and Diga (1999, p. 67)

[18] Hereafter, 'Craig and Diga' refers to Craig and Diga (1999), unless noted otherwise.

Craig and Diga make mention to several major characteristics of Greece as a Macro-based country throughout their analysis of each layer. Taxation and national economic planning are two essential components of Craig and Diga's 1st layer (together with capital markets) that define the national accounting system's objectives. Craig and Diga observe that in Macro-based countries, tax laws are frequently analogous to financial reporting regulations, and hence, changes in tax laws have a significant impact on accounting.

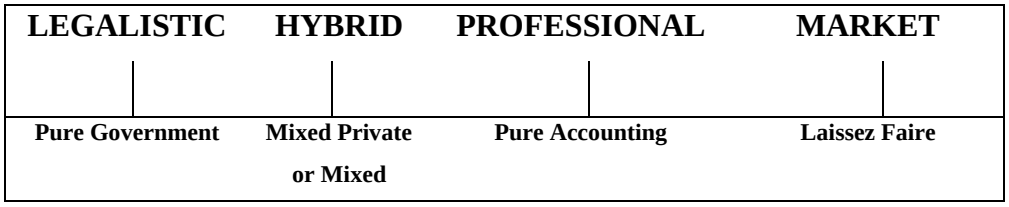
Craig and Diga's observation about taxation's influence on Macro-based countries is similar to Eberhartinger's (1999) assertion that in countries such as France, Belgium, Germany, Spain, Sweden (i.e., that belong in Nobe's Macro-based category), there is a somewhat close interconnection between tax laws and financial reporting.

Furthermore, the relationship between national economic planning and accounting is manifested in Macro-user-oriented accounting systems, as Craig and Diga argue, through the establishment of a regularized national accounting plan, as accounting is viewed as a tool for economic planning.

Thus, we notice that Greece's Macro-user orientation is mirrored in both the taxation and national economic planning components of Craig and Diga's 1st layer, which are distinctively Greek features.

In their 2nd layer of institutional environment, Craig and Diga emphasize the existence of four distinct approaches to accounting regulation, as follows::

Figure 1.2: Craig and Diga's four approaches to accounting regulation



Source: Craig and Diga (1999, p. 71)

Craig and Diga classify Greece as one of the majority of countries that take a formal and completely governmental approach to standard setting, a characteristic of Macro-user orientation, with all accounting laws developed by a government body with little or no participation from the private sector. Another essential component of Craig and Diga's 2nd layer, and one that reflects Greece's Macro-user perspective, is the government's role in enforcing accounting standards through various governmental bodies. As a result of the above, Greece

exemplifies Craig and Diga's crucial 2nd layer governmental involvement in accounting standard setting and enforcement, which further solidifies Greece's Macro user orientation.

Craig and Diga's 3rd layer addresses two fundamental accounting principles, namely disclosure and measurement. Again, evidence of Greece's Macro-user orientation is present in this layer. Concerning disclosures, Craig and Diga assert that in Macro-user-oriented systems, not only does homogeneity prevail, but also the demand for disclosures is reduced due to less developed financial markets. Craig and Diga's assertion can be verified by reviewing the relevant provisions of the earlier Company Law 2190/1920[19], which established a uniform approach to disclosures. Concerning the measuring element of the 3rd layer, Craig and Diga assert that in Macro-user oriented systems, uniformity, conservatism, and taxation prevail.

In light of the foregoing, when the parts of the puzzle referred to as the development of accounting in Greece are connected, suddenly everything makes sense. Indeed, claiming that the Greek environment is a mosaic of diverse factors that have obstructed the progress of accounting is not hyperbolic.

Greece's distinctive characteristics, including "*bank orientation, code-law tradition, strong book-tax conformity, concentrated corporate ownership, poor monitoring mechanisms, and weak legal enforcement*" (Karampinis and Hevas, 2011, p. 329), as well as the State's heavy interference, have had a significant impact on and slowed the pace of Greece's accounting evolution.

Additionally, the role of culture, particularly Greece's preference for Uncertainty Avoidance, cannot be underestimated. Ballas et al. (2010) cite Greece's specific cultural milieu as a significant hurdle to the application of IFRS that are principles-based rather than rule-based. La Porta et al. (1998) add another dimension to the Greek case: countries with highly concentrated ownership and underdeveloped capital markets have no need for robust and comprehensive accounting standards and so do not seek to develop them..

Craig and Diga (1999, p. 66) state that accounting system classification is influenced by "*a dynamic set of historic and ethnocentric variables that are often very difficult to isolate*". These difficult-to-isolate historic and ethnocentric factors also had a significant impact on Greece's accounting system. This would be the case with the impact of tax rules on Greece's newly established accounting framework (i.e., Greek Accounting Standards). For example, under Article 5.1.2 of the Accounting Circular of the Law, an entity's accounting system is regarded

[19] e.g., Article 42a par.3, Article 42b par.1, 2, 3, 4 and 5.

reliable and credible if it supports the fair presentation of financial statements and the fulfillment of tax obligations.

Although it is hoped that Law 4308/2014 Greek Accounting Standards would serve as a battering ram to bring down the walls of outdated accounting principles, it is practically likely that these walls of the past are built on solid foundations and will not be simply toppled.

1.5. An Overview of the Greek Accounting Standards (GAS)

Greece's harmonization process with internationally accepted accounting standards is marked by two key events. The first key event occurred in 2004, with the enactment of Law 3229/2004, which mandated the adoption of IFRS for all publicly traded companies and parent companies that prepare consolidated financial accounts. This Law incorporated into Greek law the provisions of Regulation (EC) No 1606/2002 of the European Parliament and of the Council of 19 July 2002.

The second critical event occurred in November 2014, with the enactment of Law 4308/2014 "Greek Accounting Standards". This Law not only implemented the accounting provisions of the new European Accounting Directive (i.e., European Parliament and Council Directive 2013/34/EU), but also fundamentally altered Greece's accounting framework.

The enactment of Law 4308/2014, which takes effect on January 1, 2015, is an effort to update Greece's current accounting regime. Law 4308/2014 simplifies bookkeeping requirements and incorporates IFRS-inspired principles. Additionally, by repealing previous accounting and bookkeeping rules contained in multiple laws[20], the new accounting Law aims to establish itself as the primary source of reference for the preparation and presentation of financial statements, the keeping of books and records, and invoicing.

This section will summarize the Law's major points. The accounting methods and measurement rules introduced by Law 4308/2014 will be reviewed in order to simplify comparison to IFRS. Table 1.8 summarizes the main provisions of Law 4308/2014, excluding the rules governing the issuing of invoices and retail receipts.

Table 1.8: Main points of Law 4308/2014

1. CATEGORIZATION OF ENTITIES
All entities subject to the Law are categorized according to the 2013/34/EU Directive's size criteria (i.e., Balance Sheet Total, Net Turnover, and Average Number of Employees during the financial year), while the general determining rule for an entity's size (i.e., not exceeding the limits of at least two of the three criteria on the Balance Sheet date for two consecutive accounting periods) is exactly equivalent to the 2013/34/EU Directive's provision.

[20] e.g., The Code of Tax Reporting of Transactions, provisions of corporate laws 2190/1920, 3190/1955 and 4072/2012 regarding financial statements, valuation rules and consolidation prerequisites etc.

Table 1.8: Main points of Law 4308/2014 (continued)

1. CATEGORIZATION OF ENTITIES *(continued)*
Micro and Small entities are also categorized according to their legal form and net turnover (for example, limited partnerships, general partnerships, and sole proprietorships all fall into the Micro and Small entity category, depending on whether their net turnover exceeds or equals €1.500.000).
Law 4308/2014 takes a bottom-up approach (i.e., the smaller the entity, the simpler the laws) by associating the preparation of specific financial statements and the application of specific accounting rules with the size of the entity.
2. ENTITIES APPLYING IFRS
On management's choice, full IFRS may be adopted in lieu of the new Greek Accounting Standards. Specific types of entities are required to apply the full version of IFRS (e.g., Public interest entities like insurance companies and credit institutions, financial holding companies). If IFRS are implemented on an optional basis, they must be applied consistently. for at least five consecutive fiscal years.
3. ACCOUNTING RECORDS
To ensure compliance with tax regulations, the accounting system must monitor both the accounting and tax bases for expenses, revenues, assets, liabilities, and equity items.
The Law establishes a new Chart of Accounts, which entities may develop further by making the required revisions and additions to suit the Law's criteria and their information needs. Additionally, entities may continue to use the chart of accounts in effect on 31.12.2014.
The choice between double-entry or single-entry bookkeeping for accounting records is determined by whether or not an entity is required to prepare a Balance Sheet. Very small (or micro) companies that meet specific criteria may draw only a P&L account and use a single-entry bookkeeping system.
4. FINANCIAL STATEMENTS
The Law contains specific formats of individual & consolidated financial statements (Balance Sheet-Income Statement-Statement of Changes in Equity-Cash Flow Statement).
The minimum required set of financial statements is determined by the size of the company (e.g., large entities are obliged to draw up a Balance Sheet, a P&L account, a Statement of Changes in Equity, a Cash Flow Statement & Notes to the financial statements)
5. FINANCIAL STATEMENTS' PRINCIPLES
Financial statements must portray an entity's true and fair view in terms of assets, liabilities, financial position, and profit or loss.
Financial statements are prepared on an accrual basis and the going concern assumption.
Accounting policies shall be consistently applied.
All Balance sheet and P & L account Items shall be separately recognized and measured on a prudent basis.
Set-offs between assets and liabilities, or between income items and expenses, are not permitted.
Contingent assets and liabilities are not to be included in financial statements.
Compliance with the Law's requirements on recognition, measurement, presentation, disclosure, and consolidation may be waived only when the consequence of noncompliance is insignificant.
Financial statement items must be properly accounted for and presented in accordance with the substance of the reported transaction (substance over form principle)

Table 1.8: Main points of Law 4308/2014 (continued)

5. FINANCIAL STATEMENTS' PRINCIPLES *(continued)*
Entities may seek guidance from International Financial Reporting Standards (IFRS) as long as the IFRS regulations ensure compliance the provisions of the Law.
If the application of a provision of the Law is incompatible with the true & fair presentation in exceptional circumstances (i.e., uncommon transactions or unusual events), a deviation from that provision of the Law is permissible to accomplish the true & fair presentation.
6. EXEMPTIONS & SIMPLIFICATIONS
The Law offers various exemptions and simplifications for Micro companies that are consistent with the spirit of the new EU Accounting Directive - Exemptions and simplifications for Small and Medium-sized entities only apply to disclosures made in the Notes to the financial statements.

The overview of Law 4308/2014 in Table 1.8 demonstrates that Greek Accounting Standards completely encompass the framework of the new EU Accounting Directive (e.g., going concern assumption, consistency in the appliance of accounting policies, prudence in the recognition and measurement procedure, the use of accrual basis, the substance over form principle, materiality etc.).

Additionally, Greek Accounting Standards strive for harmonization with international accounting principles and practices. This conclusion is bolstered further by the fact that the Law provides that entities may seek guidance from the International Financial Reporting Standards (IFRS) if the IFRS standards are in conformity with the Law.

Law 4308/2014 has resulted in major reforms to a variety of accounting areas, including measurement rules and recognition criteria, which are at the core of the current Chapter's research objective. To that aim, and to illustrate the relationship between Greek Accounting Standards and IFRS, Appendix A contains the measurement rules contained in Articles 18–28 of the Law.

Appendix A's examination of measurement rules provides valuable insights on the comparison of Greek Accounting Standards to IFRS, as the terminology and accounting treatments of the two frameworks are frequently identical. For example, ending inventory valuation is carried out in the same way as specified in IFRS (i.e., FIFO & weighted average), whereas initial recognition of intangible assets and subsequent measurement of tangible assets are identical to the IFRS relevant provisions.

Thus, the presentation of the Law's key points concerning measurement rules serves to communicate not only some of the significant accounting innovations included in the Greek Accounting Standards, but also to support the methodological approach described in Section 1.7.

1.6. Literature Review

1.6.1. Accounting Harmonization

Given that the purpose of this Chapter is the examination of similarities and differences between the Greek Accounting Standards and IAS/IFRS, an assessment of the term "accounting harmonization" is necessary. Frequently, terms such as convergence, standardization, and uniformity are used to refer to international efforts to ensure the comparability of accounting figures based on generally accepted accounting standards.

Prior literature has extensively researched and investigated the issue of accounting harmonization. Van Der Tas (1988, 1992) and Tay and Parker (1990) are two of the most influential researchers in this topic.

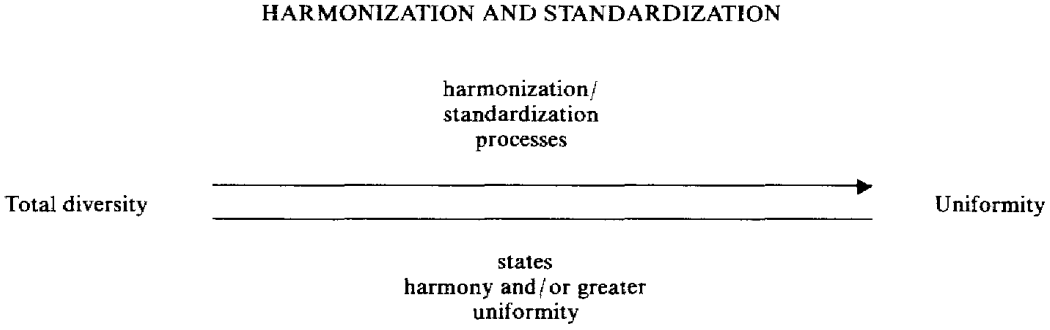
According to Van Der Tas (1988, 1992)[21], accounting harmonization's primary objective is to harmonize accounting standards and financial reports. Van Der Tas refers to harmonization of financial reports as material harmonization, while accounting standard harmonization is referred to as formal harmonization. While formal harmonization, according to Van Der Tas, is a necessary precondition for material harmonization, he claims that it may result in disharmony as a country's accounting alternatives proliferate.

Van Der Tas also highlights an essential distinction in terms of accounting harmonization between measurement and disclosure issues, owing to the different nature of measurement and disclosure procedures. Van Der Tas regards material measurement harmonization, which occurs when several companies operating in comparable conditions use the same accounting method to account for an event, as fundamental because it enhances the comparability of financial statements. As a result, it is clear that Van Der Tas believes that the more companies that use the same accounting method, the greater the degree of material measurement harmonization.

Tay and Parker's (1990)[22] contribution to the disambiguation of accounting harmonization is threefold. Their first contribution is the clarification of the terms harmonization, standardization, harmony and uniformity, with harmonization and standardization classified as processes that result in states of harmony and uniformity, respectively. Thus, Tay and Parker define accounting harmony, which is achieved through harmonization, as any point between total diversity and uniformity (as depicted in the accompanying diagram):

[21] Hereafter, 'Van Der Tas' refers to Van Der Tas (1988, 1992), unless noted otherwise.
[22] Hereafter, 'Tay and Parker' refers to Tay and Parker (1990), unless noted otherwise.

Figure 1.3: Tay and Parker's accounting harmonization diagram



Source: Tay and Parker (1990, p. 73)

The second contribution of Tay and Parker is their implication that harmony and uniformity are associated with less stringent or more stringent rules, respectively. In this way, they provide for another aspect of accounting harmonization. Under this prism, the objective of accounting harmonization is comparability, not uniformity, of financial data.

Tay and Parker's third contribution expands on their observation about the two-dimensional nature of processes (i.e., harmonization-standardization), and states (i.e., harmony-uniformity), which can be de jure or de facto. For example, when examining the harmonization of regulations, a de jure harmonization analysis is conducted; when examining the harmonization of practices, a de facto harmonization analysis is performed.

Apart from the aforementioned definitions of accounting harmonization, numerous other eminent researchers have examined various aspects of harmonization. Harmonization is defined by Doupnik and Salter (1993) and Hoarau (1995) as the process of decreasing variations in accounting practices between countries, with Hoarau (1995) adding a political dimension to the process.

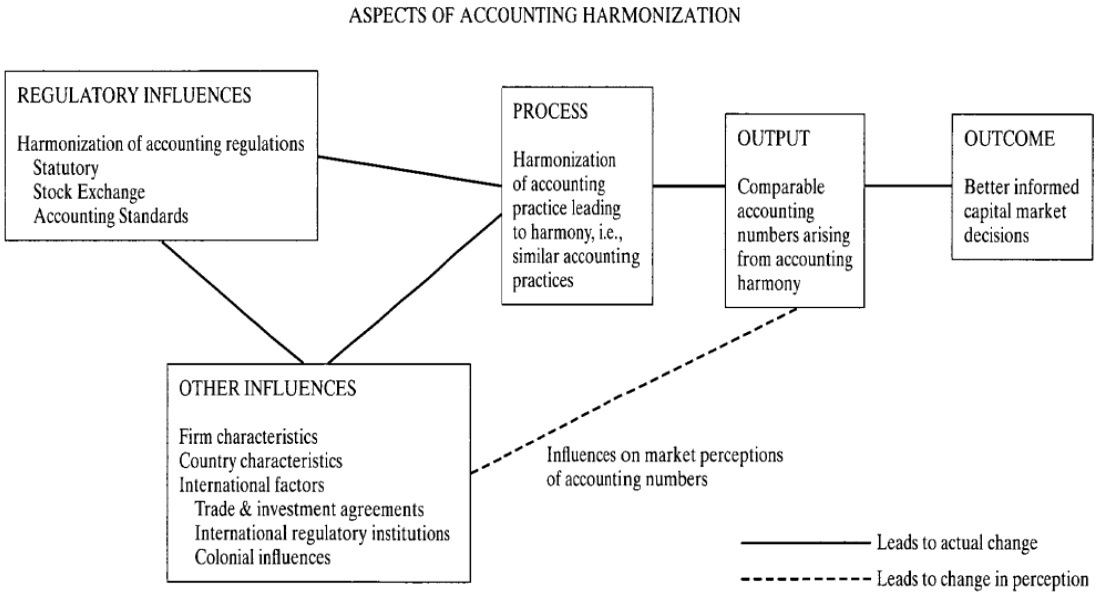
International harmony exists, as Archer et al. (1996) argue, when the probability of selecting a particular accounting method is identical in each country, all other factors being equal. Emenyonu and Gray (1996), as well as Emenyonu and Adhikari (1998), adhere to Tay and Parker's harmonization concept (a process aimed at increasing the integration of two or more subjects by minimizing their differences) and associated indicators (a decrease in international accounting divergence is an indication of increased harmony).

Van Der Tas' influence is also visible in Rahman et al. (1996) and et al. (2005), who adopt his views on the role of formal harmonization in achieving material harmonization and the distinction between formal and material accounting harmonization, respectively.

McLeay et al. (1999) make an extremely useful distinction between standardization and harmonization by asserting that the desired state should be one in which firms worldwide can use internationally recognized accounting methods that are appropriate for their circumstances, rather than uniform accounting practices. Murphy (2000) asserts that as the degree of application of a particular accounting method increases, the state of harmony increases proportionately, indicating that harmonization has occurred. Chen et al. (2002) define accounting harmonization, following Tay and Parker, as the harmonization of accounting standards and accounting practices.

Rahman et al.'s (2002) research is another significant study on accounting harmonization. Rahman et al. (2002) identify four critical aspects of accounting harmonization, which they illustrate in the figure below:

Figure 1.4: Rahman et al.'s four aspects of accounting harmonization



Source: Rahman et al. (2002, p. 49)

Rahman et al. (2002) define accounting harmonization as a four-stage process that begins with the influence aspect (i.e. the factors that influence accounting harmonization, such as accounting standards and firm characteristics), progresses to the process aspect through the elimination of disparities between the accounting practices of two or more countries, and culminates with the output aspect (i.e. the practical consequences of accounting harmonization) and the outcome aspect (i.e., more efficient capital market decisions).

Tsakumis (2007) discusses an additional intriguing facet of accounting harmonization. Given that financial statement comparability across countries is a primary goal of harmonization, one might assume that the existence of a common set of financial reporting standards across countries would suffice to achieve the goal of comparability. Tsakumis (2007) views a common set of financial reporting standards across countries as a necessary but insufficient condition for achieving international comparability, placing a premium on coherent interpretation and application of accounting standards across countries.

Apart from defining and addressing the various aspects of accounting harmonization, another critical issue that has piqued the interest of researchers is the evolution of accounting harmonization over time.

According to Garrido et al. (2002), as financial globalization has accelerated, the demand for a unified set of international accounting standards has grown. Thus, globalization and international accounting harmonization have created a demand for high-quality international accounting standards.

International Financial Reporting Standards (IFRS) and EU Directives are the two primary vehicles for international accounting harmonization, respectively developed by the International Accounting Standards Board (IASB, formerly International Accounting Standards Committee/IASC) and the European Union.

With its primary objective of establishing a unified economic market, the European Union has emerged as a model for regional EU-level accounting harmonization, while the International Accounting Standards Committee (IASC) has emerged as the world's most prominent global accounting organization (Emenyonu and Adhikari, 1998). Apart from the IASB and the EU, the Financial Accounting Standards Board (FASB) is another significant standard-setting organization charged with the development of US accounting standards (US GAAP).

While economic globalization necessitated the development of internationally accepted accounting standards, it was the globalization of capital markets that sparked the birth of IAS/IFRS. As Tweedie[23] and Seidenstein (2005) note, the globalization of stock markets has emphasized not only the importance of developing a single set of internationally accepted accounting standards, but also increased the likelihood that these standards would also serve as the foundation for modern capital markets.

According to Hoarau (1995), it was primarily accountants, international capital markets, and financial markets regulatory bodies that pushed for the quick achievement of accounting

[23] Sir David Tweedie is the former Chairman of the IASB (2001-2011).

harmonization. Similarly, the International Organization of Securities Commissions (IOSCO) has argued that the only way to achieve internationally acceptable standards is through the use of International Accounting Standards (Biener, cited in Schuetze, 1994). Thus, it is clear that IFRS/IAS were developed primarily to address the capital markets' need for a common set of accounting standards.

The primary prerequisite for establishing a unified European market was accounting harmonization, which ensured that financial information could flow freely (Canibano and Mora, 2000). The European Community's accounting harmonization strategy aimed to ensure that companies operating within the Community prepared their financial statements under a consistent and harmonized manner (Walton, 1992).

While the EU has undoubtedly made strides toward accounting law harmonization, Canibano and Mora (2000) assert that the Directives' prerequisites were insufficient to achieve the desired level of comparability of financial statements. Furthermore, as Biener (cited in Schuetze, 1994) notes, the numerous options included in EU Accounting Directives resulted in the preparation of financial statements from multinational corporations that were not fully comparable..

The European Commission's paper "Accounting Harmonization: A New Strategy in Relation to International Harmonization" (European Commission, 1995), which Cairns (1997) deems to be among the most significant documents on accounting harmonization in recent years, clearly demonstrated the need to take a different path in terms of EU harmonization efforts.

The European Commission stated explicitly in this report that in order to overcome the impediment of multinational EU companies' financial statements being prepared in accordance with EU Directives but being unsuitable for use in international capital markets, further investigation of the compatibility of IAS with EU Directives was necessary, and upon confirmation of the two frameworks' compatibility, Member States should permit major enterprises to prepare their financial statements using IAS. These developments culminated in the adoption of the well-known Regulation 1606/2002 of the European Parliament and Council on 19 July 2002, which required EU-listed companies to prepare consolidated financial statements in accordance with IAS/IFRS beginning on or after 1 January 2005.

In the United States, while the SEC was initially charged with issuing accounting standards, it delegated this responsibility to the FASB (Palmon et al., 2011) which is a private sector body that develops US GAAP (Komai and Richardson, 2011). Palmon et al. (2011) provide some remarkably insightful perspectives on the SEC's close relationship with the FASB, noting that the SEC not only participated actively in the standard-setting process and exerted significant

pressure on the FASB, but also that the SEC may have delegated its standard-setting authority to the FASB in order to avoid charges of being subservient to private interests.

The FASB has been an outspoken advocate for the development and adoption of a single set of high-quality international accounting standards, due to its numerous benefits, and has collaborated on projects with a variety of standard setters worldwide. (Herz and Petrone, 2005).

One of the FASB's most significant global harmonization efforts occurred in October 2002, when it signed a Memorandum of Understanding (dubbed the Norwalk Agreement) with the IASB, committing the two most prominent global accounting bodies to the ultimate goal of bringing US GAAP and IAS into conformity (Herz and Petrone, 2005). The Norwalk Agreement established the FASB's commitment to reconcile US GAAP and IAS and outlined its declared goal (Komai and Richardson, 2011).

Tweedie and Seidenstein (2005) note that both the FASB and the IASB have been engaged in numerous individual projects aimed at bridging the gap between US GAAP and IAS/IFRS since the Norwalk Agreement was announced, including IASB's Improvements Program[24], and FASB's adjustment of US GAAP (e.g., share-based payments) to conform to IFRS.

Apart from the joint initiatives of the FASB and IASB, the Norwalk Agreement received ongoing support from the SEC, as evidenced by its 2007 decision to allow non-US firms that use IFRS to file financial statements without a reconciliation to US GAAP, thereby recognizing that IAS/IFRS adequately addressed the information needs of US investors (Tweedie and Seidenstein, 2005; Carmona and Trombetta, 2010; Barth et al., 2012).

The G20 leaders' 2009 declaration of intent to converge accounting standards across member states by 2011, as well as their 2012 and 2013 reaffirmation of their commitment to achieving accounting convergence, emphasize the critical nature of the FASB-IASB joint effort[25].

Thus, a distinct trend toward global accounting convergence is evident, as the Norwalk Agreement's stated objective was convergence, not harmonization, of IAS and US GAAP, the two leading global competitors among financial reporting regimes, according to Leuz (2003).

The evolution of accounting harmonization over time, as detailed above, leads to several valuable insights. To begin, it appears as though worldwide accounting harmonization initiatives are being pushed by capital markets and are primarily focused on harmonizing accounting standards for publicly traded companies in order to improve the comparability of their financial

[24] Tweedie and Seidenstein (2005) address the replacement of IAS 35 with IFRS 5, Non-Current Assets Held for Sale and Discontinued Operations, which converges with certain provisions of SFAS 144, Accounting for the Impairment or Disposal of Long-Lived Assets.

[25] https://www.iasplus.com/en/projects/completed/other/iasb-fasb-convergence

statements. This is demonstrated, for example, in the Overview section of the GAAP 2001[26] publication, where it is stated unequivocally that harmonization of accounting standards is necessary to address the modern needs of global capital markets.

Second, the term "harmonization" is distinct from "convergence" when it comes to accounting standards. Convergence is a concept that refers to the efforts of the two primary standard-setting bodies to create a single worldwide accounting framework. As a result, the FASB and IASB made no attempt to harmonize US GAAP with IFRS (or vice versa). Rather than that, they sought to overcome their disagreements in order to establish a single set of standards that will be used by publicly traded corporations worldwide. Thus, the term "harmonization" refers to efforts to bring national accounting rules into conformity with widely accepted accounting standards, primarily IFRS.

Thirdly, Hoarau (1995) is right in asserting that international harmonization is a political process. The FASB-IASB convergence project, or the SEC's approval that non-US publicly traded companies were not required to reconcile their IFRS financial statements with US GAAP, very probably arose as a result of intense political tension. Whittington (2008), for example, refers to the never-ending disputes between standard setters in the 1970s over how to tackle the inflation accounting problem in a way that benefited both stakeholders and financial statement preparers.

Another source of political conflict surrounding accounting is the SEC's refusal to exclude European companies from US GAAP. Despite the European Commission's efforts in the 1990s to convince the SEC to accept European financial statements prepared in accordance with European Accounting Directives, the SEC was strongly opposed, as the SEC was the only supervisory authority in the world to act in this manner, imposing significant burdens on European companies (Schuetze, 1994, cited in Cairns, 1997; Flower, 1997; Biener, 1994, cited in Schuetze, 1994; Cairns, 1994, cited in Schuetze, 1994).

Additionally, Ball's (2006) reference to the development of IAS 39 demonstrates the tensions inherent in the accounting standard-setting process and the economic and political pressures that drive accounting harmonization.

Fourth, Hoarau's (1995) remark that the IASC (now IASB) is the most prominent standard-setting body despite its lack of authority to make its standards mandatory contains more than a grain of truth. The fact that IFRS are applied in 166 countries globally, including fifteen G20

[26] As Street (2002) notes, the GAAP 2001 report is based on responses from partners at seven of the world's largest accounting firms located in 62 countries assessing their countries' written accounting regulations and how they relate to IAS on 80 accounting measures.

member states[27] suffices as evidence. IASB's dominant position is also pointed out by Ball (2006, p. 9), who notes that "*IASB's efforts in promoting IFRS at a political level, have paid off handsomely in terms ranging from endorsement to mandatory adoption*".

Finally, despite the fact that the majority of businesses worldwide are small and medium-sized, attempts to harmonize their accounting practices internationally are not as vigorous as they are for publicly traded corporations. This argument is reinforced by Cairns (1997), who notes that in Europe's pre-IFRS accounting harmonization strategy, the costs of compliance with the European Accounting Directives faced by small and medium-sized enterprises were not addressed.

Different accounting bodies or countries have taken different approaches in terms of developing a specific accounting framework for small and medium-sized businesses. In the European Union, the new EU Accounting Directive includes a number of financial reporting exemptions and a simplified accounting regime reserved for micro entities. In the United States, the American Institute of Certified Public Accountants (AICPA) issued the Financial Reporting Framework (FRF) for Small and Medium-Sized Enterprises (SMEs) in June 2013, which is applicable to private companies that are not obliged to follow US GAAP[28].

The IASB led the sole international effort to harmonize accounting standards for small and medium-sized enterprises (SMEs) on 9 July 2009, when it published the IFRS for SMEs, the first set of international accounting standards designed specifically for small and medium-sized enterprises (SMEs)[29], particularly those that (a) lack public accountability and (b) prepare general purpose financial statements for external users[30].

The European Commission refuted the possibility of adopting IFRS for SMEs at the EU level, stating that IFRS for SMEs would not adequately serve the objectives of simplicity and administrative burden reduction[31]. The IFRS for SMEs is neither obligatory nor allowed in the United States, but it is also not forbidden[32]. Thus, in contrast to European SMEs that must adhere to the EU Accounting Directives' accounting framework, US SMEs may employ a variety of rules and principles, including tax laws, cash and statutory accounting, IFRS and various combinations of the foregoing (Lisowsky and Minnis, 2020).

[27] https://www.ifrs.org/use-around-the-world/use-of-ifrs-standards-by-jurisdiction/#analysis
[28] https://www.aicpa.org/interestareas/frc/accountingfinancialreporting/pcfr/frf-smes-faq.html
[29] https://www.iasplus.com/en/standards/other/ifrs-for-smes
[30] https://www.ifrs.org/projects/2009/ifrs-for-smes-standard/
[31] https://ec.europa.eu/commission/presscorner/detail/de/MEMO_13_540
[32]https://www.ifrs.org/use-around-the-world/use-of-ifrs-standards-by-jurisdiction/view-jurisdiction/united-states/

To summarize, international accounting harmonization is a two-tiered process affecting both public and private businesses. Significant efforts have been made at the EU and international level to harmonize accounting by implementing IFRS in order to improve the comparability of publicly traded companies' financial statements. On the contrary, despite their economic importance on a global scale, SMEs' accounting harmonization is advancing slowly.

1.6.2. Accounting Harmonization in Europe & EU Directives

Harmonization of accounting systems was an essential requirement for the establishment of a single European market (Thorell and Whittington 1994) and was formally established across all Community Member States by Article 54, paragraph 3g, of the Treaty Establishing the European Community (Haller, 2002).

Harmonization of accounting standards in the European Union has been conducted through Directives, which are formal documents addressed to Member States and requiring them to transpose the Directives' accounting provisions into national law within a given time period (Van Hulle, 1992; Van Hulle, 1993; Canibano and Mora, 2002).

According to the European Commission's Interpretative Communication on Certain Articles of the 4th and 7th Council Directives on Accounting (98/C16/04), the 4th and 7th Council Directives on Accounting were critical enablers of accounting harmonization in the European Union, with the 4th Directive aiming to regulate company accounting standards and the 7th Directive defining the requirements for consolidated accounts (Haller, 2002).

Van Hulle (1992) describes in detail the process of accounting harmonization in the European Union via Accounting Directives. Among the main characteristics of the EU Accounting harmonization process, according to Van Hulle (1992, pp. 165-166) are the following:

- *"Equivalence and comparability (a number of important options for Member States and/or for companies are contained in the European Accounting Directives)*".
- "*Accounting standards are part of the law (national accounting rules must be interpreted in the light of the Directive upon which they are based)*".
- "*Accounting standards are not set by the accounting profession*".

The characteristics mentioned by Van Hulle (1992) are also reflected in the new EU Accounting Directive. Therefore, the European Union's accounting harmonization process has retained key traits over the years.

Apart from common traits, the EU accounting harmonization process shares common principles. The true and fair view concept and the prudence principle are two of these fundamental

principles that existed in both the 4th and 7th Accounting Directives and are incorporated in the new European Accounting Directive as well.

The true and fair view concept was first included in Article 2 of the 4th Accounting Directive. Additionally, the true and fair view was incorporated into Article 16 of the 7th Accounting Directive. As required by both Directives, annual accounts must present a true and fair view of the company's assets, liabilities, financial position, and profit or loss.

Additionally, both Directives require that additional information be disclosed in instances where the application of their provisions would not suffice to provide a true and fair view. Besides that, the Directives state that any of their provisions that conflict with the requirement to present a true and fair view may be disregarded, subject to the obligation to make adequate disclosures in the notes to the accounts of the reason for the deviation and its impact on the company's financial statements. The departure from the true and fair view is referred to as the true and fair view override.

The overriding character of the obligation for a true and fair view is applied differently in the 7th Accounting Directive than in the 4th Accounting Directive. Specifically, as Van Hulle (1993) notes, the overriding nature of the true and fair view requirement has a limited application under the 7th Directive in terms of the consolidation's scope, most notably concerning the exclusion of a subsidiary with dissimilar activities[33] and immaterial subsidiaries[34].

The concept of true and fair view is also incorporated into the new European Accounting Directive, which applies to both individual (Article 4) and consolidated accounts (Article 24). Deviation from the Directive's provisions is permitted in order to achieve a true and fair view upon certain disclosure requirements (Article 4 of the new European Accounting Directive). Cook (1997) gives a wealth of information about the true and fair view concept and the overriding provisions, both of which are incorporated into EU Accounting Directives, and emphasizes the need of viewing both concepts concurrently, as they supplement one another.

Although the true and fair view concept originated in the United Kingdom's 1948 Companies Act and its inclusion in the European Accounting Directives served the political goal of limiting German influence on European accounting laws, it raised significant concerns, particularly in Member States with a civil law tradition (e.g., Germany), due to the difficulty of incorporating the overriding concept of a true and fair view into their accounting systems (Van Hulle, 1997; Evans, 2003).

[33] Article 14(1) of the 7th Council Directive.
[34] Article 13(1) of the 7th Council Directive.

The accounting literature has extensively investigated the meaning of true and fair view, not only in regard to accounting standards, but also in respect to the EU Accounting Directives. The purpose of preparing financial statements in accordance with the true and fair view is to provide reliable information about the events that affect a firm's inherent value and true economic situation, as well as to reflect significant economic events (Cook, 1997; Ekholm and Troberg, 1998, as cited in Soderstrom and Sun, 2007; Alexander and Eberhartinger, 2009).

On the other hand, Arden (1997) believes that the concept of true and fair view is ambiguous and totally lacking synonyms. Nevertheless, as Alexander (1993, p. 72) notes, "*it is tempting to regard true and fair view as an undefinable and flexible construct, which in a sense it is, and therefore as unimportant, which it certainly is not*".

The divergent views on the true and fair view definition are evident not just in accounting literature, but also in the concept's implementation into national laws of EU Member States. Several Member States, including Germany, Austria, and Sweden, have not only declined to adopt the concept of true and fair view, but have also omitted the concept's overriding provision from their national laws (Van Hulle, 1997; Alexander and Jermakowicz, 2006).

The problematic implementation of the true and fair view concept among Member States is also demonstrated by the way the concept is translated into national law, as the terminology used in Member State laws is not always identical to that used in the official versions of the Directives, as Aisbitt and Nobes (2001) observe..

This divergence in Member States' interpretations of the true and fair view concept may be a result of differences in national culture, accounting tradition, and GAAP (Alexander, 1993), and some researchers believe it is not only appropriate, given the Member States' diverse regulatory frameworks, but also consistent with the Directives' option-based nature (Arden, 1997; Cook 1997).

On the other hand, another stream of researchers opposes the idea of Member States applying different interpretations to the true and fair view concept, not only because it could result in principles inconsistent with the Directives' provisions, but also because the European Court of Justice, not Member States, has the final say on the true and fair view concept's interpretation (Ordelheide, 1993; Ordelheide, 1996; Van Hulle and Leuven,1993).

Apart from the concept of true and fair view, which has generated debate and controversy among Member States, another key premise of the EU Accounting Directives is the prudence principle.

Prior literature relates the prudence principle with certain accounting models. Several researchers (e.g., Joos and Lang, 1994; Evans and Nobes, 1996; Alexander and Eberhartinger, 2009) have associated the prudence principle with a particular accounting model, more precisely the

Continental model, which takes a prudent approach to financial reporting in contrast to the Anglo-Saxon model, which prioritizes the true and fair presentation of financial statements.

Although the prudence principle is not explicitly defined in the 4th EU Accounting Directive, as Van Hulle (1996) points out, the context of the prudence principle is stated in Article 31 subparagraph 1c of the Directive. According to the 4th Accounting Directive's aforementioned requirement, Member States shall verify that the items included in annual accounts are assessed prudently, including in particular:

- "*only profits made at the balance sheet date may be included*".
- "*account must be taken of all foreseeable liabilities and potential losses arising in the course of the financial year concerned or of a previous one, even if such liabilities or losses become apparent only between the date of the balance sheet and the date on which it is drawn up*".
- "*account must be taken of all depreciation, whether the result of the financial year is a loss or a profit*".

The prudence principle is critical in the 4th Accounting Directive because it pervades the Directive, most notably in the asset and liability recognition and measurement sections[35] (Van Hulle, 1996). As Welzel (1996, p. 38) states, "*The applicable principle of prudence is also acknowledged by prevailing opinion as a "general maxim", from which a number of further valuation principles can be derived*".

A distinctive aspect of the 4th EU Accounting Directive is that it permits deviating from the prudential principle in rare circumstances, subject to particular disclosure requirements (par. 2 of Article 31). This departure, however, is not comparable to the previous discussion of the true and fair view override because it may be motivated by other considerations that do not inevitably result in a more true and fair view, as Van Hulle (1996) asserts.

Article 29 of the 7th EU Accounting Directive makes an indirect reference to the prudence principle. Specifically, Article 29 paragraph 1 requires that assets and liabilities included in consolidated accounts be valued consistently and in line with Articles 31 to 42 and 60 of Directive 78/660/EEC (i.e., 4th EU Accounting Directive). Thus, pursuant to Article 31 of the 4th Accounting Directive, the prudence principle applies to consolidated accounts as well.

The prudence principle is incorporated into the Recitals (i.e., introductory notes) and Article 6 paragraph 1c of the new European Accounting Directive. As with the 4th EU Accounting Directive, the new European Accounting Directive lacks a precise definition of the prudence principle. Additionally, Article 6 of the new European Accounting Directive makes an explicit

[35] e.g., Articles 9 and 10, Article 35(l)(c)(aa) and (bb), Article 39(l)(b) and (c), Article 20, Article 32, Article 33 (Van Hulle,1996).

reference to the application of the prudence principle to both individual and consolidated accounts.

According to Article 6 paragraph 1c of the new EU Accounting Directive, items included in annual and consolidated financial statements must be recognized and quantified prudently, particularly:

- "*only profits made at the balance sheet date may be recognized*".
- "*all liabilities arising in the course of the financial year concerned or in the course of a previous financial year shall be recognized, even if such liabilities become apparent only between the balance sheet date and the date on which the balance sheet is drawn up*".
- "*all negative value adjustments shall be recognized whether the result of the financial year is a profit or a loss*".

At first glance, it appears as though the prudence principle has remained mostly unchanged since the 4th EU Accounting Directive. Nonetheless, Alexander and Fasiello (2020) demonstrate that prudence in the context of the new European Accounting Directive is a novel concept unrelated to previous EU legislation by citing the inclusion of fair value measurement of fixed assets, financial instruments, and other assets as a Member State option in Articles 7 and 8, which is consistent with the prudence principle set forth in Article 6. As a result, Alexander and Fasiello's (2020) observation that prudence is redefined in the new EU Accounting Directive is justified, as there appears to be a shift away from a historical-cost perspective on prudence toward one in which fair value accounting is considered consistent with the prudence principle.

Therefore, because the prudence principle is fundamental to the true and fair view principle, according to a 1996 European Court of Justice (ECJ) verdict (Directorate General for Internal Policies, Policy Department A, 2015; Bischof and Daske, 2015), and also because fair value measurement is consistent with the prudence principle, as established by the new EU Accounting Directive, inferring that fair value measurement results in a true and fair view, is not hyperbolic. Additionally, the prudence principle is demoted to a more neutral and minor role in the new European Accounting Directive, as evidenced by Member States' option to use fair value accounting (e.g., Articles 7 and 8), the greater importance of fair value accounting over purchase price or production cost-based information (e.g., Recital 19), and the reliance on estimates in the recognition and measurement of certain items (e.g., Recital 22) (Alexander and Fasiello, 2020).

Thus, by examining the evolution of the prudence principle over the course of the three key EU Accounting Directives, we may see a likely trend toward a new scheme of accounting harmonization in Europe that appears to increasingly incorporate IFRS. Alexander and Fasiello

(2020) bolster this assertion by demonstrating the similarity between the IASB's 2018 Framework's concept of prudence and the new EU Accounting Directive's prudence references. The effectiveness of the EU Accounting Directives is a source of contention among professionals and academics alike (Soderstrom and Sun, 2007). Numerous researchers have questioned the EU Accounting Directives' efficacy in enhancing financial statement comparability, owing to their numerous options (Joos and Lang, 1994), scant content (Canibano and Mora, 2002), and Member States' unwillingness to reform their national systems to achieve a reasonable degree of similarity (Haller, 2002).

Skepticism is expressed regarding the new European Accounting Directive's effectiveness in terms of improving the comparability of financial statements, as well. For instance, the European Federation of Accountants and Auditors for Small and Medium-Sized Enterprises (EFAA) stated in their 2014 report on the implementation of the new European Accounting Directive that the issue of multiple Member State Options[36] included in previous Accounting Directives was not resolved in the new European Accounting Directive. Similarly, Alexander and Fasiello (2020) view the inclusion of multiple Member State options in the new EU Accounting Directive as a factor contributing to accounting disharmonization rather than harmonization.

On the other hand, several researchers believe that the Directives' approach of multiple Member State options does not create barriers to harmonization (Van Hulle, 1992) and gives Member States flexibility in implementing the principles of the Directives (Van Hulle, 1993). Additionally, the Directives' Member State option approach and the formality of their requirements significantly facilitate the comparability and equivalence of financial information (Van Hulle and Leuven, 1993).

Nonetheless, the new EU Accounting Directive's provisions give leeway for a different interpretation regarding the shape of European accounting harmonization. The European Union's authoritative bodies[37] recognized the need to take a different path in terms of accounting harmonization for EU listed companies than that outlined in the 4th and 7th EU Accounting Directives, which resulted in the adoption of Regulation (EC) No 1606/2002 on the application of international accounting standards. The mandated application of IAS/IFRS by listed firms, on

[36] According to the European Federation of Accountants and Auditors for SMEs' (EFAA) 2016 publication "*The New Accounting Directive: A Harmonised European Accounting Framework*", the new European Accounting Directive includes over 100 Member State Options (MSO).

[37] e.g., European Commission's 1995 communication titled "*Accounting Harmonisation: A new strategy vis-à-vis International Harmonisation*", European Commission's 1998 communication titled "*Financial services: building a framework for action*", European Commission's 2000 communication titled "*Financial Reporting Strategy: the way forward*".

the other hand, resulted in the harmonization of accounting standards for a class of companies that comprised just a small fraction of the total population of enterprises in Europe.

Table 1.9: Overview of the use of options provided in the IAS Regulation (1606/2002) in the EU as at December 2018

Other undertakings								
Annual financial statements								
	IFRS permitted				IFRS required			
Type of company	Financial			Non-financial	Financial			Non-financial
	Bank	Insurance	Other		Bank	Insurance	Other	
Austria								
Belgium							Yes	
Cyprus						Yes		
Czech Republic			(1)					
Germany			(2)					
Denmark				Yes				
Estonia				Yes	Yes	Yes	Yes	
Greece				Yes	Yes	Yes	Yes	(5)
Spain								
Finland			(4)					
France								
Croatia				(1)	Yes	Yes	Yes	(5)
Hungary		Yes	Yes	(1)	Yes		Yes	
Ireland		Yes						
Italy	Yes		Yes	Yes				(9)
Lithuania				Yes	Yes	Yes	Yes	
Luxembourg		Yes						
Latvia				Yes	Yes	Yes	Yes	
Malta				Yes	Yes	Yes	Yes	(8)
Netherlands		Yes						
Poland			(10) or (11)					
Portugal				(1)	Yes			
Romania					Yes		Yes	(5)
Sweden								
Slovenia			Yes	Yes	Yes	Yes		
Slovakia			Yes		Yes	(5)	Yes	(5)
United Kingdom		Yes						

Footnotes

(1) If the consolidated financial statements are prepared in accordance with IFRS Standards

(2) Only in addition to financial statements prepared in accordance with National GAAPs

(4) If mandatory audit

(5) Public Interest entities

(8) Large and regulated entities

(9) Entities listed on a non-regulated market

(10) Subsidiaries of a group in which parent or higher level parent prepares consolidated financial statements under IFRS

(11) Entities having filed or intending to file for admission to public trading

Despite the fact that Regulation 1606/2002 contains a Member State option permitting or requiring non-listed enterprises to prepare consolidated and/or annual financial statements in conformity with IAS/IFRS, Haller (2002) casts doubt on the practicality and possible benefits of this option. Table 1.9[38], provides evidence that the option included in Article 5 paragraph b of Regulation 1606/2002 (i.e., to permit or require companies other than listed companies to prepare their consolidated accounts and/or their annual accounts, in conformity with the IAS/IFRS), was not fully exercised by Member States.

Specifically, only 4 Member States (Bulgaria, Ireland, Luxembourg, Netherlands) and UK have fully permitted the use of IAS/IFRS by non-listed companies while only Cyprus has mandated the application of IAS/IFRS for all non-listed companies without any exceptions.

Another initiative aimed at harmonizing accounting standards for unlisted small and medium-sized businesses was the IASB's 2009 issuance of the International Financial Reporting Standard for small and medium-sized enterprises (IFRS for SMEs), a scaled-down version of IFRS with significantly fewer requirements for recognition and measurement principles, as well as disclosure (Perera and Chand, 2015).

Despite the fact that 86[39] jurisdictions worldwide accept or require the use of IFRS for SMEs, the European Commission rejected the prospect of adopting IFRS for SMEs at the EU level, instead deferring to individual Member States the decision to use it (Kaya and Koch, 2015).

Indeed, Member States may allow or require unlisted EU Small and Medium-sized businesses to use IFRS for SMEs as their accounting basis, subject to IFRS for SMEs being revised to comply with any accounting requirement of the Directive that deviates from IFRS for SMEs.[40] Even if this were the case and Member States revised IFRS for SMEs to conform to the new EU Accounting Directive and approved its use, this would result in many versions of IFRS for SMEs, resulting in less accounting harmonization between Member States.

In light of the foregoing, the issue of accounting harmonization in Europe for unlisted small and medium-sized businesses appeared to be an insoluble conundrum until the new EU Accounting Directive was issued. The central role of fair value, which is more relevant to financial statement users than purchase price or production cost-based information, the use of fair value as a prudent alternative measurement basis, and the importance of estimates as a necessary component of the

[38]Table 1.9 is based on the European Commission's 2019 Overview of the use of options provided in the IAS Regulation (1606/2002) in the EU, https://ec.europa.eu/info/law/international-accounting-standards-regulation-ec-no-1606-2002/implementation/implementation-eu-countries_en

[39] https://www.ifrs.org/news-and-events/news/2018/01/ifrs-foundation-updates-jurisdiction-profiles-to-reflect-decision-by-17-african-countries/

[40] 2013 European Commission's Memo titled "*Financial reporting obligations for limited liability companies (Accounting Directive) – frequently asked questions*".

recognition and measurement of certain items may actually indicate a step toward convergence of the EU Accounting Directives with IFRS.

By examining prior official declarations issued by European accounting organizations, it is possible to deduce that the new European Accounting Directive is the evolutionary outcome of a multi-year process occurring within the European Union. For instance, shards of evidence regarding the future path of accounting harmonization in Europe, can be found in the Federation of European Accountants' *2001 "Discussion Paper on the modernization of the Accounting Directives".* Surely FEE's (2001, p. 4) references[41], that "*The ultimate aim of the modernization process (of the Accounting Directives) should be having the same financial reporting rules for individual and consolidated accounts. European Directives should not form an obstacle to use IAS*", related to the forthcoming adoption of IAS/IFRS for the EU listed companies, but they do demonstrate a trend toward bridging the gap between EU Directives and IFRS.

The ineffectiveness of EU's political/legal harmonization endeavor resulted in the adoption of international accounting standards as the only feasible path to accounting harmonization (Whittington, 2005 cited in Nobes, 2015; Nobes, 2015) and possibly in the shaping of the new EU Accounting Directive.

Apart from the inclusion of key IFRS concepts (e.g., fair value, estimates) as Member State options and the high priority accorded to those concepts in the new EU Accounting Directive, the way the new EU Accounting Directive is drafted may also be indicative of the manner in which accounting harmonization for small and medium-sized entities is intended to be achieved. Given the European Commission's rejection of IFRS for SMEs and Member States' reluctance to require SMEs to apply the full version of IFRS, another strategy for attaining SMEs accounting harmonization is to infuse the Directives with the IFRS ethos and spirit.

In contrast to the IASB, which lacks the authority to impose IFRS requirements (Georgiou and Jack, 2011), the EU possesses the official authority to demand the implementation of specific accounting standards for specific types of businesses (e.g., IFRS for EU listed companies).

Regarding SMEs, rather than imposing full IFRS compliance, which would undoubtedly be a burdensome approach and would contradict the new EU Accounting Directive's core concept of "Think Small First", it is possible that the EU chose to initially transpose key IFRS principles as Member State options that could gradually evolve into prerequisites. This would imply an indirect route to IFRS adoption, resulting in "*an accounting regime that is mostly the product of transplantation, rather than origination*" (Panetsos, 2016, p. 144).

---

[41] FEE (Fédération des Experts-comptables Européens – *Federation of European Accountants*) - *"Discussion Paper on the modernization of the Accounting Directives"*.

1.6.3. Measurement of formal (de jure) accounting harmonization

Over time, one of the primary reasons for the development of international accounting standards, commonly referred to as International Financial Reporting Standards (IFRS) was to achieve global harmonization of accounting practices. The benefits of adopting IFRS have been extensively discussed in prior literature. For instance, Sellhorn and Tomaszewski (2006) argue that adopting IFRS may enhance a country's external image as a modern, organized, and well-regulated business location.

Nonetheless, as Tokar (2015) argues, countries frequently adapt their national accounting standards to bring them as close as possible to IAS/IFRS, rather than fully implementing IFRS. As a result, researchers identified the necessity to investigate harmonization between national accounting frameworks and international accounting standards.

Numerous international studies analyze and quantify the degree of harmonization between different accounting frameworks (national accounting standards and IFRS or IFRS and US GAAP), whereas others quantify the degree of harmonization between companies' selected accounting practices that use the same or different accounting frameworks to prepare their financial statements. Given that the current Chapter is examining the degree of harmonization between Greek Accounting Standards and IFRS, an examination of international studies will be undertaken that introduce several methodologies for quantifying the degree of harmonization between national accounting standards and IFRS.

Tay and Parker (1990) and Van Der Tas (1988 & 1992) provided for the definitions of formal (de jure) harmonization and material (de facto) harmonization. Formal (de jure) harmonization focuses on accounting regulations while material (de facto) harmonization focuses on financial reporting practices by companies.

Rahman et al. (1996) conducted one of the first formal harmonization studies, comparing all accounting items related to measurement and disclosure that are applicable to publicly traded companies in Australia and New Zealand to determine their level of formal (de jure) harmonization. They weight all items equally and categorize them as "Required", "Recommended or suggested", "Allowed or not required or not prohibited" and "Not permitted". They then use the Mahalanobis Distance to calculate the distance between the two countries' measurement and disclosure items and thus the degree of formal harmonization.

Asbhaugh and Pincus (2001) take a different approach in examining whether the differences between thirteen nations' accounting standards and IAS affect financial analysts' ability to forecast earnings successfully for non-US corporations. Additionally, they investigate if analyst

forecasting accuracy changes as a result of firms adopting IAS. In doing so, they calculate three indexes: DISCLOSE, METHODS, and IASSET, which reflect the disclosure, measurement, and overall differences in financial reporting requirements between countries in comparison to IAS. Ashbaugh and Pincus (2001) draw their DISCLOSE and METHODS indices based on whether IAS imposes stricter disclosure requirements and uses more strict measurement methods than local GAAP, and the sum of the two indexes equals the IASSET index.

Garrido et al. (2002) and Fontes et al. (2005) conduct two pivotal studies on formal accounting harmonization. To be more specific, Garrido et al. (2002) assess the International Accounting Standards Committee's (IASC) progress toward formal harmonization in issuing or revising accounting standards from 1973 to 2002. They introduce the Euclidean Distance as a measure of formal harmonization and classify the twenty accounting issues they analyze using Rahman et al.'s (1996) typology.

On the other hand, Fontes et al. (2005) investigate the degree of convergence between Portuguese Accounting Standards and IAS/IFRS over the period 1977–2003, by employing Rahman et al.'s (1996) typology and introducing Jaccard's and Spearman's coefficients, as more appropriate markers of formal harmonization than previously applied measures (i.e., Garrido et al.'s 2002 Euclidean Distance).

Ding et al. (2007) conduct another significant study in which they develop the Absence and Divergence indices[42] based on a comprehensive list of differences between national accounting standards and IAS. The Absence index developed by Ding et al. (2007) quantifies the extent to which specific accounting rules are missing from national accounting standards but are covered by IAS while their Divergence index quantifies the extent to which national accounting standards diverge from IAS.

Over the years, several additional formal harmonization studies have been undertaken, including those by Bae et al. (2008), Peng and Van der Laan Smith (2010), Qu and Zhang (2010), and Mustata et al (2010). Bae et al. (2008) examine the relationship between country-specific differences in accounting standards and foreign analyst following and forecast accuracy, by creating two measures of differences between GAAP and IAS for 1,176 country pairs. Their first measure GAAPDIFF1 is calculated for 21 IAS accounting items, and if a country does not adhere to IAS, that accounting item receives a score of 1 and otherwise receives a score of 0. Their second metric GAAPDIFF2 covers 52 separate IAS sections for a total of 1,176 country-pairs and assigns a value of 1 to each country where the corresponding IAS section is referenced.

[42] An initial approach regarding the Absence and Divergence indices was introduced by Ding et al. (2005). Also, a similar approach to Ding et al. (2005, 2007) has been used by Chen et al. (2014).

Peng and Van der Laan Smith (2010) examine the convergence of Chinese GAAP with IFRS for the period 1992-2006. Peng and Van der Laan Smith (2010) assign convergence scores to key measurement items under IFRS and Chinese GAAP during a four-year period (1992-1998-2001-2006), by comparing each Chinese GAAP item to its corresponding IFRS item. Additionally, Peng and Van der Laan Smith (2010) employ a different typology than Rahman et al. (1996), classifying items under both accounting frameworks as being in "Full Convergence", "Substantial Convergence", "Non-Convergence", "Not Addressed", or "Not Relevant".

Qu and Zhang (2010)[43] propose the method of fuzzy clustering analysis in order to quantify and measure formal (de jure) harmonization of Chinese GAAP with IFRS. Their study evaluates each Chinese GAAP to its IFRS equivalent and classifies each pair of standards (Chinese GAAP-IFRS) based on six criteria (i.e., terminologies, scope, recognition criteria, measurement criteria, measurement methods, and re-measurement at the period's end, excluding disclosure requirements) and four possible scores per accounting item (i.e., 1/completely match), 0.7/substantially match, 0.3/substantially different, and 0/completely different).

Mustata et al. (2010) propose the use of two new formal (de jure) harmonization measures to address the limitations of previously used ones: the EDIndex (which related to Euclidian distance) and Sokal and Sneath's coefficient. Mustata et al. (2010) argue that EDIndex is preferable to Euclidian distance because it enables comparisons between consecutive periodic measurements, whereas Sokal and Sneath's coefficient overcomes Jaccard's coefficient limitation by accounting for instances in which an accounting practice is absent or present in both accounting frameworks under consideration.

Moreover, several authors have examined the convergence of national accounting standards with IFRS using the typology and metrics developed by Rahman et al. (1996), Garrido et al. (2002), and Fontes et al. (2005). For example, Lasmin (2011) investigates the advancement of Indonesian Accounting Standards' formal (de jure) convergence with IFRS and its relationship to material (de facto) harmonization. Lasmin (2011) concludes that the high degree of harmonization between Indonesian Accounting Standards and IFRS did not result in an increase in material accounting harmonization, based on Rahman et al.'s (1996) typology and a variety of formal and material accounting harmonization metrics (e.g., Jaccard's coefficients, Euclidean Distance, etc.).

In their examination of Vietnam's accounting convergence process with IFRS, Thanh and Hiep (2017) take a novel approach. They first divide items related to assets, liabilities, income, and

[43] The method of fuzzy clustering analysis is also used by Nguyen & Gong (2014), in their exploration of the level of convergence of Vietnamese Accounting Standards with IAS/IFRS.

expenses into accounting items common to both accounting frameworks and then further subdivide each accounting item into two sub-items relating to initial recognition and subsequent measurement. Additionally, rather than using Rahman et al.'s (1996) typology, Thanh and Hiep (2017) utilize the terms "Allowed" and "Disallowed" to quantify the strength of each sub-item, awarding a value 1 to situations of allowance or disallowance in both frameworks and 0 to instances of complete differentiation. Then, using the original Jaccard's coefficient, they find that Vietnam's progress toward convergence with the IFRS framework is still limited, since the formal (de jure) degree of harmonization is only 34%.

As demonstrated above, numerous efforts have been made over time to quantify the convergence of national accounting standards and IFRS, with numerous researchers proposing various measures that more accurately reflect the formal harmonization progress of various nations' accounting legislation. Despite these measures' potential shortcomings, quantifying formal harmonization can yield immensely significant insights on a country's efforts to align with international best practices and create a business-friendly environment.

Therefore, contrary to Tay and Parker's (1992, p. 218) opinion that "*the measurement of de jure harmonization does not appear to be a very useful exercise, if the ultimate concern of harmonization is to increase the comparability of financial reporting*", measuring formal harmonization can provide valuable indications on the basis (i.e., accounting standards) on which financial statements are prepared and, subsequently, about the similarity or dissimilarity of financial statements' numbers.

1.7. Methodological Approach

This section highlights the methodology utilized in the current Chapter. Given that the new Greek Accounting Standards are an attempt to bring Greece's accounting practices in line with internationally accepted accounting standards (i.e., IFRS), rather than a convergence project akin to the IASB and FASB's, this Chapter examines the degree of harmonization, rather than convergence, between Greek Accounting Standards and IFRS.

Additionally, this study focuses on the accounting provisions of the Law that apply to Small and Medium-sized companies for the following reasons: First, the simpler accounting regime applicable to micro entities cannot be used to draw conclusions about Greece's level of accounting harmonization with IFRS; second, large companies are likely to be publicly traded and thus required to use IFRS; and third, the economic importance of Greek SMEs is significant, accounting for nearly 36.1 % of the economy's value added[44]. Thus, a comparison of Greek

[44] https://www.oecd-ilibrary.org/sites/0f52ae26-en/index.html?itemId=/content/component/0f52ae26-en

SMEs' applicable accounting practices to IFRS may be taken as informative of the degree of alignment between Greek Accounting Standards and IFRS.

Table 1.10 reports a brief mapping of Greek Accounting Standards and their corresponding IAS/IFRS, as well as IAS/IFRS that are not covered by Greek Accounting Standards.

Table 1.10: IAS/IFRS & Law's 4308/2014 corresponding Article

IAS/IFRS	TITLE	RELEVANT ARTICLE OF LAW 4308/2014
IAS 1	Presentation of Financial Statements	16 & 17
IAS 2	Inventories	20
IAS 7	Statement of Cash Flows	16
IAS 8	Accounting Policies, Changes in Accounting Estimates and Errors	17 & 28
IAS 10	Events After the Reporting Period	17
IAS 11 (superseded by IFRS 15 as of 1/1/2018)	Construction Contracts	25
IAS 12	Income Taxes	23
IAS 16	Property, Plant and Equipment	18 & 24
IAS 17 (superseded by IFRS 16 as of 1/1/2019)	Leases	18
IAS 18 (superseded by IFRS 15 as of 1/1/2018)	Revenue	25
IAS 19	Employee Benefits	22
IAS 20	Accounting for Government Grants and Disclosure of Government Assistance	23
IAS 21	The Effects of Changes in Foreign Exchange Rates	27
IAS 23	Borrowing Costs	18 & 20
IAS 24	Related Party Disclosures	29
IAS 26	Accounting and Reporting by Retirement Benefit Plans	NOT COVERED
IAS 27	Separate Financial Statements	31-36 (Chapter 7: Consolidated Financial Statements)
IAS 28	Investments in Associates and Joint Ventures	31-36 (Chapter 7: Consolidated Financial Statements)
IAS 29	Financial Reporting in Hyperinflationary Economies	NOT COVERED
IAS 32	Financial Instruments: Presentation	19-22-24
IAS 33	Earnings Per Share	NOT COVERED
IAS 34	Interim Financial Reporting	NOR COVERED
IAS 36	Impairment of Assets	18

Table 1.10: IAS/IFRS & Law's 4308/2014 corresponding Article (continued)

IAS/IFRS	TITLE	RELEVANT ARTICLE OF LAW 4308/2014
IAS 37	Provisions, Contingent Liabilities and Contingent Assets	17 & 22
IAS 38	Intangible Assets	18
IAS 39 (Superseded by IFRS 9 effective 1/1/2018 where IFRS 9 is applied)	Financial Instruments: Recognition and Measurement	19-22-24
IAS 40	Investment Property	24
IAS 41	Agriculture	24
IFRS 1	First-time Adoption of International Financial Reporting Standards	37
IFRS 2	Share-based Payment	NOT COVERED
IFRS 3	Business Combinations	31-36 (Chapter 7: Consolidated Financial Statements)
IFRS 4 (superseded by IFRS 17 as of 1/1/2021)	Insurance Contracts	NOT COVERED
IFRS 5	Non-current Assets Held for Sale and Discontinued Operations	NOT COVERED
IFRS 6	Exploration for and Evaluation of Mineral Assets	NOT COVERED
IFRS 7	Financial Instruments: Disclosures	19- 22-24
IFRS 8	Operating Segments	NOT COVERED
IFRS 10	Consolidated Financial Statements	31-36 (Chapter 7: Consolidated Financial Statements)
IFRS 11	Joint Arrangements	31-36 (Chapter 7: Consolidated Financial Statements)
IFRS 13	Fair Value Measurement	NOT COVERED

Table 1.10 corroborates Thanh and Hiep's (2017) assertion that accounting standards published by different accounting bodies differ extensively and thus are not comparable in terms of content and presentation, as they treat a variety of topics in fundamentally different ways. For this reason, we follow Rahman et al. (1996), Garrido et al. (2002), Bae et al. (2008), Peng and Van Der Laan Smith (2010), and Thanh and Hiep (2017) in concentrating on accounting items rather than accounting standards.

According to Canibano and Mora (2000), formal harmonization might relate either to the extent of disclosure (i.e., disclosure harmonization) or the applicable accounting method (i.e., measurement harmonization). Additionally, as previously stated, Van Der Tas (1992) contends that accounting items pertaining to measurement issues should be separated from accounting items pertaining to disclosure requirements. Numerous researchers have distinguished measurement accounting issues from disclosure requirements, including Rahman et al. (1996), Ashbaugh and Pincus (2001), Garrido et al. (2002), Fontes et al. (2005), Qu and Zhang (2010), Peng and Van Der Laan Smith (2010), and Thanh and Hiep (2017). Thus, as the two primary

components of formal harmonization, measurement and disclosure, should be examined independently.

In light of the aforementioned, we shall evaluate the measurement aspect of accounting items as defined in Greek Accounting Standards and IAS/IFRS. The current research excludes disclosure requirements, since "*they do not exert any influence on accounting treatment and comparability, regardless the amount of disclosed information*" (Qu and Zhang, 2010, p. 12).

The identification and selection of the appropriate measurement accounting items is a critical point in this chapter. Accounting items that are covered by IFRS but not by the provisions of the Law are excluded. Additionally, accounting items linked to consolidation are excluded, as consolidation is dealt with in a separate section of the Law (Chapter 7 of Law 4308/2014).

We adopt Peng and Van Der Laan Smith's (2010) perspective and provide an expanded version of their list of key measurement items (provided in Appendix B), which are incorporated in the respective IAS/IFRS to simplify comparison with the relevant provisions of the Greek Accounting Standards. It should be noted that our accounting items are based on IAS/IFRS as of December 31, 2017. As a result, our research excludes IFRS that have supplanted the specific IAS (i.e., IFRS 9, 15, 16 & 17).

Another critical aspect of formal harmonization studies is the researchers' classification of accounting items using a certain kind of typology. For example, Rahman et al. (1996) classify accounting items as "Required", "Recommended or suggested", "Allowed or not required or not prohibited" and "Not permitted". The terms "Required", "Benchmark", "Allowed" and "Forbidden" are used by Garrido et al. (2002). Peng and Van Der Laan Smith (2010) classify accounting items into five categories based on their degree of convergence: "full convergence", "substantial convergence", "non convergence", "not addressed" and "not relevant". Thanh and Hiep (2017) categorize requirements as "Allowed" or "Disallowed".

According to Van Der Tas (1988), accounting standards impose restrictions on the company's ability to choose between alternative disclosure and accounting methods. In that sense, as Qu and Zhang (2010) point out, categorizing accounting methods as required or allowed makes no material difference. To avoid being subjective in our characterization of accounting items as much as possible, we follow Fontes et al.'s (2005) coding of key measurement items as "1" for using a particular accounting method and "0" for not using a particular accounting method.

A further crucial component of formal accounting harmonization studies seems to be the choice of an appropriate metric for quantifying the degree of congruence between national accounting standards and IFRS. Rahman et al. (1996) and Garrido et al. (2002), respectively, propose the Mahalanobis and Euclidean Distances. Fontes et al. (2005) apply Jaccard's and Spearman's

correlation coefficients. Qu and Zhang (2010) propose the use of fuzzy clustering analysis, whereas Mustata et al. (2010) suggest the use of the EDIndex and Sokal and Sneath's coefficient. The appropriateness of formal harmonization measures has been a source of debate among researchers. For example, Euclidian distances have been criticized for their unintelligible absolute value and for producing results that can only be analyzed dynamically (Fontes et al., 2005). Additionally, Jaccard's coefficient does not account for instances in which an accounting method is either absent from or included in both sets of accounting standards under examination (Mustata et al., 2010). Furthermore, Sokal and Sneath's coefficient is a variant of Jaccard's coefficient, whereas fuzzy clustering analysis generates a group of the most comparable items rather than the highest ranking ones (Thanh and Hiep, 2017).

We choose our formal harmonization measure based on its simplicity, efficacy, and suitability for our research objective. We consider that some formal harmonization measures are inappropriate for our research for a variety of reasons. For example, comparing the progress of formal harmonization over time is not within the scope of our research in order to employ Euclidean Distance. Additionally, Sokal and Sneath's coefficient is unsuitable because an accounting item cannot be absent from both the IFRS and Greek Accounting Standards frameworks. Finally, because we do not rank accounting items in terms of recommendation, we do not use Spearman's correlation coefficient.

The metric that meets our criteria is Jaccard's coefficient, which quantifies the degree of similarity between two sets of accounting standards in terms of their attributes and is defined as follows:

$$S_{ij} = \frac{a}{a + b + c}$$

S_{ij} = the similarity degree between the two sets of analyzed accounting regulations or practices

a = the number of elements which take the 1 value for both sets of regulations or practices

b = the number of elements which take the 1 value within the j set of regulations or practices and the 0 value for the i set of regulations or practices

c = the number of elements which take the 1 value within the i set of regulations or practices and the 0 value for the j set of regulations or practices.

Because Jaccard's coefficient values vary from 0 to 1, the closer the coefficient is to 1 (or 100 percent), the more closely Greek Accounting Standards conform to IAS/IFRS. The

harmonization scores for our list of key measurement items are calculated using Jaccard's coefficient and the methodology described above, and the results are provided in Section 1.8.

1.8 Results & Analysis

Our findings are summarized in this section. As previously stated, we use Peng and Van Der Laan Smith's (2010) methodology and provide an expanded list of their IFRS key measurement items that are compared to their Greek Accounting Standards equivalents.

Apart from the requirements of the Law (presented in Appendix A), we include in our research the Accounting Circular of the Greek Accounting Standards[45], which clarifies various aspects of the Law, most notably those relating to measurement rules. Thus, our list of key measurement items includes not only provisions included in the relevant Articles of Law, but also significant interpretations found in the Accounting Circular.

Additionally, we employ the substance over form principle in three ways when validating key measurement items: In cases where Greek Accounting Standards do not address a specific item in detail but instead allow entities to seek guidance from the corresponding IFRS, we assign a value of 0 to that specific item, as we believe that merely mentioning the subject and allowing entities to seek guidance from IFRS does not equate to harmonization between the two accounting frameworks for that specific item.

Second, if the Accounting Circular covers a specific item but the Law does not expressly address it, we assign a value of 1 to that specific item if it is comparable to its corresponding IFRS item, as we consider both the Law and the Accounting Guidance as one.

Third, in cases where the application of a specific accounting topic is optional under Greek Accounting Standards (e.g., recognition of deferred tax, capitalization of borrowing costs, and fair value measurement of assets and liabilities), we do not consider the accounting topic to be non-conforming with IAS/IFRS and treat it similarly to all others.

By applying the substance over form principle in the manner outlined above, we address the harmonization between Greek Accounting Standards and IFRS from a broader perspective. Our findings are detailed in Appendix C and summarized in Table 1.11 as follows:

[45] The Accounting Circular of the Greek Accounting Standards was issued at 16/10/2015 by the Hellenic Accounting and Auditing Oversight Board

Table 1.11: Results of Formal Harmonization measurement

TOPIC	HARMONIZATION SCORE BETWEEN GREEK ACCOUNTING STANDARDS & IAS/IFRS
INVENTORIES	80,00%
ACCOUNTING POLICIES, CHANGES IN ACCOUNTING ESTIMATES AND ERRORS	71,43%
EVENTS AFTER THE REPORTING PERIOD	50,00%
CONSTRUCTION CONTRACTS	37,50%
INCOME TAXES	35,71%
PROPERTY, PLANT & EQUIPMENT	75,00%
LEASES	76,92%
REVENUE	50,00%
EMPLOYEE BENEFITS	0,00%
ACCOUNTING FOR GOVERNMENT GRANTS	42,86%
THE EFFECTS OF CHANGES IN FOREIGN EXHANGE RATES	55,56%
BORROWING COSTS	50,00%
IMPAIRMENT OF ASSETS	38,89%
PROVISIONS, CONTINGENT LIABILITIES AND CONTINGENT ASSETS	33,33%
INTANGIBLE ASSETS	66,67%
FINANCIAL INSTRUMENTS:RECOGNITION & MEASUREMENT	38,00%
INVESTMENT PROPERTY	38,46%
AGRICULTURE	40,00%
TOTAL HARMONIZATION SCORE BETWEEN GREEK ACCOUNTING STANDARDS & IAS/IFRS (Weighted Average Jaccard's coefficient)	47,58%

Table 1.11 outlines the various levels of harmonization for the accounting subjects investigated. There are cases of:

- High levels of harmonization ranging from 80%-100% (e.g., Inventories),
- Satisfactory levels of harmonization ranging from 60%-79% (e.g., Accounting Policies, Changes in Accounting Estimates and Errors - Property, Plant & Equipment – Leases - Intangible Assets),

- Medium levels of harmonization ranging from 40% -59% (e.g., Events After the Reporting Period - Revenue - Accounting for Government Grants - Effect of Changes on Foreign Exchange Rates - Borrowing Costs - Agriculture),
- Low levels of harmonization ranging from 20% - 39% (e.g., Construction Contracts - Income Taxes - Impairment of Assets - Provisions, Contingent Liabilities & Contingent Assets - Financial Instruments - Investment Property)
- Non- harmonization (e.g., Employee Benefits).

The most intriguing conclusion drawn from the reported results is that, in the majority of cases, disharmonization between Greek Accounting Standards and IAS/IFRS arises as a result of the absence (omission) of specific provisions, rather than divergent accounting treatment of key measurement items.

For example, the lack of harmonization in the Employee Benefits accounting topic is due to the fact that none of IAS 19's primary measurement items are contained in the applicable article of Law 4308/2014. Rather than that, Greek Accounting Standards provide general guidelines on the recognition and measurement of defined benefit plans (DBPs) through the use of an actuarial technique (i.e., projected unit credit method). Additionally, the relevant article of the Law provides for the option of consulting the applicable IAS for assistance on the accounting treatment of Employee Benefits. Provisions, Contingent Liabilities & Contingent Assets, and Income Taxes are only a few accounting subjects that exhibit a lack of harmonization due to the absence of particular accounting provisions.

Another intriguing finding is the reported low convergence scores in accounting areas when guidance from the applicable IAS/IFRS is permissible, as per the Accounting Circular (e.g., Income Taxes, Investment Property and Financial Instruments, apart from Employee Benefits).

Apart from divergence due to the absence (omission) of specific rules, Greek Accounting Standards diverge from IAS/IFRS in other instances due to distinct accounting treatments. The following Table 1.12 summarizes the observed differences between the two accounting frameworks as a result of their disparate treatment:

Table 1.12: Differences between IAS/IFRS & GAS regarding key measurement items

INVENTORIES	**IAS 2**	**APPLICABLE PROVISION OF LAW 4308/2014**
Recognition of impairment loss	Any inventory write-down to net realizable value and any inventory losses will be recognized as an expense in the period in which the write-down or loss occurs..	When the Net Realizable Value (NRV) is less than the acquisition cost, the impairment loss is recognized in cost of goods sold. When an entity sustains a material impairment loss, the loss may be recognized in the applicable account (Asset impairment) rather than in cost of goods sold.
PROPERTY, PLANT & EQUIPMENT	**IAS 16**	**APPLICABLE PROVISION OF LAW 4308/2014**
Measurement of PP&E subsequent to initial recognition: Reevaluation Model	A property, plant, and equipment item whose fair value can be reliably determined shall be carried at a revalued amount.	The reevaluation model is only applicable to owner-occupied property
BORROWING COSTS	**IAS 23**	**APPLICABLE PROVISION OF LAW 4308/2014**
Borrowing costs of obtaining a qualifying asset eligible for capitalization	Capitalization of borrowing costs is limited to the actual borrowing costs incurred on that borrowing during the period, less any investment income earned on the temporary investment of those borrowings.	Capitalization-eligible borrowing costs include both the actual borrowing costs associated with that borrowing and the entity's overall borrowing costs
LEASES	**IAS 17**	**APPLICABLE PROVISION OF LAW 4308/2014**
Sale and lease back transactions that result in an operating lease	IAS 17 requires specific treatment when comparing the selling price and the transaction's fair value (profit/loss recognition), whereas if the asset's fair value is less than its carrying amount, the carrying amount is written down to fair value and the difference is immediately recognized as a loss.	The fundamental contrast is that IAS 17 requires special treatment when comparing the selling price to the fair value of the transaction (profit/loss recognition), but GAS do not. Additionally, IAS 17 requires that if the fair value of an asset is less than its carrying value, a loss equal to the difference is immediately recorded. - GAS determines profit or loss by comparing the asset's selling price to its carrying amount
REVENUE	**IAS 18**	**APPLICABLE PROVISION OF LAW 4308/2014**
Recognition of revenue from the sale of goods: Criteria	IAS 18 does not include the buyer's acceptance of goods criterion.	Greek Accounting Standards incorporate just three of the five IAS recognition criteria - the criteria for reliable measurement of transaction cost, as well as non-managerial involvement and ineffective control over the goods sold, are excluded.
Recognition of revenue from rendering of services: Method	IAS 18 does not include the completed contract method.	The completed contract method is permitted under Greek accounting standards only when its effects are immaterial in comparison to those of the percentage of completion method

Table 1.12: Differences between IAS/IFRS & GAS regarding key measurement items (continued)

ACCOUNTING FOR GOVERNMENT GRANTS	IAS 20	APPLICABLE PROVISION OF LAW 4308/2014
Recognition of government grants related to assets on balance sheet date	The grant will be recorded as deferred income or deducted from the carrying amount of the asset	Greek Accounting Standards do not include the option of deducting the grant from the asset's carrying value
IMPAIRMENT OF ASSETS	**IAS 36**	**APPLICABLE PROVISION OF LAW 4308/2014**
Identifying impairment asset: frequency: General Rule	At the end of each reporting period, an entity shall determine whether there is any indication that an asset may be impaired	Testing for impairment is conducted only when there are pertinent indications and the effect of the impairment on financial statements is expected to be material
Identifying asset impairment: indicators	A comprehensive list of fundamental internal and external indicators	Greek accounting standards contain only indicative indicators for carrying out impairment tests.
Recognition of an impairment loss	Impairment losses must be immediately recognized in profit or loss	Only when an impairment loss is permanent is it recognized in profit or loss
INTANGIBLE ASSETS	**IAS 38**	**APPLICABLE PROVISION OF LAW 4308/2014**
Measurement of intangible assets subsequent to initial recognition	The accounting policy of an entity must be either the cost or the revaluation model	Greek Accounting Standards permit subsequent measurement to be made using the cost method (cost less any accumulated amortization and any accumulated impairment losses). The reevaluation method as described in IAS 38 is not included in GAS
Amortization of intangible assets: useful life that arises from contractual or legal rights	The useful life of an intangible asset derived from contractual or other legal rights shall not exceed the period of the contractual or other legal rights, but may be shorter depend on the length of the entity's anticipated use of the asset	The useful life of an intangible asset derived from contractual or other legal rights shall not exceed the contractual or other legal rights' period
Amortization of intangible assets: Uncertainty regarding useful life estimation	Uncertainty justifies conservatively estimating an intangible asset's useful life-Goodwill is subject to annual impairment testing rather than amortization	When the useful life of goodwill, development costs, and other intangible assets cannot be reliably determined, they are amortized over a ten-year period
FINANCIAL INSTRUMENTS:RECOGNITION & MEASUREMENT	**IAS 39**	**APPLICABLE PROVISION OF LAW 4308/2014**
Derecognition of a financial asset: Gain or Loss from derecognition of a financial asset in its entirety	The difference between (a) the carrying amount and (b) the sum of (i) the consideration received (including any new asset acquired less any new liability assumed) and (ii) any cumulative gain or loss recognized in other comprehensive income shall be recognized in profit and loss	The difference between the carrying amount and the consideration received (which includes any new asset acquired less any new liability assumed) shall be recognized in profit and loss

Table 1.12: Differences between IAS/IFRS & GAS regarding key measurement items (continued)

FINANCIAL INSTRUMENTS:RECOGNITION & MEASUREMENT	IAS 39	APPLICABLE PROVISION OF LAW 4308/2014
Initial measurement of financial assets	Financial assets are initially measured at fair value, and directly attributable transaction costs are added to or subtracted from the carrying amount of financial instruments that are not subsequently valued at fair value through profit or loss	Financial assets are measured at cost plus transaction costs
Initial measurement of financial liabilities	Financial liabilities are initially measured at fair value, while directly attributable transaction costs are added to or subtracted from the carrying amount of financial instruments that are not subsequently measured at fair value through profit or loss	Financial liabilities are measured in terms of the amount owed, whereas transaction costs are included in profit or loss
Subsequent measurement of financial assets	Following initial recognition, an entity shall measure financial assets, including derivatives that are assets, at their fair values, without any deduction for transaction costs incurred in connection with the sale or other disposal (except loans and receivables, held-to-maturity investments etc.)	Financial assets are subsequently measured at cost and, in the case of interest-bearing financial assets, at amortized cost using the effective interest rate or straight-line methods, if the effect of using these methods is material. Additionally, entities may subsequently measure financial assets that are classified as Held for Trading, Available for Sale and Hedging, at fair value
Subsequent measurement of financial liabilities	Except in certain cases (e.g., financial liabilities at fair value through profit or loss, financial guarantee contracts etc.), an entity shall measure all financial liabilities at amortized cost using the effective interest method following initial recognition	Financial liabilities are measured at the amount due after initial recognition, except for interest-bearing liabilities, which are measured at amortized cost using the effective interest method or the straight line method, if the effect of using these methods is material. Additionally, entities may subsequently measure financial liabilities Held for Trading, at fair value
Reversal of impairment of financial assets carried at cost (unquoted equity instrument not carried at fair value & derivative asset that is linked to and must be settled by delivery of such an unquoted equity)	Reversal of impairment loss of financial assets carried at cost (unquoted equity or its linked derivative asset) is prohibited	Reversal of impairment loss of financial assets carried at cost is not prohibited

Table 1.12: Differences between IAS/IFRS & GAS regarding key measurement items (continued)

FINANCIAL INSTRUMENTS:RECOGNITION & MEASUREMENT	**IAS 39**	**APPLICABLE PROVISION OF LAW 4308/2014**
Impairment loss of financial assets carried at amortized cost (loans and receivables or held-to-maturity investments)	The loss is calculated as the difference between the carrying amount of the asset and the present value of estimated future cash flows (excluding unincurred future credit losses) discounted at the financial asset's original effective interest rate (i.e., the effective interest rate computed at initial recognition). The asset's carrying amount shall be reduced either directly or through the use of an allowance account. The loss shall be recognized in profit or loss	Interest-bearing financial assets (carried at amortized cost) are treated in the same way as described in IAS 39. Nevertheless, impairment losses on non-current financial assets are recognized only after they become permanent.
Hedging relationship conditions	A hedging relationship is hedge accounting-eligible if and only if all five of IAS 39's conditions are met	Only the hedging relationship's formal designation and documentation, as well as the expectation of high effectiveness, are included
Cash flow hedges: Recognition of gains or losses	If a cash flow hedge meets the requirements of IAS 39 during the period, it shall be accounted for as follows: (a) the portion of the gain or loss on the hedging instrument that is determined to be an effective hedge shall be recognized in other comprehensive income; and (b) the portion of the gain or loss on the hedging instrument that is determined to be an ineffective hedge shall be recognized in profit or loss	Due to the intricacy of hedging accounting, GAS permits the use of IFRS guidance. Gains or losses on changes in the fair value of hedging instruments are reported in equity and are transferred to profit or loss when the hedged cash flows are recognized in profit or loss.
INVESTMENT PROPERTY	**IAS 40**	**APPLICABLE PROVISION OF LAW 4308/2014**
Re-evaluation of fair value	There is a rebuttable presumption that an entity can reliably measure the fair value of an investment property on a continuing basis	When the fair value method is used on investment property, the fair value must be examined by a professional at least every two years and whenever there are indications that the carrying amount of the investment property is significantly different from fair value
AGRICULTURE	**IAS 41**	**APPLICABLE PROVISION OF LAW 4308/2014**
Initial Recognition of biological assets & agricultural produce	Fair value less costs to sell, except in cases where the fair value cannot be reliably determined (measurement at cost less any accumulated depreciation and any accumulated impairment losses)	At acquisition cost

Table 1.12: Differences between IAS/IFRS & GAS regarding key measurement items (continued)

AGRICULTURE	IAS 41	APPLICABLE PROVISION OF LAW 4308/2014
Subsequent measurement of biological assets & agricultural produce	Fair value less costs to sell	Following initial recognition, biological assets are measured at cost less any accumulated depreciation and any accumulated impairment losses. - Subsequent measurement at fair value less costs of sale may be used

In general, it can be concluded that the Greek Accounting Standards' overall level of harmonization with regard to the investigated measurement items is moderate. The primary reason for non-harmonization has been determined to be a lack of inclusion rather than differentiation in accounting treatments, despite the fact that differences in accounting items between the two accounting frameworks have been traced.

However, harmonization of Greek Accounting Standards with IAS/IFRS should be considered in a different light. Given that the new European Accounting Directive establishes Europe's new accounting framework, EU Member States transcribe the Directive's provisions into national law, taking into account their own internal demands and economic realities.

Law 4308/2014 (Greek Accounting Standards) implements the new European Accounting Directive's regulations within the Directive's scope of application. A typical example is the adoption of the EU Accounting Directive's provision on goodwill and development costs amortization in cases when the useful life cannot be accurately estimated (i.e., amortization in 10 years).

Additionally, Greece's legislative authorities had to take into account the mosaic of businesses that make up Greece's business environment, as well as the new Directive's 'Think Small First' principle, which focuses on reducing reporting and disclosure obligations for Micro, Small, and Medium-sized companies.

In the year of the establishment of the Greek Accounting Standards (i.e., 2014), the European Commission's 2014/2015 Annual Report on European SMEs found that Greek Micro, Small and Medium-sized Enterprises accounted for 99.9 % of all business entities in 2014, with Micro entities accounting for approximately 97 % of all business entities and Small and Medium-sized Enterprises accounting for a sizable (37.5 %) share of value-added.

As a consequence, the provisions of the Law had to comply with the new European Accounting Directive while remaining simple (given that the majority of Greek businesses are micro, small, or medium-sized) and consistent with internationally accepted accounting standards.

This means that Greek Accounting Standards may exclude or not fully encompass IAS/IFRS provisions for the sake of simplicity rather than as a purposeful deviation from the IAS/IFRS framework. For example, under Greek Accounting Standards, a hedging relationship qualifies for hedge accounting if only two of the five conditions set forth in IAS 39 are satisfied. Additionally, the provision of the Law allowing for the seeking of guidance in IAS/IFRS may be intended to provide access to a more advanced accounting framework when dealing with more complex issues such as income taxes or financial instruments.

Accordingly, the degree to which Greek Accounting Standards correspond to IAS/IFRS appears to be moderate, based on the value of Jaccard's coefficient (i.e., 47,58%). However, harmonization of national accounting standards with IAS/IFRS should be evaluated not only in terms of similarities and differences, but also taking into account the effect of country-specific factors. Thus, Greek Accounting Standards can be viewed as a first step toward full harmonization with the IAS/IFRS framework.

1.9. Robustness Tests

The previous section's results are verified using McNemar's test (1947), a non-parametric test that has been employed sporadically in relevant accounting studies. McNemar's test specifications have been widely analyzed in the preceding literature. Redelmeier and Tibshirani (2017), for example, state that the McNemar test is used to evaluate pair-matched binary data included in a 2x2 contingency table. Also, according to Kim and Lee (2017), McNemar's test follows a Chi-square distribution with one degree of freedom.

As Berenson and Koppel (2005) note, despite its widespread application in the behavioral sciences and medical research, McNemar's model has not been widely applied to business research. Indeed, while McNemar's test has been largely applied in medical research[46], mapping science[47], and behavioral research studies[48] it has received relatively little attention in prior accounting literature, particularly in the area of accounting harmonization between national and international accounting standards.

Georgiou (2004), for example, employs a series of McNemar tests in his study of corporate lobbying behavior in accounting standard setting for the period 1991–1996. Krishnan et al. (2005) use McNemar's test to examine how non-compensation experts weight performance measures. Armstrong et al. (2010) examine the association between chief executive officer

[46] e.g., Gart, 1969; Prescott, 1981; Eliasziw and Donner, 1991; Lu and Bean, 1995; May and Johnson, 1997; Obuchowski, 1998; Durkalski et al., 2003; Sainani, 2010; Westfall et al., 2010; Fagerland et al., 2013; Redelmeier and Tibshirani, 2017; Kim and Lee, 2017.
[47] e.g., De Leeuw et al., 2006.
[48] e.g., Pembury Smith and Ruxton, 2020.

(CEO) equity incentives and accounting discrepancies using McNemar's test. Doumpos et al. (2015) use McNemar's test in the construction of a model for improving credit rating agency predictions.

Among accounting-related studies that make use of McNemar's test, Bayerlein and Al Farooque's (2012) research is the most pertinent to the present Chapter's research purpose. Bayerlein and Al Farooque (2012) examine the degree of convergence in deferred taxation and goodwill accounting within and across Australia, Hong Kong, and the United Kingdom, both before and after the mandatory adoption of IFRS. Even though Bayerlein and Al Farooque's (2012) research is designated as a material accounting harmonization study, their unique application of McNemar's test paves the way for our research to use McNemar's test.

Unlike Bayerlein and Al Farooque (2012), who use the McNemar test of correlated proportions with the Bowker extension (i.e., because they examine all possible 2x2 McNemar comparisons), we use the original McNemar test because we are comparing two accounting frameworks via specific IAS/IFRS accounting items that are nominal in nature.

Given that, as McCrum-Gardner (2007) points out, McNemar's test is used to compare two paired samples with nominal and dichotomous data, we create two nominal variables IAS/IFRS and GAS (i.e., Greek Accounting Standards) that equal 1 (when a specific accounting item is allowed/identical in International Financial Reporting Standards and Greek Accounting Standards) and 0 (when a specific accounting item is not allowed/not identical in International Financial Reporting Standards and Greek Accounting Standards).

Following that, we construct a sample consisting of the 227 key measurement items, with their respective values of 1 and 0 per accounting framework[49]. Table 1.13 tabulates the aggregate results of the measurement items per accounting framework and value (i.e., 0,1).

Table 1.13: IAS/IFRS * Greek Accounting Standards Cross tabulation

		GAS		Total
		0	1	
IAS/IFRS	0	0	4	4
	1	115	108	223
Total		115	112	227

Given that the examination of both accounting frameworks is based on the 227 key measurement items, we employ McNemar's Test to determine the existence of similarities between IAS/IFRS and Greek Accounting Standards. Table 1.14 summarizes the pertinent findings.

[49] The 227 key measurement items with their respective values of 1 and 0 are presented in Appendix D.

Table 1.14: Results of McNemar's Test

Chi-Square Tests

	Value	Exact Sig. (2-sided)
McNemar Test		0,000
N of Valid Cases	227	

By applying McNemar's Test in our sample, we find strong indications (p-value<0,01) that the accounting frameworks under examination (IAS/IFRS & Greek Accounting Standards) are not independent and consequently exhibit some degree of similarity. Therefore, while our harmonization score of 47,58 % between IAS/IFRS and Greek Accounting Standards is not directly verifiable, we provide circumstantial evidence that the two accounting frameworks share common characteristics.

1.10. Conclusions, Limitations & Suggestions for future research

The current chapter examines the degree of harmonization of Greek Accounting Standards with the IAS/IFRS framework.

Accordingly, we extend Peng and Van Der Laan Smith's (2010) list of key IAS/IFRS measuring items. Also, we compile a list of key Greek Accounting Standards measurement items, taking into account the relevant legal provisions of the Law and the Greek Accounting Standards Accounting Circular.

We compare the key measurement items of both accounting frameworks, using Jaccard's similarity coefficient introduced by Fontes et al. (2005) in formal accounting harmonization studies and calculate harmonization scores for various accounting topics (e.g., Inventories, Property, Plant & Equipment, Intangible Assets, Agriculture, Leases, Government Grants etc.), as well as an overall average harmonization score. Our research yields a score of 47,58%, indicating that nearly half of Greek Accounting Standards are in line with IAS/IFRS, in terms of the measurement items examined.

Additionally, we find that the primary cause for Greek Accounting Standards' divergence from IAS/IFRS is the absence of measurement items, rather than differentiation in their accounting treatments. This finding may be attributed to the Greek legislative authorities' decision to establish a simpler accounting framework that adheres to the new European Accounting Directive's requirements. Additionally, the fact that a substantial proportion of Greek businesses are small and medium-sized may have influenced the Greek legislative authorities' decision to create a less complex accounting framework in accordance with the new European Accounting Directive's "Think Small First" principle.

This trend of harmonization of national accounting rules with IFRS is unsurprising. Sellhorn and Tomaszewski (2006) documented an EU perception that unlisted companies' accounting standards should be harmonized with IFRS in order to alleviate the burden and complexity of maintaining two distinct accounting systems at the national level for public and unlisted enterprises. Thus, what is occurring in Greece may be the fulfillment of Sellhorn and Tomaszewski's prophecy and the start of a progressive adoption of IFRS by SMEs on a national and European level.

Our research has some limitations. To begin, Jaccard's coefficient has been criticized for failing to accurately reflect the degree of formal accounting harmonization (e.g., Mustata et al., 2010). This constraint creates fertile ground for future researchers interested in assessing the harmonization of national accounting standards with international accounting standards using different indicators and methodologies.

Additionally, our study examines the harmonization between key measurement items of IAS/IFRS and Greek Accounting Standards, excluding disclosure items and consolidation issues. Thus, the findings of our study are limited to the harmonization of the examined measurement items between the two frameworks.

To reach a generalized conclusion about the overall harmonization of the Greek Accounting Standards with IAS/IFRS, other important issues (e.g., presentation of financial statements, disclosure, and consolidation) have to be examined. Therefore, future researchers may investigate these issues in order to acquire a more comprehensive picture of the level of harmonization between Greek Accounting Standards and IAS/IFRS.

Additionally, we recognize that determining whether a key accounting item is treated similarly under IAS/IFRS and Greek Accounting Standards entails a degree of subjectivity. With the exception of plainly differing treatment of measurement items, we attempt to compare items based on their economic substance rather than their legal form or the wording employed in the two frameworks.

Finally, we extract our measurement items from IAS/IFRS standards that are effective through December 31, 2017. As a result, some IFRS that have supplanted specific IAS are omitted from our analysis (e.g., IFRS 9, 15, 16 & 17). This opens up another avenue for future research to determine whether the new IFRS significantly diverge from the text of the Greek Accounting Standards.

Despite the limitations outlined above, we believe that our research is useful for policy makers, researchers and academics on a national and international level as it provides evidence on the level of formal accounting harmonization in Greece following the transposition of the new

European Accounting Directive into national law. Additionally, it contributes to the formal accounting harmonization literature by suggesting that the combination of various methods for quantifying the degree of harmonization between accounting standards may shed light on countries' efforts toward international accounting best practices in a tangible way.

Overall, our findings not only corroborate Sellhorn and Tomaszewski's (2006) observation about the likelihood of convergence between national accounting systems and IFRS, but also shed light on a hitherto unexplored topic concerning Greece.

SOURCES

1. Accounting Circular of Law 4308/2014, www.elte.org.gr
2. Aisbitt, Sally & Nobes, Christopher (2001) "The true and fair view requirement in recent national implementations", Accounting and Business Research, 31:2, 83-90.
3. Alexander, David (1993) "A European true and fair view?", European Accounting Review, 2:1, 59-80.
4. Alexander, David & Jermakowicz, Eva (2006) "A true and fair view of the principles/rules debate", Abacus, vol. 42(2), pp. 132-164.
5. Alexander, David & Eberhartinger, Eva (2009) "The True and Fair View in the European Union", European Accounting Review, 18:3, 571-594.
6. Alexander, David & Fasiello, Roberta (2020) "Prudence and Directive 34 – Reality and Rhetoric in Accounting Regulation", Accounting in Europe, 18:1, 26-42.
7. American Institute of Certified Public Accountants (AICPA), Financial Reporting Framework (FRF) for Small and Medium-Sized Entities, https://www.aicpa.org/content/dam/aicpa/interestareas/frc/accountingfinancialreporting/pcfr/downloadabledocuments/frf-sme/frf-smes-framework.pdf.
8. American Institute of Certified Public Accountants (AICPA), FRF for SMEs Frequently Asked Questions, https://www.aicpa.org/interestareas/frc/accountingfinancialreporting/pcfr/frf-smes-faq.html.
9. Archer, Simon, Delvaille, Pascale & McLeay, Stuart (1996) "A Statistical Model of International Accounting Harmonization", Abacus, 32:1-29.
10. Arden, Justice (1997) "True and fair view: a European perspective", European Accounting Review, 6:4, 675-679.
11. Armstrong, C.S., Jagolinzer, A.D. & Larcker, D.F. (2010) "Chief Executive Officer Equity Incentives and Accounting Irregularities", Journal of Accounting Research, 48: 225-271.
12. Ashbaugh, H. & Pincus, M. (2001) "Domestic Accounting Standards, International Accounting Standards, and the Predictability of Earnings", Journal of Accounting Research, 39: 417-434.
13. Bae, Kee-Hong, Tan, Hongping & Welker, Michael (2008) "International GAAP Differences: The Impact on Foreign Analysts", Accounting Review, Vol. 83, No. 3, pp. 593–628.
14. Ball, Ray (2006) "International Financial Reporting Standards (IFRS): pros and cons for investors", Accounting and Business Research, 36:sup1, pp. 5-27.

15. Ballas, Apostolos A. (1994) “Accounting in Greece”, European Accounting Review, 3:1, 107-121.
16. Ballas, Apostolos A. (1998) “The creation of the auditing profession in Greece”, Accounting, Organizations and Society, vol. 23(8), pp. 715-736.
17. Ballas, Apostolos A., Hevas, Dimosthenis & Neal, David (1998) “The State of Accounting and the State of the State”, Journal of Management and Governance 2, no3, pp. 267-285.
18. Ballas, Apostolos A., Skoutela, Despina & Tzovas, Christos A. (2010) “The relevance of IFRS to an emerging market: evidence from Greece”, Managerial Finance, vol. 36(11), pp. 931-948.
19. Barth, Mary E., Landsman, Wayne R., Lang, Mark & Williams, Christopher (2012) “Are IFRS-based and US GAAP-based accounting amounts comparable?”, Journal of Accounting and Economics, Volume 54, Issue 1, pp. 68-93.
20. Bayerlein, Leopold & Al Farooque, Omar (2012) “Influence of a mandatory IFRS adoption on accounting practice: Evidence from Australia, Hong Kong and the United Kingdom”, Asian Review of Accounting, vol. 20(2), pp. 93-118.
21. Berenson, M.L. & Koppel, N.B. (2005) “Why McNemar’s Procedure Needs to be Included in the Business Statistics Curriculum”, Decision Sciences Journal of Innovative Education, 3: 125-136.
22. Bischof, Jannis & Daske, Holger (2016) “Interpreting the European Union’s IFRS Endorsement Criteria: The Case of IFRS 9”, Accounting in Europe, 13:2, 129-168.
23. Cairns, David (1997) “The future shape of harmonization: a reply”, European Accounting Review, 6:2, pp. 305-348.
24. Canibano, L., & Mora, A. (2000) “Evaluating the statistical significance of de facto accounting harmonization: A study of European global players”, The European Accounting Review, 9 (3), 349–369.
25. Caramanis, C.V. (1997) “The enigma of the Greek auditing profession: some preliminary results concerning the impact of liberalization on auditor behaviour”, European Accounting Review, 6:1, 85-108.
26. Caramanis, C.V. (1998) “Assessing the impact of “liberalisation” on auditor behaviour: Accounting research in politically charged contexts”, Accounting, Auditing & Accountability Journal, Vol. 11 No. 5, pp. 562-592.
27. Caramanis, C. & Spathis, C. (2006) “Auditee and audit firm characteristics as determinants of audit qualifications: Evidence from the Athens stock exchange”, Managerial Auditing Journal, Vol. 21 No. 9, pp. 905-920.

28. Caramanis, Constantinos & Lennox, Clive (2008) “Audit effort and earnings management”, Journal of Accounting and Economics, vol. 45(1), pp. 116-138.
29. Carmona, Salvador & Trombetta, Marco (2010) “The IASB and FASB convergence process and the need for ‘concept-based’ accounting teaching”, Advances in Accounting, Volume 26, Issue 1, pp. 1-5.
30. Chen, Shimin, Sun, Zheng & Wang, Yuetang (2002) “Evidence from China on Whether Harmonized Accounting Standards Harmonize Accounting Practices”, Accounting Horizons, 16 (3): 183–197.
31. Chen, Charles J.P., Ding, Yuan & Xu, Bin (2014) “Convergence of accounting standards and foreign direct investment”, The International Journal of Accounting, vol. 49(1), pp. 53-86.
32. Commission Recommendation 96/280/EC of 3 April 1996 concerning the definition of small and medium-sized enterprises, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31996H0280&from=EN.
33. Commission Recommendation 2003/361/EC of 6 May 2003 concerning the definition of micro, small and medium-sized enterprises, https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:124:0036:0041:EN:PDF.
34. Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions, “ Think Small First” - A “Small Business Act for Europe”, https://op.europa.eu/en/publication-detail/-/publication/f64cbad3-4b26-4e88-8e67-a706a48cd035/language-en.
35. Cook, Allan (1997) “Requirement for a true and fair view-a UK standard-setter’s perspective”, European Accounting Review, 6:4, 693-704.
36. Craig, Russell & Diga, Joselito (1999) “Framework for describing national financial accounting systems: towards an archetype”, Asian Review of Accounting, vol. 7, no. 1: 65-95.
37. De Leeuw J., Jia H., Yang L., Liu X., Schmidt, K. & Skidmore, A.K. (2006) “Comparing accuracy assessments to infer superiority of image classification methods”, International Journal of Remote Sensing, 27:1, 223-232.
38. Dimitropoulos, Panagiotis E., Asteriou, Dimitrios, Kousenidis, Dimitrios & Leventis, Stergios (2013) “The impact of IFRS on accounting quality: Evidence from Greece”, Advances in accounting, vol. 29(1), pp.108-123.
39. Ding, Yuan, Jeanjean, Thomas & Stolowy, Hervé (2005) “Why do national GAAP differ from IAS? The role of culture”, The International Journal of Accounting, vol. 40(4), pp. 325-350.

40. Ding, Yuan, Hope, Ole-Kristian, Jeanjean, Thomas & Stolowy, Hervé (2007) “Differences between domestic accounting standards and IAS: Measurement, determinants and implications”, Journal of Accounting and Public Policy, vol. 26, pp. 1-38.

41. Directive 2012/6/EU of The European Parliament And Of The Council of 14 March 2012, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:22013D0029.

42. Directive 2013/34/EU of The European Parliament and Of The Council of 26 June 2013, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32013L0036.

43. Directorate-General for Internal Policies of the Union (European Parliament), Policy Department A: Economic and Scientific Policy (2015) “IFRS Endorsement Criteria in Relation to IFRS 9”, https://op.europa.eu/en/publication-detail/-/publication/44ff766a-433c-11e6-9c64-01aa75ed71a1.

44. Doumpos, Michael, Niklis, Dimitrios, Zopounidis, Constantin & Andriosopoulos, Kostas (2015) “Combining accounting data and a structural model for predicting credit ratings: Empirical evidence from European listed firms”, Journal of Banking & Finance, vol. 50(C), pp. 599-607.

45. Doupnik, Timothy S. & Salter, Stephen B. (1993) “An Empirical Test of a Judgmental International Classification of Financial Reporting Practices”, Journal of International Business Studies, vol. 24, no. 1, 1993, pp. 41–60.

46. Dritsas, Stamatios (2018) “Accounting and Auditing in Greece”, http://greeklawdigest.gr/topics/tax/item/301-accounting-auditing-law-in-greece.

47. Durkalski, V.L., Palesch, Y.Y., Lipsitz, S.R. & Rust, P.F. (2003) “Analysis of clustered matched-pair data”, Statist. Med., 22: 2417-2428.

48. Eberhartinger, Eva L. E. (1999) “The Impact of Tax Rules on Financial Reporting in Germany, France, and the UK”, The International Journal of Accounting, vol. 34(1), pp. 93-119.

49. Eliasziw, M. & Donner, A. (1991) “Application of the McNemar test to non-independent matched pair data”, Statist. Med., 10: 1981-1991.

50. Emenyonu, Emmanuel N. & Gray, Sidney J. (1996) “International accounting harmonization and the major developed stock market countries: An empirical study”, The International Journal of Accounting, vol. 31(3), pp.269-279.

51. Emenyonu, Emmanuel N. & & Adhikari, Ajay (1998) “Measuring the Degree of International Harmony in Selected Accounting Measurement Practices”, Australian Accounting Review, CPA Australia, vol. 8(16), pp. 24-32.

52. European Commission (1995), “Communication from the Commission - Accounting Harmonisation: A new strategy vis-à-vis International Harmonisation”, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:51995DC0508.
53. European Commission (1998), “Communication from the Commission - Financial services: building a framework for action”, https://op.europa.eu/en/publication-detail/-/publication/ae1301d6-785b-42fc-8d34-f70d748e059f/language-en.
54. European Commission (2000), “Communication from the Commission to the Council and the European Parliament EU - Financial Reporting Strategy: the way forward”, https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A52000DC0359.
55. European Commission, (2008), “Think Small First-A Small Business Act for Europe”, , https://ec.europa.eu/commission/presscorner/detail/en/IP_08_1003.
56. European Commission (2009), Consultation Paper On Review of the Accounting Directives-Cutting Accounting Burden for Small Business/Review of the Accounting Directives, https://www.drsc.de/app/uploads/2017/03/130_07a_ConsultationPaper_on_ReviewoftheAccountingDirectives.pdf.
57. European Commission (2013), “Financial reporting obligations for limited liability companies (Accounting Directive) – frequently asked questions”, https://ec.europa.eu/commission/presscorner/detail/en/MEMO_13_540.
58. European Commission (2015), “Annual Report on European SMEs 2014/2015”, https://www.ggb.gr/sites/default/files/basic-page-files/2015_annual-report_en.pdf.
59. European Commission (2019), “Overview of the use of options provided in the IAS Regulation (1606/2002) in the EU”, https://ec.europa.eu/info/law/international-accounting-standards-regulation-ec-no-1606-2002/implementation/implementation-eu-countries_en.
60. European Federation of Accountants and Auditors for SMEs (EFAA), (2014) “Implementing the New European Accounting Directive-Making the right choices”, https://www.efaa.com/publications/reports/index.html.
61. European Federation of Accountants and Auditors for SMEs (EFAA) (2016) “The New Accounting Directive: A Harmonised European Accounting Framework?”, https://www.efaa.com/publications/reports/index.html.
62. Evans, Lisa & Nobes, Christopher (1996) “Some mysteries relating to the prudence principle in the Fourth Directive and in German and British law”, European Accounting Review, 5:2, 361-373.
63. Evans, Lisa (2003) “The true and fair view and the ‘fair presentation’ override of IAS 1”, Accounting and Business Research, 33:4, 311-325.

64. Fagerland, M.W., Lydersen, S. & Laake, P. (2013) “The McNemar test for binary matched-pairs data: mid-p and asymptotic are better than exact conditional”, BMC Med Res Methodol 13:91.

65. Financial Accounting Standards Board (FASB), Memorandum of Understanding (MOU), “The Norwalk Agreement”, https://www.fasb.org/resources/ccurl/443/883/memorandum.pdf.

66. Federation of European Accountants (Fédération des Experts comptables Européens -FEE) (2001), “Discussion Paper on Modernisation of the Accounting Directives”, https://www.accountancyeurope.eu/publications/modernisation-of-the-accounting-directives.

67. Flower, John (1997) “The future shape of harmonization: the EU versus the IASC versus the SEC”, European Accounting Review, 6:2, pp. 281-303.

68. Fontes, A., Rodrigues, L.L. & Craig, R. (2005) “Measuring convergence of National Accounting Standards with International Financial Reporting Standards”, Accounting Forum, Volume 29, Issue 4, pp. 415-436.

69. Fourth Council Directive 78/660/EEC of 25 July 1978 based on Article 54 (3) (g) of the Treaty on the annual accounts of certain types of companies, https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX%3A31978L0660.

70. GAAP 2001: A Survey of National Accounting Rules Benchmarked against International Accounting Standards, https://www.iasplus.com/en/binary/resource/gaap2001.pdf .

71. Garrido, P., Leon, A., & Zorio, A. (2002) “Measurement of Formal Harmonization Process: The IASC Experience”, The International Journal of Accounting, Volume 37, Issue 1, pp. 1-26.

72. Gart, John J. (1969) “An exact test for comparing matched proportions in crossover designs”, Biometrika, Volume 56, Issue 1, pp. 75–80.

73. Georgiou, George (2004) “Corporate Lobbying on Accounting Standards: Methods, Timing and Perceived Effectiveness”, Abacus, vol. 40(2), pp. 219-237.

74. Georgiou Omiros & Jack, Lisa (2011) “In pursuit of legitimacy: A history behind fair value accounting”, The British Accounting Review, 43, 311–323.

75. Gray, S.J. (1988) “Towards a Theory of Cultural Influence on the Development of Accounting Systems Internationally”, Abacus, 24: 1-15.

76. Haller, Axel (2002) “Financial accounting developments in the European Union: past events and future prospects”, European Accounting Review, 11:1, 153-190.

77. Harrison, Graeme L. & McKinnon, Jill L. (1986) “Culture and accounting change: A new perspective on corporate reporting regulation and accounting policy formulation”, Accounting, Organizations and Society, vol. 11(3), pp. 233-252.

78. Herz, Robert H. & Petrone, Kimberley R. (2005) “International Convergence of Accounting Standards - Perspectives from the FASB on Challenges and Opportunities”, Northwestern Journal of International Law & Business, vol. 25, no. 3, pp. 631-660, HeinOnline.
79. Hitz, Joerg-Markus (2007) “The Decision Usefulness of Fair Value Accounting – A Theoretical Perspective”, European Accounting Review, 16:2, 323-362.
80. Hoarau, Christian (1995) “International accounting harmonization”, European Accounting Review, 4:2, pp. 217-233.
81. Hofstede, Geert (1984) “Cultural dimensions in management and planning”, Asian Pacific Journal of Management 1, pp. 81–99.
82. iasplus.com, “IASB-FASB convergence”, https://www.iasplus.com/en/projects/completed/other/iasb-fasb-convergence.
83. iasplus.com, “IFRS for SMEs”, https://www.iasplus.com/en/standards/other/ifrs-for-smes.
84. IFRS.org, “Who uses IFRS Standards?”, https://www.ifrs.org/use-around-the-world/use-of-ifrs-standards-by-jurisdiction/#analysis.
85. IFRS.org, “Who uses IFRS Standards?, United States”, https://www.ifrs.org/use-around-the-world/use-of-ifrs-standards-by-jurisdiction/view-jurisdiction/united-states/.
86. IFRS.org, “17 African countries to adopt IFRS Standards from 2019”, https://www.ifrs.org/news-and-events/news/2018/01/ifrs-foundation-updates-jurisdiction-profiles-to-reflect-decision-by-17-african-countries/.
87. IFRS.org, “IFRS for SMEs Standard”, https://www.ifrs.org/projects/completed-projects/2009/ifrs-for-smes-standard/.
88. IFRS.org, “IFRS for SMEs, 2009 Development”, https://www.ifrs.org/supporting-implementation/supporting-materials-for-the-ifrs-for-smes/2009-development/.
89. Interpretative communication concerning certain Articles of the Fourth and Seventh Council Directives on accounting - 98/C16/04 (1998), https://op.europa.eu/en/publication-detail/-/publication/30fdf33a-a961-4005-9933-8d6a5514b3ad/language-en.
90. Jovanović, Tatjana (2014) “Comparison of accounting systems for micro legal entities in Slovenia and Serbia referring to the new EU Accounting Directive”, http://portal.finiz.singidunum.ac.rs.
91. Joos, Peter & Lang, Mark (1994) “The Effects Of Accounting Diversity - Evidence From The European-Union”, Journal of Accounting Research, Wiley Blackwell, vol. 32, pages 141-168.

92. Karampinis, Nikolaos I. & Hevas, Dimosthenis L. (2011) “Mandating IFRS in an Unfavorable Environment: The Greek Experience”, The International Journal of Accounting, vol. 46(3), pp. 304-332.
93. Karampinis, Nikolaos I. & Hevas, Dimosthenis L. (2013) “Effects of IFRS Adoption on Tax-induced Incentives for Financial Earnings Management: Evidence from Greece”, The International Journal of Accounting, vol. 48(2), pp. 218-247.
94. Kaufhold, Gerrit (2015) “Compatibility of the IFRS for Small and Medium sized entities and the new EU Accounting Directive”, https://acta.mendelu.cz.
95. Kaya, Devrimi & Koch, Maximilian (2015) “Countries’ adoption of the International Financial Reporting Standard for Small and Medium-sized Entities (IFRS for SMEs) – early empirical evidence”, Accounting and Business Research, 45:1, 93-120.
96. Kim S. & Lee W. (2017) “Does McNemar’s test compare the sensitivities and specificities of two diagnostic tests?”, Statistical Methods in Medical Research, 26(1):142-154.
97. Komai, Alejandro & Richardson, Gary (2011) “A Brief History of Regulations Regarding Financial Markets in the United States: 1789 to 2009”, National Bureau of Economic Research Working Paper Series, vol, no. 17443, http://www.nber.org/papers/w17443.pdf.
98. Koumanakos, Evangelos, Siriopoulos, Costas & Georgopoulos, Antonios (2005) “Firm acquisitions and earnings management: evidence from Greece”, Managerial Auditing Journal 20, no. 7, pp.663-678.
99. Koumanakos, E., Georgopoulos, A. & Siriopoulos, C. (2008) “Auditor awareness of earnings management”, Accounting, Auditing and Performance Evaluation, Vol. 5, No. 1, pp.50–65
100. Krishnan, R., Luft, J., & Shields, M. (2005) “Effects of Accounting-Method Choices on Subjective Performance-Measure Weighting Decisions: Experimental Evidence on Precision and Error Covariance”, The Accounting Review, 80(4), 1163-1192.
101. Landsman, Wayne R. (2007) “Is fair value accounting information relevant and reliable? Evidence from capital market research”, Accounting and Business Research, 37:sup1, 19-30.
102. La Porta, Rafael, Lopez-de-Silanes, Florencio, Shleifer, Andrei & Vishny, Robert W. (1998) “Law and Finance”, Journal of Political Economy, vol. 106(6), pp.1113-1155.
103. Lasmin, R. (2011) “Empirical Evidence on Formal and Material Harmonization of National Accounting Standards”, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1893645.
104. Law 1041/1980, http://www.publicrevenue.gr/elib/view?d=/gr/act/1980/1041.
105. Law 2190/1920, http://elib.aade.gr/elib/view?d=/gr/act/1920/2190.
106. Law 3190/1955, http://elib.aade.gr/elib/view?d=/gr/act/1955/3190.

107. Law 3229/2004, www. http://elib.aade.gr/elib/view?d=/gr/act/2004/3229/.
108. Law 4072/2012, http://elib.aade.gr/elib/view?d=/gr/act/2012/4072.
109. Law 4093/2012, http://www.publicrevenue.gr/elib/view?d=/gr/act/2012/4093.
110. Law 4410/2016, http://elib.aade.gr/elib/view?d=/gr/act/2016/4410/art/47.
111. Law 4541/2018, http://elib.aade.gr/elib/view?d=/gr/act/2018/4541/.
112. Law 4548/2018, http://elib.aade.gr/elib/view?d=/gr/act/2018/4548.
113. Law 4308/2014, http://www.publicrevenue.gr/elib/view?d=/gr/act/2014/4308.
114. Leuz, Christian (2003) "IAS Versus U.S. GAAP: Information Asymmetry–Based Evidence from Germany's New Market", Journal of Accounting Research, 41: 445-472.
115. Lisowsky, Petro & Minnis, Michael (2020) "The Silent Majority: Private U.S. Firms and Financial Reporting Choices", Journal of Accounting Research, 58: 547-588.
116. Lu, Y. & Bean, J.A. (1995) "On the sample size for one-sided equivalence of sensitivities based upon McNemar's test", Statist. Med., 14: 1831-1839.
117. Mates, Dorel, Hlaciuc, Elena, Ursachi, Antonela & Maciuca, Geanina (2015) "Accounting Convergences And Divergences In The Context Of Harmonization And The Compliance Of National Regulations With Directive 2013/34/Eu", Annals of University of Craiova - Economic Sciences Series, University of Craiova, Faculty of Economics and Business Administration, vol. 1(43), pages 29-38, http://feaa.ucv.ro/AUCSSE/0043v1-002.pdf.
118. May WL & Johnson WD (1997) "The validity and power of tests for equality of two correlated proportions", Statistics in Medicine, 16(10):1081-1096.
119. McCrum-Gardner, Evie (2008) "Which is the correct statistical test to use?", British Journal of Oral and Maxillofacial Surgery, Volume 46, Issue 1, pp. 38-41.
120. McLeay, Stuart, Neal, David & Tollington, Tont (1999) "International Standardisation and Harmonisation: A New Measurement Technique", Journal of International Financial Management & Accounting, 10: 42-70.
121. McNemar, Q. (1947) "Note on the sampling error of the difference between correlated proportions or percentages", Psychometrika, 12, 153–157.
122. Murphy, Ann B. (2000) "The Impact of Adopting International Accounting Standards on the Harmonization of Accounting Practices", The International Journal of Accounting, Volume 35, Issue 4, pp. 471-493.
123. Mustata, R. V., Matis, D., Bonaci, C. G., & Strouhal, J. (2010) "Econometric tools Used in Measuring Accounting Harmonization: A Necessity Imposed Through Globalization", http://www.wseas.us/e-library/conferences/2010/TimisoaraW/EMT/EMT2-40.pdf.

124. Nguyen, Anh Tuan & Gong, Guangming (2014) “Measurement of Formal Convergence of Vietnamese Accounting Standards with IFRS”, Australian Accounting Review, vol. 24(2), pp. 182-197.
125. Nobes, C. (1983) “A judgemental international classification of financial reporting practices”, Journal of Business Finance & Accounting, 10: 1-19.
126. Nobes, C. (1998) “Towards a General Model of the Reasons for International Differences in Financial Reporting”, Abacus, 34: 162-187.
127. Nobes, Christopher (2015) “IFRS Ten Years on: Has the IASB Imposed Extensive Use of Fair Value? Has the EU Learnt to Love IFRS? And Does the Use of Fair Value make IFRS Illegal in the EU?”, Accounting in Europe, 12:2, 153-170.
128. Obuchowski, N.A. (1998) “On the comparison of correlated proportions for clustered data”, Statist. Med., 17: 1495-1507.
129. OECD, Financing SMEs and Entrepreneurs 2020: An OECD Scoreboard, https://www.oecd-ilibrary.org/sites/0f52ae26en/index.html?itemId=/content/component/0f52ae26-en.
130. Ordelheide, Dieter (1993) “True and fair view”, European Accounting Review, 2:1, 81-90.
131. Ordelheide, Dieter (1996) “True and fair view”, European Accounting Review, 5:3, 495-506.
132. Ortega, X. (2017) “A Review of IFRS and U.S. GAAP Convergence History and Relevant Studies”, International Business Research; Vol. 10, No. 9, pp. 31-38.
133. Qu, X. & Zhang, G. (2010) “Measuring the Convergence of National Accounting Standards with International Financial Reporting Standards: The Application of Fuzzy Clustering Analysis”, The International Journal of Accounting, vol. 45, no. 3, pp.334-355.
134. Palmon, Dan, Peytcheva, Marietta & Yezegel, Ari (2011) “The Accounting Standards Setting Process in the U.S.: Examination of the SEC–FASB Relationship”, Group Decision and Negotiation, Springer, vol. 20(2), pp. 165-183.
135. Panetsos, L. (2016) “Accounting Standards and Legal Capital in EU Law”, Utrecht Law Review, 12(1), pp.139–158.
136. Pembury Smith, M.Q.R. & Ruxton, G.D. (2020) “Effective use of the McNemar test”, Behavioral Ecology &Sociobiology 74:133.
137. Peng, S. & van der Laan Smith, J. (2010) “Chinese GAAP and IFRS: An analysis of the convergence process”, Journal of International Accounting, Auditing and Taxation, vol. 19(1), pp. 16-34.

138. Perera, Dinuja & Chand, Parmod (2015) “Issues in the adoption of international financial reporting standards (IFRS) for small and medium-sized enterprises (SMES)”, Advances in Accounting, incorporating Advances in International Accounting 31, 165–178.
139. Pres. Decree 1123/1980, http://www.publicrevenue.gr/elib/view?d=/gr/pd/1980/1123/art/1.
140. Prescott, R.J (1981) “The Comparison of Success Rates in CrossOver Trials in the Presence of an Order Effect”, Journal of the Royal Statistical Society Series C, Royal Statistical Society, vol. 30(1), pp.9-15.
141. Rahman, A., Perera, H., & Ganeshanandam, S. (1996) “Measurement of Formal Harmonisation in Accounting: An Exploratory Study”, Accounting and Business Research, 26 (4), 325-339.
142. Rahman, A, Perera, H & Ganesh, S. (2002) “Accounting Practice Harmony, Accounting Regulation and Firm Characteristics”, Abacus, vol. 38(1), pp. 46-77.
143. Redelmeier, Donald A. & Tibshirani, Robert J. (2017), “A simple method for analyzing matched designs with double controls: McNemar’s test can be extended”, Journal of Clinical Epidemiology, Volume 81, pp. 51-55.
144. Regulation (EC) No 1606/2002 of the European Parliament and of the Council of 19 July 2002 on the application of international accounting standards, https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX%3A32002R1606.
145. Robinson, C. & Venieris, G. (1996) “Economics, culture, and accounting standards: a case study of Greece and Canada”, Canadian Journal of Administrative Sciences 13(2), 119-131.
146. Sainani, K. (2010) “The Importance of Accounting for Correlated Observations”, PM&R, 2: 858-861.
147. Schuetze, Walter P. (1994) “The politics of mutual recognition”, European Accounting Review, 3:2, pp. 329-353.
148. Sellhorn, T. & Tomaszewski, S.G (2006) “Implications for the IAS Regulation for Research into the International Differences in Accounting Systems”, Accounting in Europe, 3:1, 187-217.
149. Street, Donna L. (2002) “GAAP 2001-Benchmarking national accounting standards against IAS: summary of results”, Journal of International Accounting, Auditing and Taxation, Volume 11, Issue 1, 2002, pp. 77-90.
150. Seventh Council Directive 83/349/EEC of 13 June 1983 based on the Article 54 (3) (g) of the Treaty on consolidated accounts, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A31983L0349.

151. Soderstrom, Naomi & Sun, Kevin Jialin (2007) “IFRS Adoption and Accounting Quality: A Review” European Accounting Review”, vol. 16(4), pp. 675-702.

152. Stamatopoulos, I., Hadjidema, S. & Eleftheriou, K. (2017) “Corporate Income Tax Compliance Costs and their Determinants: Evidence from Greece”, Advances in Taxation, Vol. 24, pp. 233-270.

153. Tay, J.S.W. & Parker, R.H. (1990) “Measuring International Harmonization and Standardization”, Abacus, 26: 71-88.

154. Tay, J.S.W. & Parker, R.H. (1992) “Measuring International Harmonization and Standardization: A Reply”, Abacus, 28: 217-220.

155. Thanh, Le Vu Ngoc & Hiep, Hoang Trong (2017) “Formal accounting harmonization - A new measurement scheme demonstrated by Vietnam’s data and International Financial Reporting Standards”, Journal of Science Ho Chi Minh City Open University – Vol. 21 (1) 2017, pp.34-46, https://journalofscience.ou.edu.vn//index.php/econ-en/article/view/195.

156. Thorell, Per & Whittington, Geoffrey (1994) “The harmonization of accounting within the EU, European Accounting Review”, 3:2, 215-240.

157. Tokar, M. (2005) “Convergence and the Implementation of a Single Set of Global Standards: The Real-life Challenge”, Accounting in Europe Vol 2(1), pp. 47-68.

158. Tsakumis, George T. (2007) “The Influence of Culture on Accountants’ Application of Financial Reporting Rules”, Abacus, Vol. 43, No. 1, pp:27-48.

159. Tsalavoutas, Ioannis & Evans, Lisa (2010) “Transition to IFRS in Greece: financial statement effects and auditor size”, Managerial Auditing Journal, vol. 25(8), pp. 814-842.

160. Tsalavoutas, Ioannis (2017) “The Role and Current Status of IFRS in the Completion of National Rules – Evidence from Greece”, Accounting in Europe, 14:1-2, 102-112.

161. Tsipouridou, Maria & Spathis, Charalambos (2012) “Earnings management and the role of auditors in an unusual IFRS context: The case of Greece”, Journal of International Accounting, Auditing and Taxation, vol. 21(1), pages 62-78.

162. Tsipouridou, Maria & Spathis, Charalambos (2014) “Audit opinion and earnings management: Evidence from Greece”, Accounting Forum, 38:1, pp. 38-54.

163. Tzovas, Christos (2006) “Factors influencing a firm’s accounting policy decisions when tax accounting and financial accounting coincide”, Managerial Auditing Journal, Vol. 21, No 4, PP. 372-386.

164. Tweedie, David & Seidenstein, Thomas R. (2005) “Setting a Global Standard: The Case for Accounting Convergence”, Northwestern Journal of International Law & Business, Vol 25, Issue 3, pp. 589-606 https://scholarlycommons.law.northwestern.edu/njilb/vol25/iss3/25.

165. Van der Tas, L. G. (1988) “Measuring Harmonisation of Financial Reporting Practice”, Accounting and Business Research, 18:70, 157-169.
166. Van der Tas, L. G. (1992) “Evidence of EC Financial Reporting Practice Harmonization: The Case of Deferred Taxation”, European Accounting Review, vol.1(1), pp. 69-104.
167. Van Hulle, K. (1992) “Harmonization of accounting standards A view from the European community”, European Accounting Review, 1:1, 161-172.
168. Van Hulle, K. (1993) “Harmonization of accounting standards in the EC”, European Accounting Review, 2:2, 387-396.
169. Van Hulle, K. & Leuven, K.U. (1993) “Truth and untruth about true and fair: a commentary on ‘A European true and fair view’ comment”, European Accounting Review, 2:1, 99-104.
170. Van Hulle, K. (1996) “Prudence: a principle or an attitude?”, European Accounting Review, 5:2, 375-382.
171. Van Hulle, K. (1997) “The true and fair view override in the European Accounting Directives”, European Accounting Review, 6:4, 711-720.
172. Vrentzou, Eleni & Daskalakis, Athanasios, (2012) “The Past and the Present of the Audit Profession in Greece”, Accounting & Financial History Research Journal, Issue 2, pp. 120-144.
173. Walton, Peter (1992) “Harmonization of Accounting in France and Britain: Some Evidence”, Abacus, 28:186-199.
174. Welzel, Hans-Joachim (1996) “The Prudence Concept in EC Insurance Accounts Law”, The Geneva Papers on Risk and Insurance Issues and Practice, vol. 21, no. 78, pp. 36–49.
175. Westfall, P.H., Troendle, J.F. & Pennello, G. (2010) “Multiple McNemar Tests”, Biometrics, 66: 1185-1191.
176. Whittington, G. (2005) “The adoption of International Accounting Standards in the European Union”, European Accounting Review, 14:1, 127-153.
177. Whittington, G. (2008) “Fair Value and the IASB/FASB Conceptual Framework Project: An Alternative View”, Abacus, 44: 139-168.

APPENDIX A: PRESENTATION OF MEASUREMENT RULES ACCORDING TO GREEK ACCOUNTING STANDARDS

<table>
<tr><td rowspan="12">PPE/TANGIBLE ASSETS</td><td colspan="2">RECOGNITION CRITERIA/CLASSIFICATION/OTHER IMPORTANT ISSUES</td></tr>
<tr><td colspan="2">Property, plant, and equipment items should be recognized as assets if it is probable that: 1) The future economic benefits associated with the asset will flow to the entity; and 2) the asset’s cost can be reliably measured</td></tr>
<tr><td colspan="2">Improvement costs, repair and maintenance costs (when the above-mentioned recognition criteria are met), and disassembly or restoration costs (only when the relative costs are unrelated to the production of goods or services) are all recognized as tangible assets</td></tr>
<tr><td colspan="2">Depreciation is applied to assets with a limited useful life, whereas assets with an unlimited useful life are not depreciated</td></tr>
<tr><td colspan="2">The following methods of depreciation are acceptable: 1) straight-line depreciation method; 2) declining balance depreciation method; 3) units of production depreciation method</td></tr>
<tr><td colspan="2">Upon adequate indications, all assets, regardless of their useful life, are subject to impairment testing (e.g., technological obsolescence of the asset)</td></tr>
<tr><td colspan="2">When it is estimated that an impairment is permanent, the loss is recognized as an expense in the P&L account</td></tr>
<tr><td colspan="2">Impairments losses can be reversed only when the conditions that caused them are no longer present</td></tr>
<tr><td colspan="2">When an asset is sold, or no future benefits are anticipated from its use or disposal, it is no longer recognized in the financial statements</td></tr>
<tr><td colspan="2">The acquisition cost of a self-constructed or self-produced tangible or biological asset shall include all costs associated with ensuring that the asset functions as intended - such costs include raw material costs, labor costs, and so on. In the case of self-created assets that take a significant amount of time to construct or produce, acquisition costs may be compounded by borrowing costs</td></tr>
<tr><td>INITIAL RECOGNITION</td><td>SUBSEQUENT MEASUREMENT</td></tr>
<tr><td>At acquisition cost</td><td>At acquisition cost plus improvement, repair and maintenance costs less depreciation and impairment</td></tr>
<tr><td rowspan="8">INTANGIBLE ASSETS</td><td colspan="2">RECOGNITION CRITERIA/CLASSIFICATION/OTHER IMPORTANT ISSUES</td></tr>
<tr><td colspan="2">When the useful life of goodwill and other intangible assets cannot be reliably estimated, they are depreciated over a ten-year period</td></tr>
<tr><td colspan="2">Annual impairment testing is required for goodwill and other intangible assets with an indefinite useful life</td></tr>
<tr><td colspan="2">Impairment loss of intangible assets cannot be reversed</td></tr>
<tr><td colspan="2">Development costs are recognized as intangible assets only: 1) when the entity intends and is able to complete the intangible asset in order for it to be ready for use or sale, 2) it is probable that the future economic benefits attributable to the asset will flow to the entity, and 3) the cost of the asset can be reliably measured. – Otherwise, development costs are expensed</td></tr>
<tr><td colspan="2">Internally generated intangible assets, including goodwill, are not recognized in the financial statements, with the exception of development costs</td></tr>
<tr><td>INITIAL RECOGNITION</td><td>SUBSEQUENT MEASUREMENT</td></tr>
<tr><td>At acquisition cost</td><td>Depreciable acquisition cost</td></tr>
</table>

APPENDIX A: PRESENTATION OF MEASUREMENT RULES ACCORDING TO GREEK ACCOUNTING STANDARDS (continued)

<table>
<tr><td rowspan="3">FINANCE LEASES</td><td>RECOGNITION CRITERIA/CLASSIFICATION/ OTHER IMPORTANT ISSUES</td><td>INITIAL RECOGNITION</td><td>SUBSEQUENT MEASUREMENT</td></tr>
<tr><td rowspan="2">A lease is classified as a finance lease if it effectively transfers to the lessee all of the risks and rewards associated with ownership</td><td>The lessee accounts for the finance lease on the balance sheet as an asset and a liability at cost, as if the asset had been purchased</td><td>Finance lease assets are considered as owned assets by the lessee (depreciation, etc.) - The finance lease liability is treated as a loan, and finance lease payments should be split between the finance charge (interest expense) and the loan reduction</td></tr>
<tr><td>A finance lease is recorded as a receivable on the lessor’s balance sheet in an amount equal to the lease’s net investment</td><td>The (lease) receivable should be treated as a loan, with finance leasing payments split between financial income (interest revenues) and loan repayments</td></tr>
<tr><td rowspan="2">SALE & LEASEBACK RESULTING IN A FINANCE LEASE</td><td rowspan="2">According to the substance over form principle, the transaction is treated as a guaranteed mortgage loan</td><td>The seller (lessee) still recognizes the asset sold in the balance sheet but also recognizes a liability (the amount received from the disposal of the asset)</td><td>Same treatment as financial lease</td></tr>
<tr><td>The buyer (lessor) recognizes a receivable (the amount paid to acquire the asset)</td><td>Same treatment as financial lease</td></tr>
<tr><td rowspan="3">OPERATING LEASES</td><td>RECOGNITION CRITERIA/CLASSIFICATION/ OTHER IMPORTANT ISSUES</td><td>INITIAL RECOGNITION</td><td>SUBSEQUENT MEASUREMENT</td></tr>
<tr><td rowspan="2">Except for financial leases, all leases are categorised as operating leases</td><td colspan="2">The lessee recognize lease payments as expenses in the P&L account on a straight-line basis over the lease period, unless another systematic method more accurately reflects the expenses’ distribution over time</td></tr>
<tr><td colspan="2">Assets retained for operational leases should be classified according to their nature in the lessor’s balance sheet, while lease income should be recognized on a straight-line basis during the lease term, unless another systematic method is more reflective of the income’s distribution over time</td></tr>
<tr><td rowspan="6">INVEVTORIES</td><td colspan="3">RECOGNITION CRITERIA/CLASSIFICATION/OTHER IMPORTANT ISSUES</td></tr>
<tr><td colspan="3">The cost of goods and services produced (as assessed by all admissible cost methods) includes the cost of raw materials, consumables, labor, and a reasonable proportion of indirect fixed and variable costs associated with the goods or services</td></tr>
<tr><td colspan="3">When a large amount of time is required to prepare products for sale, borrowing costs may be charged to the cost of goods and services produced</td></tr>
<tr><td colspan="3">The closing stock cost is calculated using the FIFO or weighted-average methods, among others.- The LIFO method is prohibited</td></tr>
<tr><td colspan="2">INITIAL RECOGNITION</td><td>SUBSEQUENT MEASUREMENT</td></tr>
<tr><td colspan="2">At acquisition cost</td><td>At the lower value between acquisition cost and net realizable value</td></tr>
</table>

APPENDIX A: PRESENTATION OF MEASUREMENT RULES ACCORDING TO GREEK ACCOUNTING STANDARDS (continued

FOREIGN CURRENCY TRANSACTIONS	**RECOGNITION CRITERIA/CLASSIFICATION/OTHER IMPORTANT ISSUES**		
	- Monetary items: currency units held and assets and obligations payable or received in a fixed or determinable number of currency units - Non-monetary items: Assets and liabilities that are not monetary		
	Exchange differences resulting from the settlement of monetary items or the conversion of monetary items at rates different from those used when they were initially recognized or in previous financial statements are recorded in the P&L account		
	Exchange differences on monetary items that are included in the reporting entity's net investment in a foreign operation are recorded as equity items and will be transferred to the P&L account upon the net investment's disposition		
	INITIAL RECOGNITION		**SUBSEQUENT MEASUREMENT**
	At the exchange rate in effect on the date of the transaction		Foreign currency monetary items should be reported at the balance sheet date's closing rate
			Non-monetary items carried at historical cost should be recorded using the exchange rate in effect at the time the transaction occurred
			Non-monetary items held at fair value should be reported at the exchange rate in effect at the time the fair values were established
GOVERNMENT GRANTS	**RECOGNITION CRITERIA/CLASSIFICATION/OTHER IMPORTANT ISSUES**	**INITIAL RECOGNITION**	**SUBSEQUENT MEASUREMENT**
	A government grant is only recorded when it is reasonably certain of being received	Grants from the government for assets and expenses are initially recorded as liabilities	- - Government grants for assets are reported in the P&L account during the same periods as depreciation on the subsidized asset - Government grants for expenses are reported in the P&L account in the same periods as the matching expenses
ADVANCE PAYMENTS & OTHER NON-FINANCIAL ASSETS	**INITIAL RECOGNITION**		**SUBSEQUENT MEASUREMENT**
	At acquisition cost		At acquisition cost less accrued expenses and impairment losses
	At acquisition cost		At the lower value between acquisition cost and recoverable amount

APPENDIX A: PRESENTATION OF MEASUREMENT RULES ACCORDING TO GREEK ACCOUNTING STANDARDS (continued)

LIABILITIES	**RECOGNITION CRITERIA/CLASSIFICATION/OTHER IMPORTANT ISSUES**	**INITIAL RECOGNITION**	**SUBSEQUENT MEASUREMENT**
	Discounts, premiums, and costs incurred in connection with the liability shall be reported as revenues or expenses for the period in which the liability is initially recognized	At the amount due	At the amount due
	Interests on financial liabilities are expensed unless they raise the cost of acquisition of assets or inventories	Alternatively, at amortized cost using the effective interest rate method or the straight-line method if the use of this method has a material effect on the financial statements. Under this approach, initial recognition is made at the net amount received, less any discounts, premiums, interest, or costs associated with the liability	Alternatively, at amortized cost using the effective interest rate or straight-line method, when this method has a material effect on the financial statements
	When a contractual agreement is fulfilled, annulled, or expires, financial liabilities are no longer recognized in the financial statements		
	Modifications to the terms of an existing financial liability are treated as a settlement of the prior liability and the establishment of a new financial liability		
NON-FINANCIAL LIABILITIES	**RECOGNITION CRITERIA/CLASSIFICATION/OTHER IMPORTANT ISSUES**	**INITIAL RECOGNITION**	**SUBSEQUENT MEASUREMENT**
	Gains and losses are recorded in the period in which differences arise as a result of the revaluation or settlement of non-financial liabilities (including provisions)	At the nominal amounts anticipated to be incurred in order to settle the obligations	At the nominal amounts anticipated to be incurred in order to settle the obligations
PROVISIONS	**RECOGNITION CRITERIA/CLASSIFICATION/OTHER IMPORTANT ISSUES**	**INITIAL RECOGNITION**	**SUBSEQUENT MEASUREMENT**
	Gains and losses are recorded in the period in which differences arise as a result of the revaluation or settlement of non-financial liabilities (including provisions)	At the nominal amounts anticipated to be incurred in order to settle the obligations	At the nominal amounts anticipated to be incurred in order to settle the obligations
		Alternatively, at the present value of the amount anticipated to be incurred to settle the obligations, when the use of this method has a material effect on the financial statements	Alternatively, at the present value of the amount anticipated to be incurred to settle the obligations, when the use of this method has a material effect on the financial statements.

APPENDIX A: PRESENTATION OF MEASUREMENT RULES ACCORDING TO GREEK ACCOUNTING STANDARDS (continued)

PROVISIONS FOR EMPLOYEE RETIREMENT BENEFITS (POST-EMPLOYMENT BENEFIT PLANS)	**RECOGNITION CRITERIA/CLASSIFICATION/OTHER IMPORTANT ISSUES**	**INITIAL RECOGNITION**	**SUBSEQUENT MEASUREMENT**
	Gains and losses are recorded in the period in which differences arise as a result of the revaluation or settlement of non-financial liabilities (including provisions)	At the nominal amounts required by applicable law on the balance sheet date or by the use of appropriate actuarial reports, when the use of actuarial reports has a material effect on the financial statements	At the nominal amounts required by applicable law on the balance sheet date or by the use of appropriate actuarial reports, when the use of actuarial reports has a material effect on the financial statements
FINANCIAL ASSETS	**RECOGNITION CRITERIA/CLASSIFICATION/OTHER IMPORTANT ISSUES**		
	Financial assets are classified as current or non-current assets on the balance sheet, depending on the management's intentions		
	When all associated advantages and risks are transferred and the entity has no contractual rights to the asset's cash flows, financial assets are no longer recognized in the financial statements		
	When sufficient indications of impairment exist for financial assets, they are subject to impairment testing (e.g., financial distress of the issuer)		
	Impairment losses occur when the book value of a financial asset exceeds its recoverable value		
	Impairment losses are recognized in the P&L account		
	When the conditions that caused the impairment cease to exist, the impairment loss is reversed as profit in the P&L account - Reversal of impairment loss is made up to the carrying amount of the asset, had no impairment occurred		
	Non-current financial asset impairment losses are recognized only when the nature of the impairment is permanent		
	Financial assets are de-recognized when the entity's contractual rights to the financial asset's cash flows expire or when the entity transfers all of the financial asset's risks and benefits to another party		
INTEREST-BEARING FINANCIAL ASSETS	**INITIAL RECOGNITION**		**SUBSEQUENT MEASUREMENT**
	At acquisition cost		At acquisition cost less impairment losses
			At amortized cost using the effective interest rate or straight-line method, when the amortized cost method has a material effect on the financial statements
CHANGES IN ACCOUNTING POLICIES AND ESTIMATES & CORRECTION OF PRIOR PERIOD ERRORS	**RECOGNITION CRITERIA/CLASSIFICATION/OTHER IMPORTANT ISSUES**		
	Changes in accounting policies and correction of prior period errors are applied retrospectively by correcting: - the book values of assets, liabilities and equity, cumulatively at the beginning and end of the comparative and current reporting periods, as if the new accounting policy had always been applied or the error has never occurred - the comparative reporting period's revenues, profits, expenses, and losses		
	The effect of a change in an accounting estimate must be recognized in the period in which the change occurs as well as in subsequent periods - Recognizing a change in an accounting estimate retrospectively is not permitted.		

APPENDIX A: PRESENTATION OF MEASUREMENT RULES ACCORDING TO GREEK ACCOUNTING STANDARDS (continued)

DEFERRED TAX	**RECOGNITION CRITERIA/CLASSIFICATION/OTHER IMPORTANT ISSUES**	
	Recognizing deferred tax is optional, and companies may consult IAS 12 for guidance	
	All deferred tax liabilities must be recognized upon recognition of deferred tax	
	To the extent that it is highly probable that taxable profit will be available to offset the deductible temporary differences, deferred tax assets will be recognized	
	The deferred tax debit and credit balances are reconciled, and the resulting net amounts are reflected in the financial statements	
	Year-to-year changes in deferred tax assets and liabilities have an effect on income tax in the P&L account	
	Changes in deferred tax resulting from changes in equity-accounted assets and liabilities shall also be recognized directly in equity	
	INITIAL RECOGNITION	**SUBSEQUENT MEASUREMENT**
	Deferred tax assets and liabilities are initially recognized and subsequently measured at the amount determined by applying the current tax rate to temporary differences	
EQUITY ITEMS	**RECOGNITION CRITERIA/CLASSIFICATION/OTHER IMPORTANT ISSUES**	
	Any cost associated with an equity item is reported by deducting it from the equity item's carrying amount, if the cost is material to the financial statements' fair presentation	
	Otherwise, this cost is recorded in the P&L account as an expense	
	Gains derived from the fair value measurement of equity-accounted assets and liabilities cannot be capitalized until they are realized	
	INITIAL RECOGNITION	**SUBSEQUENT MEASUREMENT**
	At the nominal amount received or paid	At the nominal amount received or paid
P&L ACCOUNT ITEMS	**RECOGNITION CRITERIA/CLASSIFICATION/OTHER IMPORTANT ISSUES**	
	Revenue is recognized in the period in which it is earned	
	Revenues earned from the sale of goods are recognized when the following criteria are met: 1) The seller has transferred all significant risks and rewards connected with ownership to the buyer; 2) The buyer accepts the goods; and 3) It is likely that the economic benefits associated with the transaction can be reliably measured and will flow to the seller	
	The percentage of completion method is used to recognize revenue from rendering of services and construction contracts	
	The effective interest rate method or the straight-line method is used to recognize interest income	
	Dividends are recognized only after the entity's competent body has approved their distribution	
	Royalties are recognized in accordance with the terms of the underlying contract	

APPENDIX A: PRESENTATION OF MEASUREMENT RULES ACCORDING TO GREEK ACCOUNTING STANDARDS (continued)

FAIR VALUE MEASUREMENT OF ASSETS AND LIABILITIES	**RECOGNITION CRITERIA/CLASSIFICATION/OTHER IMPORTANT ISSUES**	
	Following initial recognition, entities may elect to carry out subsequent asset/liability measurements at fair value	
	When an asset or liability is measured at fair value, all assets and liabilities in the same class must be similarly measured	
	Only when the fair value of an asset or liability can be determined with reasonable certainty can it be measured at fair value	
FAIR VALUE MEASUREMENT OF ASSETS AND LIABILITIES (OWNER-OCCUPIED PPE)	**RECOGNITION CRITERIA/CLASSIFICATION/OTHER IMPORTANT ISSUES**	**SUBSEQUENT MEASUREMENT**
	At a minimum, the entity must revalue all relevant assets every 4 years or whenever there are sufficient indications that the asset's carrying value is materially different from its fair value	Gains from fair value measurement are recognized in equity, while losses are offset against previous fair value gains, with the remainder recognized as an impairment loss and transferred to the P&L account
	Gains derived from fair value can be directly transferred from equity to retained profits upon realization of the corresponding amount (e.g., disposal of the revalued asset)	
FAIR VALUE MEASUREMENT OF ASSETS AND LIABILITIES (INVESTMENT PROPERTY)	**RECOGNITION CRITERIA/CLASSIFICATION/OTHER IMPORTANT ISSUES**	**SUBSEQUENT MEASUREMENT**
	The entity shall revalue all relevant assets at least every two years or when sufficient indications exist that the asset's book value is considerably different than its fair value	Fair value measurement differences must be reported in the P&L account
	Investment property measured at its fair market value is not depreciated	
FAIR VALUE MEASUREMENT OF ASSETS AND LIABILITIES (BIOLOGICAL ASSETS)	**RECOGNITION CRITERIA/CLASSIFICATION/OTHER IMPORTANT ISSUES**	**SUBSEQUENT MEASUREMENT**
	Fair value measurement differences must be reported in the P&L account	Fair value less disposal cost
	Biological assets measured at their fair value are not depreciated	

APPENDIX A: PRESENTATION OF MEASUREMENT RULES ACCORDING TO GREEK ACCOUNTING STANDARDS (continued)

FAIR VALUE MEASUREMENT OF ASSETS AND LIABILITIES (INVENTORIES)	**RECOGNITION CRITERIA/CLASSIFICATION/OTHER IMPORTANT ISSUES**	**SUBSEQUENT MEASUREMENT**
	Only commodities kept for sale and traded in organized markets are subject to fair value measurement	Fair value less disposal cost
	Differences from the fair value measurement must be reported in the P&L account	
FAIR VALUE MEASUREMENT OF ASSETS AND LIABILITIES (AVAILABLE FOR SALE FINANCIAL ASSETS)	**RECOGNITION CRITERIA/CLASSIFICATION/OTHER IMPORTANT ISSUES**	
	- Differences (Gains or losses) arising from fair value measurement are recognized in equity - On de-recognition or impairment of the financial asset, the aforementioned fair value measurement differences may be transferred from equity to the P&L account - Impairment losses are reversed in the P&l account when the underlying conditions that resulted in them cease to exist - Impairment losses on equity instruments are reversed directly in equity	
	The fair value of financial assets and liabilities is defined as the following: a. The market value for which credible prices are established by the market b. If the market value of an item cannot be determined directly but can be calculated using its components or a comparable item, the fair value of the item may be derived using its components or a comparable item c. the price determined by generally accepted models and measurement processes, assuming that these models and procedures can be utilized to approximate market value in the absence of a stable market for the financial instrument	
FAIR VALUE MEASUREMENT OF ASSETS AND LIABILITIES (FINANCIAL ASSETS & LIABILITIES HELD FOR TRADING)	**RECOGNITION CRITERIA/CLASSIFICATION/OTHER IMPORTANT ISSUES**	
	- Differences from the fair value measurement must be reported in the P&L account - Non-hedging derivatives are included in a trading portfolio	
	The fair value of financial assets and liabilities is defined as the following: a. The market value for which credible prices are established by the market b. If the market value of an item cannot be determined directly but can be calculated using its components or a comparable item, the fair value of the item may be derived using its components or a comparable item c. the price determined by generally accepted models and measurement processes, assuming that these models and procedures can be utilized to approximate market value in the absence of a stable market for the financial instrument	
FAIR VALUE MEASUREMENT OF ASSETS AND LIABILITIES (DERIVATIVES HELD FOR HEDGING)	**RECOGNITION CRITERIA/CLASSIFICATION/OTHER IMPORTANT ISSUES**	
	- According to Law 4308/2014's Accounting Circular, the Greek Accounting Standards have incorporated the hedge accounting requirements contained in IFRS for SMEs - To qualify for hedge accounting, an entity must identify and document the hedging relationship, as well as establish the hedge's effectiveness	
FAIR VALUE HEDGE DERIVATIVES	**RECOGNITION CRITERIA/CLASSIFICATION/OTHER IMPORTANT ISSUES**	**SUBSEQUENT MEASUREMENT**
	In the case of fair value hedge derivatives, the difference between the change in the fair value measurement of the hedged item and the hedging instrument is reported in the P&L account	In cases of fair value hedge derivatives, both the hedged item (asset, liability etc.) and the hedging instrument (derivative) are measured at fair value
CASH FLOW HEDGE DERIVATIVES	In the case of cash flow hedging derivatives, differences from the change in the hedging instrument's fair value are recorded in equity and transferred to the P&L account in the period in which the hedged cash flows are recognized in the P&L account	In the case of cash flow hedge derivatives, only the hedging instrument (derivative) is measured at fair value – the hedged item is measured in accordance with the company's accounting policies as if it were not hedged
RE-CLASSIFICATION OF FINANCIAL INSTRUMENTS	**RECOGNITION CRITERIA/CLASSIFICATION/OTHER IMPORTANT ISSUES**	
	Financial assets cannot be reclassified from "*Financial assets held for trading*" to another category or vice versa	
	Financial assets may be reclassified from "*Non-Derivative Financial Assets Held to Maturity*" to "*Financial Assets Held for Sale*" if the entity does not intend to hold them to maturity - The difference between the book value of the reclassified asset and its fair value is recorded in equity	
	Financial assets may be reclassified from "*Financial Assets held for sale*" to "*Non-Derivative Financial Assets held to maturity*" if the entity plans to hold them until maturity	

APPENDIX B: LIST OF KEY MEASUREMENT ITEMS

I	INVENTORIES	APPLICABLE IAS/IFRS:IAS 2
1	Measurement of inventories: Initial Recognition	IAS 2.9
2	Inventory costs	IAS 2.10
3	Inventory items that are not interchangeable (specific costs are attributed to the specific individual items of inventory)	IAS 2.23
4	Measurement of inventories: Subsequent measurement	IAS 2.9
5	Capitalization of borrowing costs as part of the cost of inventory	IAS 2.17
6	Ending Inventory valuation	IAS 2.25
7	Use of the same cost formula for all inventories having a similar nature and use to the entity.	IAS 2. 26
8	Recognition as an expense (Cost of goods sold)	IAS 2.34
9	Recognition of impairment loss	IAS 2.34
10	Recognition of reversal of impairment (Previously recognized impairment losses can be reversed up to the amount of the original impairment loss)	IAS 2.34
II	**ACCOUNTING POLICIES, CHANGES IN ACCOUNTING ESTIMATES AND ERRORS**	**IAS 8**
11	Selection and application of accounting policies	IAS 8.7–12
12	Consistency of accounting policies	IAS 8.13
13	Changes in accounting policy	IAS 8.14–25
14	Changes in accounting policy: LIMITATIONS ON RETROSPECTIVE APPLICATION	IAS 8.14–25
15	Change in accounting estimates	IAS 8.36–37
16	Prior period fundamental errors	IAS 8.42–45
17	Prior period fundamental errors: Limitations on Retrospective Application	IAS 8.42–45
III	**EVENTS AFTER THE REPORTING PERIOD**	**IAS 10**
18	Adjusting events after balance sheet date	IAS 10.8
19	Non-adjusting events after balance sheet date	IAS 10.10
20	Going concern issues arising after balance sheet date	IAS 10.14
21	Dividends declared after balance sheet date IAS 10.12	IAS 10.12
IV	**CONSTRUCTION CONTRACTS**	**1AS 11**
22	Combining and segmenting construction contracts	IAS 11.8–10
23	Revenue and expenses costs on a construction contract	IAS 11.11, 16
24	Revenue recognition on a construction contract: General Recognition rule	IAS 11.22
25	Revenue recognition on a construction contract: Fixed Price Contract Recognition Criteria	IAS 11.23
26	Revenue recognition on a construction contract: Cost - Plus Contract Recognition Criteria	IAS 11.24
27	Revenue recognition on a construction contract (When the outcome of a construction contract cannot be estimated reliably)	IAS 11.32
28	Revenue recognition on a construction contract (Non-existence of uncertainties)	IAS 11.35
29	Expected loss on a construction contract	IAS 11.36

APPENDIX B: LIST OF KEY MEASUREMENT ITEMS (continued)

V	INCOME TAXES	IAS 12
30	Recognition & measurement of current tax liabilities and current tax assets	IAS 12.12, 13, 46
31	Recognition of deferred tax liabilities in the balance sheet	IAS 12.15
32	Recognition of deferred tax assets in the balance sheet	IAS 12.34
33	Criteria to recognize deferred tax asset (DTA) for the carryforward of unused tax losses and unused tax credits	IAS 12.34
34	Recognition of deferred tax liability arising from Investments in subsidiaries, branches and associates and interests in joint arrangements	IAS 12.39
35	Recognition of deferred tax assets arising from in Investments in subsidiaries, branches and associates and interests in joint arrangements	IAS 12.44
36	Measurement of Deferred tax assets and liabilities	IAS 12. 47-51
37	Discount for DTA and deferred tax liability	IAS 12.53
38	Reduction on DTA - Reversal of reduction on DTA	IAS 12.56
39	Current and deferred tax recognized in profit or loss	IAS 12.58
40	Current and deferred tax recognized outside profit or loss	IAS 12.61
41	Offset of current tax assets and current tax liabilities	IAS 12.71
42	Offset of deferred tax assets and deferred tax liabilities	IAS 12.74
43	Presentation of tax expense (income) related to profit or loss from ordinary activities	IAS 12.77
VI	**PROPERTY, PLANT & EQUIPMENT**	**IAS 16**
44	Recognition of property, plant, and equipment (PP&E)	IAS 16.7
45	Measurement of PP&E at initial recognition	IAS 16.15
46	Measurement of PP&E subsequent to initial recognition: Choice of cost model or reevaluation method	IAS 16.29
47	Measurement of PP&E subsequent to initial recognition: COST MODEL	IAS 16.30
48	Measurement of PP&E subsequent to initial recognition: Re-evaluation model	IAS 16. 31, 36
49	Frequency of Reevaluations	IAS 16. 34
50	Measurement of PP&E subsequent to initial recognition: Re-evaluation model –Decrease in an asset's carrying amount	IAS 16. 39
51	Measurement of PP&E subsequent to initial recognition: Re-evaluation model - Increase in an asset's carrying amount	IAS 16. 40
52	Depreciation for each part of an item of PP&E	IAS 16.43
53	Recognition of depreciation charge	IAS 16. 48
54	Depreciable amount	IAS 16.50
55	Residual value & useful life	IAS 16.51
56	Depreciation method	IAS 16.60
57	Review of depreciation method	IAS 16.61
58	Compensation for PP&E impairment	IAS 16.65
59	De-recognition of PP&E	IAS 16.67, 68, 71
VII	**LEASES**	**IAS 17**
60	Classification of finance lease	IAS 17.8
61	Accounting by finance lessees-recognition	IAS 17.20
62	Accounting by finance lessees-discount rate	IAS 17.20
63	Accounting by finance lessees-initial direct costs	IAS 17.20
64	Accounting by finance lessees-subsequent measurement	IAS 17.25
65	Accounting by finance lessees-depreciation method	IAS 17.27
66	Accounting by finance lessors-initial and subsequent measurement	IAS 17.36, 39
67	Accounting by finance lessors-recognition of lease income by manufacturer or dealer lessors	IAS 17.42
68	Operating lease-incomes/payments	IAS 17.33, 49–50

APPENDIX B: LIST OF KEY MEASUREMENT ITEMS (continued)

VII	LEASES (Continued)	IAS 17
69	Operating lease-initial direct costs for lessors	IAS 17.52
70	Operating lease-depreciation method for lessors	IAS 17.53
71	Sale and lease back transactions that result in a finance lease	IAS 17.59
72	Sale and lease back transactions that result in an operating lease	IAS 17.61
VIII	**REVENUE**	**IAS 18**
73	Measurement of revenue-general rule	IAS 18.9
74	Recognition of revenue from the sale of goods: Criteria	IAS 18.14
75	Recognition of revenue from rendering of services: Criteria	IAS 18.20
76	Recognition of revenue from rendering of services: Method	IAS 18.20
77	Recognition of revenue from rendering of services	IAS 18.26
78	Recognition of revenue arising from interest, royalties, and dividends	IAS 18.29, 30
IX	**EMPLOYEE BENEFITS**	**IAS 19**
79	Short-term employee benefits: General Recognition Rule	IAS 19. 11
80	Short-term employee benefits: Short-term paid absences	IAS 19. 13-18
81	Short-term employee benefits: Profit-sharing and bonus plans	IAS 19. 19-24
82	Multi-employer plans: Treatment as a Defined Contribution Plans or as a Defined Benefit Plans	IAS 19.32-39, 51-52
83	Defined benefit plans that share risks between entities under common control	IAS 19.40–42
84	State plans	IAS 19.43-45
85	Insured benefits	IAS 19.46-49
86	Measurement of Defined Contribution Plans (DCP): recognition and measurement	IAS 19.50-52
87	Measurement of Defined Benefit Plans (DBP): recognition and measurement	IAS 19.55-134
88	Other long-term employee benefits: recognition and measurement	IAS 19.153-157
89	Termination benefits: recognition and measurement	IAS 19.159-170
X	**ACCOUNTING FOR GOVERNMENT GRANTS**	**IAS 20**
90	Criteria to recognize government grants	IAS 20.7
91	General rules to recognize government grants	IAS 20.12, 20
92	Recognition of government grants related to expenses or losses already incurred or for the purpose of giving immediate financial support to the entity with no future related costs	IAS 20. 20
93	Measurement of non-monetary government grants	IAS 20.23
94	Recognition of government grants related to assets on balance sheet date	IAS 20.24
95	Recognition of government grants related to income on balance sheet date	IAS 20.29
96	Repayment of government grants	IAS 20.32
XI	**THE EFFECTS OF CHANGES IN FOREIGN EXHANGE RATES**	**IAS 21**
97	Determination of functional currency	IAS 21.9-14
98	Initial recognition of foreign currency transaction	IAS 21.21, 22
99	Reporting at the ends of subsequent reporting periods	IAS 21.23
100	Recognition of exchange differences (Exchange differences arising on the settlement of monetary items)	IAS 21.28,
101	Recognition of exchange differences (Gain or loss on a non-monetary item)	IAS 21. 30
102	Recognition of exchange differences (Exchange differences arising on a monetary item that forms part of a reporting entity's net investment in a foreign operation)	IAS 21. 32
103	Change in functional currency	IAS 21.35
104	Method of translating financial statement of foreign operations	IAS 21.39, 47
105	Disposal of a foreign operation	IAS 21.48

APPENDIX B: LIST OF KEY MEASUREMENT ITEMS (continued)

XII	BORROWING COSTS	IAS 23
106	Recognition of borrowing costs	IAS 23.8
107	Borrowing costs eligible for capitalization	IAS 23.12
108	Borrowing costs eligible for capitalization: Capitalization rate	IAS 23.14
109	Commencement of capitalization of borrowing costs	IAS 23.17
110	Suspension of capitalization of borrowing costs	IAS 23.20
111	Cessation of capitalization of borrowing costs	IAS 23.22-24
XIV	**IMPAIRMENT OF ASSETS**	**IAS 36**
112	Identifying impairment asset: frequency (General Rule)	IAS 36.9
113	Identifying impairment asset: frequency (Intangible asset with an indefinite useful life)	IAS 36.10
114	Identifying impairment asset: Indicators	IAS 36.12
115	Measuring recoverable amount of impaired asset	IAS 36.30, 33, 39, 44, 50, 52, 55
116	Recognition of an impairment loss: General Rule	IAS 36.59
117	Recognition of an impairment loss	IAS 36.60-62
118	Recognition of an impairment loss: Depreciation	IAS 36.63
119	Identifying cash-generating units (CGU) to which an impaired asset belongs	IAS 36.66, 70, 72, 75
120	Allocating goodwill to CGU and impairment of goodwill	IAS 36.80–105, 108
121	Reversal of an impairment loss: Frequency	IAS 36.110
122	Reversal of an impairment loss: indicators	IAS 36.111
123	Reversal of an impairment loss: General Rule	IAS 36.114
124	Reversal of an impairment loss: General rule for recognition of impairment loss reversal	IAS 36.117
125	Reversal of an impairment loss: recognition in profit or loss	IAS 36.119
126	Reversal of an impairment loss: recognition in cases of assets carried revalued amount	IAS 36.119
127	Reversal of an impairment loss: Adjustment of depreciation (amortization) charge	IAS 36.121
128	Reversal of an impairment loss for a CGU	IAS 36.122-123
129	Reversal of an impairment loss for GOODWILL	IAS 36.124
XV	**PROVISIONS, CONTIGENT LIABILITIES AND CONTIGENT ASSETS**	**IAS 37**
130	Provisions-recognition criteria	IAS 37.14-26
131	Provisions-initial recognition	IAS 37.36-44
132	Provisions—initial recognition (materiality of time value of money)	IAS 37.45-47
133	Provisions-subsequent measurement	IAS 37.59
134	Provisions-future events	IAS 37.48
135	Provisions-expected disposal of assets	IAS 37.51
136	Provisions-reimbursements	IAS 37.53-54
137	Provisions-use of provisions	IAS 37.61
138	Provisions-future operating losses	IAS 37.63
139	Provisions-onerous contracts	IAS 37.66
140	Provisions arising from restructuring of an entity	IAS 37.72, 78, 80
141	Contingent assets and liabilities	IAS 37.27, 31

APPENDIX B: LIST OF KEY MEASUREMENT ITEMS (continued)

XVI	INTANGIBLE ASSETS	IAS 38
142	Initial recognition of intangible assets-Identifiability	IAS 38. 11-12
143	Recognition of intangible assets: General Rule	IAS 38.21-22
144	Initial recognition of intangible assets at cost	IAS 38.24
145	Non - Recognition of Internally generated goodwill	IAS 38.48
146	Internally generated intangible assets: Research phase	IAS 38.54
147	Internally generated intangible assets: Development phase	IAS 38.57
148	Internally generated intangible assets: Brands, Mastheads, Publishing Titles, Customer Lists and items similar in substance	IAS 38.63
149	Initial recognition of intangible assets: Recognition of an expenditure on an intangible item	IAS 38.68
150	Initial recognition of intangible assets: Past expenses not to be recognized as an asset	IAS 38.71
151	Measurement of intangible assets subsequent to initial recognition	IAS 38.72, 74–75, 81–82, 85–86
152	Amortization of intangible assets: Useful Life	IAS 38.88
153	Amortization of intangible assets: Uncertainty Regarding Useful Life Estimation	IAS 38.93
154	Amortization of intangible assets: useful life that arises from contractual or legal rights	IAS 38.94
155	Amortization period and amortization method of Intangible assets with finite useful lives	IAS 38. 97
156	Amortization period and amortization method of Intangible assets with finite useful lives: Residual value	IAS 38.100
157	Intangible assets with indefinite useful lives	IAS 38. 107
158	Annual review for intangibles	IAS 38.104, 109
159	De-recognition of an intangible asset	IAS 38.112, 113
XVII	**FINANCIAL INSTRUMENTS:RECOGNITION & MEASUREMENT**	**IAS 39**
160	Initial recognition and measurement for financial instruments (contractual provisions of the instrument)	IAS 39.14
161	De-recognition of a financial asset: Application of de-recognition rules to a part of financial assets or a financial asset in its entirety	IAS 39.16
162	De-recognition of a financial asset: General Rule	IAS 39.17
163	De-recognition of a financial asset: Conditions met for an entity to transfer a financial asset	IAS 39.18
164	De-recognition of a financial asset: Conditions met for an entity to transfer a financial asset when it retains the contractual rights to receive the cash flows of the asset but assumes a contractual obligation to pay those cash flows to one or more entities	IAS 39.19
165	De-recognition of a financial asset: Evaluation of the extent to which an entity retains the risks and rewards of ownership of a financial asset	IAS 39.20
166	De-recognition of a financial asset: Recognition of a servicing asset or liability as a result of a transfer of a financial asset	IAS 39.24
167	De-recognition of a financial asset: Recognition at fair value of a new financial asset or liability as a result of a transfer of a financial asset	IAS 39.25
168	De-recognition of a financial asset: Gain or Loss from de-recognition of a financial asset in its entirety	IAS 39.26
169	De-recognition of a financial asset: De-recognition of a transferred asset that is a part of a larger financial asset/ Gain or losses	IAS 39.27

APPENDIX B: LIST OF KEY MEASUREMENT ITEMS (continued)

XVII	FINANCIAL INSTRUMENTS:RECOGNITION & MEASUREMENT	IAS 39
170	De-recognition of a financial asset: If a transfer does not result in de-recognition because the entity substantially retains the risks and rewards of ownership of a financial asset	IAS 39.29
171	De-recognition of a financial asset: An entity's continuing involvement in transferred assets (neither transfer not retain risks and rewards of the asset)	IAS 39.30-34
172	De-recognition of a financial asset: Prohibition of offsetting between a transferred asset & the associated liability	IAS 39.36
173	De-recognition of a financial asset: Accounting for non-cash collateral for the transferor & the transferee	IAS 39.37
174	Regular way purchase or sale of a financial asset	IAS 39.38
175	De-recognition of a financial liability	IAS 39.39
176	An exchange between an existing borrower and lender of debt instruments with substantially different terms-Recognition of a new liability	IAS 39.40
177	Recognition in P& L of the difference between the carrying amount of a financial liability (or part of a financial liability) extinguished or transferred to another party and the consideration paid	IAS 39.41
178	Initial measurement of financial assets	IAS 39.43
179	Initial measurement of financial liabilities	IAS 39.43
180	Subsequent measurement of financial assets	IAS 39.46, 48
181	Subsequent measurement of financial liabilities	IAS 39.47
182	Reclassification of financial instruments: Re-classification of financial instruments at fair value through profit or Loss	IAS 39.50
183	Reclassification of financial instruments: Re-classification of financial instruments from Held to Maturity (HTM) to Available for Sale (AFS)	IAS 39.51
184	Reclassification of financial instruments Re-classification of financial instruments from Available for Sale (AFS) to Held to Maturity (HTM)	IAS 39.52
185	Reclassification of financial instruments: Financial instruments measured at cost as unable to reliably measure fair value	IAS 39.53
186	Reclassification of financial instruments: Fair value measurement is no longer reliably measurable	IAS 39.54
187	Gains and losses arising from change in the fair value of a financial asset or financial liability that is not part of a hedging relationship	IAS 39.55
188	Gains and losses for financial assets & liabilities carried at amortized cost upon de-recognition or impairment	IAS 39.56
189	Gains and losses arising from change of fair value of a financial asset which is recognized using settlement date accounting	IAS 39.57
190	Impairment of financial instruments: General Rule	IAS 39.58
191	Impairment loss of financial assets carried at amortized cost (loans and receivables or held-to-maturity investments)	IAS 39.63
192	Reversal of an impairment loss of financial assets carried at amortized cost	IAS 39.65
193	Impairment loss of financial assets carried at cost (unquoted equity instrument not carried at fair value & derivative asset that is linked to and must be settled by delivery of such an unquoted equity)	IAS 39.66
194	Reversal of impairment of financial assets carried at cost (unquoted equity instrument not carried at fair value & derivative asset that is linked to and must be settled by delivery of such an unquoted equity)	IAS 39.66
195	Impairment loss of available for sale financial assets & Reversal of Impairment	IAS 39.67
196	Amount of Cumulative loss reclassified from equity to profit or loss	IAS 39.68

APPENDIX B: LIST OF KEY MEASUREMENT ITEMS (continued)

197	Reversal of an impairment loss of an equity instrument classified as available for sale	IAS 39.69
198	Reversal of an impairment loss of a debt instrument classified as available for sale when the fair value of the asset increases after the impairment loss	IAS 39.70
199	Hedging relationship types	IAS 39.86
200	Hedging relationship conditions	IAS 39.88
201	Fair value hedges: Recognition of gains or losses	IAS 39.89
202	Fair value hedges: Discontinuation of hedge accounting	IAS 39.91
203	Fair value hedges: Adjustment arising the gain or loss (attributable to the hedged risk) to the carrying amount of a hedged financial instrument for which the effective interest method is used	IAS 39.92
204	Cash flow hedges: Recognition of gains or losses	IAS 39.95
205	Hedge of a forecast transaction that subsequently results in the recognition of a financial asset or a financial liability	IAS 39.97
206	Hedge of a forecast transaction that subsequently results in the recognition of a non-financial asset or a non-financial liability	IAS 39.98-99
207	Cash flow hedges other than previous paragraphs	IAS 39.100
208	Cash value hedges: Discontinuation of hedge accounting	IAS 39.101
209	Hedge of a net investment: general rule	IAS 39.102
XVIII	**INVESTMENT PROPERTY**	**IAS 40**
210	General recognition rule of property investment	IAS 40.16, 20
211	Initial recognition of property investment	IAS 40.21
212	Measurement of property investment subsequent to initial recognition: Choosing accounting policy	IAS 40.30, 32A
213	Measurement of investment property subsequent to initial recognition: Fair-value model	IAS 40. 33–35
214	Measurement of property investment subsequent to initial recognition: Fair-value model (Inability to measure fair value reliably & use of fair value even if comparable market transactions become) less frequent or market prices become less readily available	IAS 40., 53, 55
215	Re-evaluation of fair value	-
216	Measurement of property investment subsequent to initial recognition: Cost model	IAS 40. 56
217	Transfer to or from investment property-requirements	IAS 40.57
218	Transfer from investment property to owner-occupied property-fair value model	IAS 40.60
219	Transfer from owner-occupied property to investment property-fair value model	IAS 40.61
220	Transfer from inventories to investment property-fair value model	IAS 40.63
221	Completion of the construction or development of a self-constructed investment property that will be carried at fair value	IAS 40.65
222	Disposal of investment property	IAS 40.66, 69, 72
XIX	**AGRICULTURE**	**IAS 41**
223	Recognition of agricultural products	IAS 41.10
224	Initial Recognition of biological assets & agricultural produce	IAS 41.12-13-30
225	Subsequent measurement of biological assets & agricultural produce	IAS 41.12-13
226	Gain and losses on agricultural products and biological assets	IAS 41.26, 28
227	Government grants related to biological asset	IAS 41.34, 35

APPENDIX C: DETAILED COMPARISON OF IAS/IFRS & GREEK ACCOUNTING STANDARDS MEASUREMENT ITEMS

I	INVENTORIES	APPLICABLE IAS/IFRS:IAS 2	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	ALLOWED/IDENTICAL IN BOTH IFRS & GAS		ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NOT IDENTICAL IN GAS		ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NOT IDENTICAL IN IFRS	COMMENT	Jaccard's coefficient
1	Measurement of inventories: Initial Recognition	IAS 2.9	Article 20 par. 1	-	1	1	-		-	Same treatment	80,00%
2	Inventory costs	IAS 2.10	Article 20 par. 2 & 3	Article 20.2.1 & 20.2.2	1	1	-		-	Same treatment	
3	Inventory items that are not interchangeable (specific costs are attributed to the specific individual items of inventory)	IAS 2.23	Article 20 par. 7c	Article 20.7.2	1	1	-		-	Same treatment	
4	Measurement of inventories: Subsequent measurement	IAS 2.9	Article 20 par. 6	Article 20.6.1	1	1	-		-	Same treatment	
5	Capitalization of borrowing costs as part of the cost of inventory	IAS 2.17	Article 20 par. 5	Article 20.5.1	1	1	-		-	Same treatment	
6	Ending Inventory valuation (FIFO & Weighted Average)	IAS 2.25	Article 20 par. 7a	Article 20.7.1 & 20.7.3	1	1	-		-	Same treatment	
7	Use of the same cost formula for all inventories having a similar nature and use to the entity	IAS 2. 25	Article 20 par. 7b	Article 20.7.3	1	1	-		-	Same treatment	
8	Recognition as an expense (Cost of goods sold)	IAS 2.34	Article 25.12.b	-	1	1	-		-	Same treatment	
9	Recognition of impairment loss	IAS 2.34	-	Article 20.6.2	-		1	0	-	NOT IDENTICAL: According to GAS, when the NRV is less than the acquisition cost, the impairment loss is recognized in cost of goods sold - When the impairment loss is substantial, the entity may elect to recognize it in the applicable account (Asset impairment) rather than in cost of goods sold	
10	Recognition of reversal of impairment (Previously recognized impairment losses can be reversed up to the amount of the original impairment loss)	IAS 2.34	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	

APPENDIX C: DETAILED COMPARISON OF IAS/IFRS & GREEK ACCOUNTING STANDARDS MEASUREMENT ITEMS (continued)

II	ACCOUNTING POLICIES, CHANGES IN ACCOUNTING ESTIMATES AND ERRORS	IAS 8	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	ALLOWED/IDENTICAL IN BOTH IFRS & GAS		ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NOT IDENTICAL IN GAS		ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NOT IDENTICAL IN IFRS	COMMENT	Jaccard's coefficient
1	Selection and application of accounting policies	IAS 8.7 - 12	-	Article 17.1.8	1	1	-		-	Same treatment: According to GAS, accounting policies should be chosen in accordance with the law and at the discretion of management in order to give accurate and relevant information. Also, GAS permits entities to seek guidance in IFRS on matters that are not covered in great depth, provided that the IFRS regulations are consistent with the provisions of the Law	71,43%
2	Consistency of accounting policies	IAS 8.13	Article 17 par. 1a	Article 17.1.8a	1	1	-		-	Same treatment: GAS adhere to the same principles as IAS 8 in terms of accounting policy consistency	
3	Changes in accounting policy	IAS 8.14 - 25	Article 28 par. 1	Article 28.1.8	1	1	-		-	Same treatment of change in accounting policies-retrospective change	
4	Changes in accounting policy: Limitations on retrospective application	IAS 8.14 - 25	Article 28 par. 1	Article 28.1.8	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
5	Change in accounting estimates	IAS 8.36 - 37	Article 28 par. 2	Article 28.2.1.-28.2.2	1	1	-		-	Same treatment of change in accounting estimates-prospective change	
6	Prior period fundamental errors	IAS 8.42 - 45	Article 28 par. 1	Article 28.1.8	1	1	-		-	Same treatment of prior period fundamental errors-retrospective change	
7	Prior period fundamental errors: Limitations on retrospective application	IAS 8.42 - 45	Article 28 par. 1	Article 28.1.8	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
III	**EVENTS AFTER THE REPORTING PERIOD**	**IAS 10**	**APPLICABLE PROVISION OF LAW 4308/2014**	**ACCOUNTING CIRCULAR OF GAS**	**ALLOWED/IDENTICAL IN BOTH IFRS & GAS**		**ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NON-IDENTICAL IN GAS**		**ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NON-IDENTICAL IN IFRS**	**COMMENT**	**Jaccard's coefficient**
1	Adjusting events after balance sheet date	IAS 10.8	Article 17 par. 8	Article 17.8.1-17.8.2	1	1	-		-	Same treatment: Adjustment of the amounts recognized in financial statements to reflect adjusting events after the reporting period	50,00%
2	Non-adjusting events after balance sheet date	IAS 10.10	Article 17 par. 8	Article 17.8.3-17.8.4	1	1	-		-	Same treatment: Non-Adjustment of the amounts recognized in financial statements to reflect non- adjusting events after the reporting period	
3	Going concern issues arising after balance sheet date	IAS 10.14	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
4	Dividends declared after balance sheet date IAS 10.12	IAS 10.12	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	

APPENDIX C: DETAILED COMPARISON OF IAS/IFRS & GREEK ACCOUNTING STANDARDS MEASUREMENT ITEMS (continued)

IV	CONSTRUCTION CONTRACTS	1AS 11	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	ALLOWED/IDENTICAL IN BOTH IFRS & GAS		ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NOT IDENTICAL IN GAS		ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NOT IDENTICAL IN IFRS	COMMENT	Jaccard's coefficient
1	Combining and segmenting construction contracts	IAS 11.8 - 10	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	37,50%
2	Revenue and expenses costs on a construction contract	IAS 11.11-IAS 11.16	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
3	Revenue recognition on a construction contract: General recognition rule	IAS 11.22	Article 25 par. 4	Article 25.4.1 - 25.4.2	1	1	-		-	Same treatment	
4	Revenue recognition on a construction contract: Fixed price contract recognition criteria	IAS 11.23	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
5	Revenue recognition on a construction contract: Cost-plus contract recognition criteria	IAS 11.24	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
6	Revenue recognition on a construction contract (When the outcome of a construction contract cannot be estimated reliably)	IAS 11.32	-	Article 25.4.4	1	1	-		-	Same treatment	
7	Revenue recognition on a construction contract (Non-existence of uncertainties)	IAS 11.35	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
8	Expected loss on a construction contract	IAS 11.36	-	Article 25.4.4	1	1	-		-	Same treatment	

APPENDIX C: DETAILED COMPARISON OF IAS/IFRS & GREEK ACCOUNTING STANDARDS MEASUREMENT ITEMS (continued)

V	INCOME TAXES	IAS 12	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	ALLOWED/ IDENTICAL IN BOTH IFRS & GAS		ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NOT IDENTICAL IN GAS		ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NOT IDENTICAL IN IFRS	COMMENT (*THE APPLICATION OF DEFERRED TAXATION IS OPTIONAL ACCORDING TO GAS*)	Jaccard's coefficient
1	Recognition & measurement of current tax liabilities and current tax assets	IAS 12.12, 13, 46	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
2	Recognition of deferred tax liabilities in the balance sheet	IAS 12.15	Article 23 par. 3	Article 23.3.3	1	1	-		-	Same treatment	
3	Recognition of deferred tax assets in the balance sheet	IAS 12.24	Article 23 par. 3	Article 23.3.4	1	1	-		-	Same treatment	
4	Criteria to recognize deferred tax asset (DTA) for the carryforward of unused tax losses and unused tax credits	IAS 12.34	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
5	Recognition of deferred tax liability arising from investments in subsidiaries, branches and associates and interests in joint arrangements	IAS 12.39	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
6	Recognition of deferred tax assets arising from in investments in subsidiaries, branches and associates and interests in joint arrangements	IAS 12.44	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
7	Measurement of Deferred tax assets and liabilities	IAS 12. 47, 51	Article 23 par. 4	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED): While GAS require that deferred tax assets and liabilities are initially recognized and subsequently measured by using the applicable tax rate for evey temporary difference, they contain no detailed provisions on the measuring of deferred tax assets and liabilities in light of the tax consequences of recovering (settling) the carrying amount of assets and liabilities	35,71%
8	Discount for DTA and deferred tax liability	IAS 12.53	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
9	Reduction on DTA - Reversal of reduction on DTA	IAS 12.56	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
10	Current and deferred tax recognized in profit or loss	IAS 12.58	Article 23 par. 5	Article 23.5.1	1	1	-		-	Same treatment	
11	Current and deferred tax recognized outside profit or loss	IAS 12.61	Article 23 par. 5	Article 23.5.1	1	1	-		-	Same treatment	
12	Offset of current tax assets and current tax liabilities	IAS 12.71	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
13	Offset of deferred tax assets and deferred tax liabilities	IAS 12.74	Article 23 par. 3	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED): GAS includes just a general reference and no detailed guidance on offsetting deferred tax assets and liabilities	
14	Presentation of tax expense (income) related to profit or loss from ordinary activities	IAS 12.77	Article 25 par. 12	-	1	1	-		-	Same treatment	

APPENDIX C: DETAILED COMPARISON OF IAS/IFRS & GREEK ACCOUNTING STANDARDS MEASUREMENT ITEMS (continued)

VI	PROPERTY, PLANT & EQUIPMENT	IAS 16	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	ALLOWED/IDENTICAL IN BOTH IFRS & GAS		ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NOT IDENTICAL IN GAS		ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NOT IDENTICAL IN IFRS	COMMENT	Jaccard's coefficient
1	Recognition of property, plant, and equipment (PP&E)	IAS 16.7	Article 18 par. 1	Article 18.1.1	1	1	-		-	Identical in both GAS & IFRS	75,00%
2	Measurement of PP&E at initial recognition	IAS 16.15	Article 18 par. 1	Article 18.1.2	1	1	-		-	Identical in both GAS & IFRS	
3	Measurement of PP&E subsequent to initial recognition: Choice of cost model or reevaluation method	IAS 16.29	Article 24 par. 1 & 2	Article 18.1.12, 24.1.2 & 24.2.1	1	1	-		-	Identical in both GAS & IFRS	
4	Measurement of PP&E subsequent to initial recognition: Cost Model	IAS 16.30	-	Article 18.1.12	1	1	-		-	Identical in both GAS & IFRS	
5	Measurement of PP&E subsequent to initial recognition: Reevaluation Model	IAS 16. 31, 36	Article 24 par. 2 & 3	Article 24.1.2, 24.2.1, 24.3.1	-		1	0	-	Not IDENTICAL: According to GAS, the revaluation model is solely applicable to owner-occupied property	
6	Frequency of Reevaluations	IAS 16.34	Article 24 par. 5d & 5e	Article 24.5.5-24.5.6	1	1	-		-	Same treatment: According to GAS, owner-occupied property must be revalued at least every four years while being carried out by a professional. IFRS require 3-5 years for PPE items with insignificant changes in fair value	
7	Measurement of PP&E subsequent to initial recognition: Reevaluation Model-Increase in an asset's carrying amount	IAS 16.39	Article 24 par. 5a	Article 24.5.3	1	1	-		-	Identical in both GAS & IFRS	
8	Measurement of PP&E subsequent to initial recognition: Reevaluation Model-Decrease in an asset's carrying amount	IAS 16.40	Article 24 par. 5b	Article 24.5.3	1	1	-		-	Identical in both GAS & IFRS	
9	Depreciation for each part of an item of PP&E	IAS 16.43	-	Article 18.1.16	1	1	-		-	Identical in both GAS & IFRS: GAS permit the use of component accounting	
10	Recognition of depreciation charge	IAS 16.48	Article 25 par. 12	-	1	1	-		-	Identical in both GAS & IFRS	
11	Depreciable amount	IAS 16.50	Article 18 par. 3	Article 18.3.1	1	1	-		-	Same treatment	
12	Residual value & useful life	IAS 16.51	Article 18 par. 3	Article 18.3.1	-		1	0	-	NOT IDENTICAL (NOT INCLUDED): GAS do not contain a unique provision requiring an asset's residual value and useful life to be reviewed at least annually	

APPENDIX C: DETAILED COMPARISON OF IAS/IFRS & GREEK ACCOUNTING STANDARDS MEASUREMENT ITEMS (continued)

VI	PROPERTY, PLANT & EQUIPMENT	IAS 16	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	ALLOWED/IDENTICAL IN BOTH IFRS & GAS		ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NOT IDENTICAL IN GAS		ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NOT IDENTICAL IN IFRS	COMMENT	Jaccard's coefficient
13	Depreciation method	IAS 16.60	Article 18 par. 3	Article 18.3.1	1	1	-		-	Same treatment	75,00%
14	Review of depreciation method	IAS 16.61	Article 18 par. 3	Article 18.3.1	-		1	0	-	NOT IDENTICAL (NOT INCLUDED): GAS do not contain a special provision requiring an annual evaluation of the depreciation method	
15	Compensation for PP&E impairment	IAS 16.65	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED): GAS contain no provision for the recognition of compensation for impairment	
16	De-recognition of PP&E	IAS 16.67, 68, 71	Article 18 par. 4	-	1	1	-		-	Identical in both GAS & IFRS	
VII	**LEASES**	**IAS 17**	**APPLICABLE PROVISION OF LAW 4308/2014**	**ACCOUNTING CIRCULAR OF GAS**	**ALLOWED/IDENTICAL IN BOTH IFRS & GAS**		**ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NOT IDENTICAL IN GAS**		**ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NOT IDENTICAL IN IFRS**	**COMMENT**	**Jaccard's coefficient**
1	Classification of finance lease	IAS 17.8	-	Article 18.5.1	1	1	-		-	Identical in both GAS & IFRS	76,92%
2	Accounting by finance lessees - recognition	IAS 17.20	Article 18 par. 5a	Article 18.5.3 – 18.5.4	1	1	-		-	Identical in both GAS & IFRS	
3	Accounting by finance lessees - discount rate	IAS 17.20	-	Article 18.5.4	1	1	-		-	Identical in both GAS & IFRS: GAS make no reference to the lessee's incremental borrowing rate being employed in cases when determining the discount rate to apply in calculating the present value of the minimum lease payments is not achievable	
4	Accounting by finance lessees - initial direct costs	IAS 17.20	-	Article 18.5.4	1	1	-		-	Identical in both GAS & IFRS	
5	Accounting by finance lessees - subsequent measurement	IAS 17.25	Article 18 par. 5a	Article 18.5.3	1	1	-		-	Identical in both GAS & IFRS: GAS make no mention of contingent rents being charged as expenses in the period in which they are incurred	
6	Accounting by finance lessees - depreciation method	IAS 17.27	Article 18 par. 5a	Article 18.5.3	1	1	-		-	Identical in both GAS & IFRS	
7	Accounting by finance lessors - initial and subsequent measurement	IAS 17.36, 39	Article 18 par. 5b	Article 18.5.5	1	1	-		-	Identical in both GAS & IFRS	

APPENDIX C: DETAILED COMPARISON OF IAS/IFRS & GREEK ACCOUNTING STANDARDS MEASUREMENT ITEMS (continued)

VII	LEASES	IAS 17	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	ALLOWED/IDENTICAL IN BOTH IFRS & GAS		ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NOT IDENTICAL IN GAS		ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NOT IDENTICAL IN IFRS	COMMENT	Jaccard's coefficient
8	Accounting by finance lessors-recognition of lease income by manufacturer or dealer lessors	IAS 17.42	-	Article 18.5.6	1	1	-		-	Identical in both GAS & IFRS: GAS make no reference to costs incurred by manufacturer or dealer lessors in negotiating and arranging a lease being recognized as an expense when the selling profit is recognized	
9	Operating lease-incomes/payments	IAS 17.33, 49–50	Article 18 par. 6	Article 18.6.1	1	1	-		-	Identical in both GAS & IFRS	
10	Operating lease-initial direct costs for lessors	IAS 17.52	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
11	Operating lease-depreciation method for lessors	IAS 17.53	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
12	Sale and lease back transactions that result in a finance lease	IAS 17.59	Article 18 par. 5c	Article 18.5.7	1	1	-		-	Same treatment: According to IAS 17, if a sale and leaseback transaction results in a finance lease, any excess of the sale proceeds over the lease's carrying amount should be delayed and amortized over the lease's term. According to GAS, if a sale and leaseback transaction results in a finance lease, the transaction is treated as a guaranteed mortgage loan, with the seller (lessee) continuing to record the asset sold on the balance sheet but also recording a liability (the amount received from the asset's disposal), while the buyer (lessor) records a receivable (the amount paid to acquire the asset)	76,92%
13	Sale and lease back transactions that result in an operating lease	IAS 17.61, 63	-	Article 18.5.7	-		1	0	-	NOT IDENTICAL: The fundamental contrast is that IAS 17 requires special treatment when comparing the selling price to the fair value of the transaction (profit/loss recognition), but GAS do not. Additionally, IAS 17 requires that if the fair value of an asset is less than its carrying value, a loss equal to the difference is immediately recorded. - GAS determines profit or loss by comparing the asset's selling price to its carrying amount	

APPENDIX C: DETAILED COMPARISON OF IAS/IFRS & GREEK ACCOUNTING STANDARDS MEASUREMENT ITEMS (continued)

VIII	REVENUE	IAS 18	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	ALLOWED/IDENTICAL IN BOTH IFRS & GAS		ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NOT IDENTICAL IN GAS		ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NOT IDENTICAL IN IFRS		COMMENT	Jaccard's coefficient
1	Measurement of revenue - general rule (Revenue shall be measured at the fair value of the consideration received or receivable)	IAS 18.9	-	-	-		1	0	-		NOT IDENTICAL (NOT INCLUDED)	50,00%
2	Recognition of revenue from the sale of goods: Criteria	IAS 18.14	Article 25 par. 3	-	-		1	0	-		NOT IDENTICAL: IAS 18 does not include the GAS-required buyer acceptance of the goods criterion. GAS incorporates only three of the five IAS recognition criteria - the criterion for reliable measurement of transaction costs, as well as non-managerial involvement and ineffective control over the items sold, are omitted	
3	Recognition of revenue from rendering of services: Criteria	IAS 18.20	Article 25 par. 4	Article 25.4.2	1	1	-		-		Same treatment	
4	Recognition of revenue from rendering of services: Method	IAS 18.20	Article 25 par. 4	Article 25.4.5-25.4.7	-		-		0	1	NOT IDENTICAL: When the effects of utilizing the completed contract method are modest when compared to the effects of using the percentage of completion method, GAS authorize its use	
5	Recognition of revenue from rendering of services	IAS 18.26	-	Article 25.4.4	1	1	-		-		Same treatment	
6	Recognition of revenue arising from interest, royalties, and dividends	IAS 18.29, 30	Article 25 par. 5	-	1	1	-		-		Same treatment	

APPENDIX C: DETAILED COMPARISON OF IAS/IFRS & GREEK ACCOUNTING STANDARDS MEASUREMENT ITEMS (continued)

IX	EMPLOYEE BENEFITS	IAS 19	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	ALLOWED/IDENTICAL IN BOTH IFRS & GAS	ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NOT IDENTICAL IN GAS		ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NOT IDENTICAL IN IFRS	COMMENT (ENTITIES MAY SEEK GUIDANCE IN IAS 19)	Jaccard's coefficient
1	Short-term employee benefits: General recognition rule	IAS 19.11	-	-	-	1	0	-	NOT IDENTICAL (NOT INCLUDED)	0%
2	Short-term employee benefits: Short-term paid absences	IAS 19.13 - 19.18	-	-	-	1	0	-	NOT IDENTICAL (NOT INCLUDED)	
3	Short-term employee benefits: Profit-sharing and bonus plans	IAS 19.19 - 19.24	-	-	-	1	0	-	NOT IDENTICAL (NOT INCLUDED)	
4	Multi-employer plans: Treatment as a Defined Contribution Plan or as a Defined Benefit Plan	IAS 19.32 - 19.39, 19.51 – 19.52	-	-	-	1	0	-	NOT IDENTICAL (NOT INCLUDED)	
5	Defined benefit plans that share risks between entities under common control	IAS 19.40 – 19.42	-	-	-	1	0	-	NOT IDENTICAL (NOT INCLUDED)	
6	State plans	IAS 19.43 – 19.45	-	-	-	1	0	-	NOT IDENTICAL (NOT INCLUDED)	
7	Insured benefits	IAS 19.46 – 19.49	-	-	-	1	0	-	NOT IDENTICAL (NOT INCLUDED)	
8	Measurement of defined contribution plans (DCP): recognition and measurement	IAS 19.50 – 19.52	-	-	-	1	0	-	NOT IDENTICAL (NOT INCLUDED)	
9	Measurement of defined benefit plans (DBP): recognition and measurement	IAS 19.55 – 19.134	Article 22 par. 13	Article 22.13.1-22.13.3	-	1	0	-	NOT IDENTICAL (NOT INCLUDED): IFRS guidance is more than necessary, as GAS contain only general provisions regarding the use of an actuarial technique (e.g., the projected unit credit method) to determine the ultimate cost to the entity of the benefit that employees have earned in exchange for their service in the current and prior periods	
10	Other long-term employee benefits: recognition and measurement	IAS 19.153 – 19.157	-	-	-	1	0	-	NOT IDENTICAL (NOT INCLUDED)	
11	Termination benefits: recognition and measurement	IAS 19.159 – 19.170	-	-	-	1	0	-	NOT IDENTICAL (NOT INCLUDED)	

APPENDIX C: DETAILED COMPARISON OF IAS/IFRS & GREEK ACCOUNTING STANDARDS MEASUREMENT ITEMS (continued)

X	ACCOUNTING FOR GOVERNMENT GRANTS	IAS 20	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	ALLOWED/IDENTICAL IN BOTH IFRS & GAS		ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NOT IDENTICAL IN GAS		ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NOT IDENTICAL IN IFRS	COMMENT	Jaccard's coefficient
1	Criteria to recognize government grants	IAS 20.7	Article 23 par. 1, 2	Article 23.1.2	1	1	-		-	Same criteria: (i) compliance with the conditions attached to the grants, (ii) It is highly probable that the grant will be received	42,86%
2	General rules to recognize government grants	IAS 20.12, 20	Article 23 par. 1, 2	Article 23.1.2 -23.2.1	1	1	-		-	Same treatment: GAS adopt the income approach as IFRS	
3	Recognition of government grants related to expenses or losses already incurred or for the purpose of giving immediate financial support to the entity with no future related costs	IAS 20.20	Article 23 par. 1, 2	Article 23.1.2 - 23.2.1	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
4	Measurement of non-monetary government grants	IAS 20.23	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
5	Recognition of government grants related to assets on balance sheet date	IAS 20.24	Article 23 par. 1	Article 23.1.3 - 23.1.5	-		1	0	-	NOT IDENTICAL: Deducting the grant from the carrying amount of the asset is not allowed in GAS	
6	Recognition of government grants related to income on balance sheet date	IAS 20.29	Article 23 par. 2	Article 23.2.1	1	1	-		-	Same treatment	
7	Repayment of government grants	IAS 20.32	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
XI	**THE EFFECTS OF CHANGES IN FOREIGN EXHANGE RATES**	**IAS 21**	**APPLICABLE PROVISION OF LAW 4308/2014**	**ACCOUNTING CIRCULAR OF GAS**	**ALLOWED/IDENTICAL IN BOTH IFRS & GAS**		**ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NOT IDENTICAL IN GAS**		**ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NOT IDENTICAL IN IFRS**	**COMMENT**	**Jaccard's coefficient**
1	Determination of functional currency	IAS 21.9 – 21.14	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	**55,56%**
2	Initial recognition of foreign currency transaction	IAS 21.21, 22	Article 27 par. 1	Article 27.1.3	1	1	-		-	Same treatment	
3	Reporting at the ends of subsequent reporting periods	IAS 21.23	Article 27 par. 2	Article 27.2.1	1	1	-		-	Same treatment	
4	Recognition of exchange differences (Exchange differences arising on the settlement of monetary items)	IAS 21.28	Article 27 par. 3	Article 27.3.1	1	1	-		-	Same treatment	
5	Recognition of exchange differences (Gain or loss on a non-monetary item)	IAS 21.30	Article 27 par. 2c	Article 27.2.2	1	1	-		-	Same treatment	

APPENDIX C: DETAILED COMPARISON OF IAS/IFRS & GREEK ACCOUNTING STANDARDS MEASUREMENT ITEMS (continued)

XI	THE EFFECTS OF CHANGES IN FOREIGN EXHANGE RATES	IAS 21	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	ALLOWED/IDENTICAL IN BOTH IFRS & GAS		ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NOT IDENTICAL IN GAS		ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NOT IDENTICAL IN IFRS	COMMENT	Jaccard's coefficient
6	Recognition of exchange differences (Exchange differences arising on a monetary item that forms part of a reporting entity's net investment in a foreign operation)	IAS 21.32	Article 27 par. 4	Article 27.4.1 -27.4.2	1	1	-		-	Same treatment	
7	Change in functional currency	IAS 21.35	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	**55,56%**
8	Method of translating financial statement of foreign operations	IAS 21.39 - 21.47	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
9	Disposal of a foreign operation	IAS 21.48	Article 27 par. 4	Article 27.4.1 -27.4.2	-		1	0	-	NOT IDENTICAL (NOT INCLUDED): GAS approach this topic broadly and do not provide thorough guidance on the various cases in which a foreign operation may be disposed of, as specified in IAS 21	
XII	**BORROWING COSTS**	**IAS 23**	**APPLICABLE PROVISION OF LAW 4308/2014**	**ACCOUNTING CIRCULAR OF GAS**	**ALLOWED/IDENTICAL IN BOTH IFRS & GAS**		**ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NOT IDENTICAL IN GAS**		**ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NOT IDENTICAL IN IFRS**	**COMMENT**	**Jaccard's coefficient**
1	Recognition of borrowing costs	IAS 23.8	Article 18 par. 2d - Article 20 par. 5	Article 18.2.1 - Article 20.5.1-20.5.2	1	1	-		-	Same treatment	
2	Borrowing costs eligible for capitalization	IAS 23.12	-	Article 18.2.2	-		1	0	-	NOT IDENTICAL: According to GAS, capitalization of borrowing costs includes both borrowing costs associated with the qualifying asset and the entity's general borrowing costs	
3	Borrowing costs eligible for capitalization: Capitalization rate	IAS 23.14	-	Article 18.2.2	1	1	-		-	Same treatment: GAS requires that the capitalization rate be measured using the entity's average borrowing costs - IAS 23 requires that the capitalization rate be calculated using the weighted average of the borrowing costs applicable to the entity's outstanding borrowings during the period, other than borrowings made specifically for the purpose of acquiring a qualifying asset	50,00%
4	Commencement of capitalization of borrowing costs	IAS 23.17	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED): GAS provide no provision for the commencement of capitalization of borrowing costs	
5	Suspension of borrowing costs' capitalization	IAS 23.20	-	Article 18.2.2	1	1	-		-	Same treatment	
6	Cease of borrowing costs' capitalization	IAS 23.22-24	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED): GAS include no provision for the cessation of borrowing cost capitalization	

APPENDIX C: DETAILED COMPARISON OF IAS/IFRS & GREEK ACCOUNTING STANDARDS MEASUREMENT ITEMS (continued)

XIV	IMPAIRMENT OF ASSETS	IAS 36	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	ALLOWED/IDENTICAL IN BOTH IFRS & GAS		ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NOT IDENTICAL IN GAS		ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NOT IDENTICAL IN IFRS	COMMENT	Jaccard's coefficient
1	Identifying asset impairment: frequency (General rule)	IAS 36.9	Article 18 par. 3b	Article 18.3b.2	-		1	0	-	NOT IDENTICAL: According to GAS, impairment testing is conducted only when pertinent signs exist and the effect of the impairment on financial statements is expected to be material.	38,89%
2	Identifying asset impairment: frequency (Intangible asset with an indefinite useful life)	IAS 36.10	-	Article 18.3b.4	1	1	-		-	Same treatment	
3	Identifying asset impairment: Indicators	IAS 36.12	Article 18 par. 3b.2	-	-		1	0	-	NOT IDENTICAL: GAS provide just indicative indicators for impairment testing, not a bare minimum like IFRS do	
4	Measuring recoverable amount of impaired asset	IAS 36.30, 33, 39, 44, 50, 52, 55	Article 18 par. 3b.1	Article 18.3b.1	-		1	0	-	NOT IDENTICAL (NOT INCLUDED): GAS do not offer specific instructions on how to calculate the recoverable value of an asset	
5	Recognition of an impairment loss: General rule	IAS 36.59	Article 18 par. 3b	Article 18.3b.1	1	1	-		-	Same treatment	
6	Recognition of an impairment loss	IAS 36.60-62	Article 18 par. 3b.3	Article 18.3b.3	-		1	0	-	NOT IDENTICAL: GAS recognizes impairment loss only when the loss is deemed permanent	
7	Recognition of an impairment loss: Depreciation	IAS 36.63	-	18.3b.5 (relevant example)	1	1	-		-	Same treatment	
8	Identifying cash-generating units (CGU) to which an impaired asset belongs	IAS 36.66, 70, 72, 75	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
9	Allocating goodwill to CGU and impairment of goodwill	IAS 36.80–105, 108	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
10	Reversal of an impairment loss: Frequency	IAS 36.110	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
11	Reversal of an impairment loss: indicators	IAS 36.111	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
12	Reversal of an impairment loss: General rule	IAS 36.114	Article 18 par. 3b.4	Article 18.3b.5	1	1	-		-	Same treatment	
13	Reversal of an impairment loss: General recognition rule	IAS 36.117	Article 18 par. 3b.6	Article 18.3b.5	1	1	-		-	Same treatment	
14	Reversal of an impairment loss: recognition in profit or loss	IAS 36.119	Article 18 par. 3b.4	Article 18.3b.5	1	1	-		-	Same treatment	
15	Reversal of an impairment loss: recognition in cases of assets carried at revalued amount	IAS 36.119	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	

APPENDIX C: DETAILED COMPARISON OF IAS/IFRS & GREEK ACCOUNTING STANDARDS MEASUREMENT ITEMS (continued)

XIV	IMPAIRMENT OF ASSETS	IAS 36	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	ALLOWED/IDENTICAL IN BOTH IFRS & GAS		ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NON-IDENTICAL IN GAS		ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NON-IDENTICAL IN IFRS	COMMENT	Jaccard's coefficient
16	Reversal of an impairment loss: Adjustment of depreciation (amortization) charge	IAS 36.121	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	38,89%
17	Reversal of an impairment loss for a cash-generating unit	IAS 36.122-123	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
18	Reversal of an impairment loss for goodwill	IAS 36.124	Article 18 par. 3b.5	Article 18.3b.5	1	1	-		-	Same treatment	
XV	**PROVISIONS, CONTIGENT LIABILITIES AND CONTIGENT ASSETS**	**IAS 37**	**APPLICABLE PROVISION OF LAW 4308/2014**	**ACCOUNTING CIRCULAR OF GAS**	**ALLOWED/IDENTICAL IN BOTH IFRS & GAS**		**ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NOT IDENTICAL IN GAS**		**ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NOT IDENTICAL IN IFRS**	**COMMENT**	**Jaccard's coefficient**
1	Provisions - recognition criteria	IAS 37.14-26	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	33,33%
2	Provisions - Measurement	IAS 37.36-44	Article 22 par. 11	Article 22. 11.2 - 22. 12.1	1	1	-		-	Same treatment	
3	Provisions - materiality of time value of money	IAS 37.45-47	Article 22 par. 12	Article 22. 12.1	1	1	-		-	Same treatment	
4	Provisions - Changes in provisions	IAS 37.59	Article 22 par. 14	Article 22. 14.1	1	1	-		-	Same treatment	
5	Provisions—future events	IAS 37.48	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
6	Provisions—expected disposal of assets	IAS 37.51	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
7	Provisions—Reimbursements	IAS 37.53-54	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
8	Provisions—Use of provisions	IAS 37.61	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
9	Provisions—future operating losses	IAS 37.63	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
10	Provisions—onerous contracts	IAS 37.66	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
11	Provisions arising from restructuring of an entity	IAS 37.72, 78, 80	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
12	Contingent assets and liabilities	IAS 37.27, 31	Article 17 par. 4	Article 17.4.1	1	1	-		-	Same treatment: Both IFRS and GAS prohibit the recognition of contingent assets and liabilities	

APPENDIX C: DETAILED COMPARISON OF IAS/IFRS & GREEK ACCOUNTING STANDARDS MEASUREMENT ITEMS (continued)

XVI	INTANGIBLE ASSETS	IAS 38	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	ALLOWED/IDENTICAL IN BOTH IFRS & GAS		ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NON-IDENTICAL IN GAS		ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NON-IDENTICAL IN IFRS	COMMENT	Jaccard's coefficient
1	Initial recognition of intangible assets - Identifiability	IAS 38. 11, 12	APPENDIX A OF THE LAW	-	1	1	-		-	Same treatment	
2	Recognition of intangible assets: General rule	IAS 38.21, 22	-	Article 18.1.1	1	1	-		-	Same treatment	
3	Initial recognition of intangible assets at cost	IAS 38.24	Article 18 par. 1	Article 18.1.2	1	1	-		-	Same treatment	
4	Non - recognition of internally generated goodwill	IAS 38.48	Article 18 par. 2	-	1	1	-		-	Same treatment	
5	Internally generated intangible assets: Research phase	IAS 38.54	Article 25 par. 12	-	1	1	-		-	Same treatment	
6	Internally generated intangible assets: Development phase	IAS 38.57	Article 18 par. 1d	Article 18.1.9	1	1	-		-	Same treatment	
7	Internally generated intangible assets: Brands, Mastheads, Publishing Titles, Customer Lists and items similar in substance	IAS 38.63	Article 18 par. 2	-	1	1	-		-	Same treatment	
8	Recognition of an expenditure on an intangible item	IAS 38.68	Article 18 par. 1d & Article 25 par. 12	-	1	1	-		-	Same treatment: (i) Recognized as an expense when incurred if the expenditure is for research, (ii) Recognized as an expense when incurred if the expenditure is for development and does not meet the criteria for recognition as an intangible asset	**66,67%**
9	Initial recognition of intangible assets: Past expenses not to be recognized as an asset	IAS 38.71	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED): GAS contains no particular provisions relating to the non-recognition of expenditure as part of the cost of an intangible asset if it was initially recognized as an expense	
10	Measurement of intangible assets subsequent to initial recognition	IAS 38.72, 74–75, 81–82, 85–86	Article 18 par. 1	Article 18.1.2	-		1	0	-	NOT IDENTICAL: GAS permits the use of the cost method for subsequent measurement (cost less any accumulated amortization and any accumulated impairment losses). - GAS does not contain the revaluation approach outlined in IAS 38	

APPENDIX C: DETAILED COMPARISON OF IAS/IFRS & GREEK ACCOUNTING STANDARDS MEASUREMENT ITEMS (continued)

XVI	INTANGIBLE ASSETS	IAS 38	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	ALLOWED/IDENTICAL IN BOTH IFRS & GAS		ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NON-IDENTICAL IN GAS		ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NON-IDENTICAL IN IFRS		COMMENT	Jaccard's coefficient
11	Amortization of intangible assets: Useful life	IAS 38.88	-	Article 18.3a 6	1	1	-		-		Identical in both GAS & IFRS: The definition of intangible assets having an indefinite useful life under GAS is equivalent to that under IAS 38	
12	Amortization of intangible assets: Uncertainty regarding useful life estimation	IAS 38.93	Article 18 par. 3a7	Article 18.3a8	-		-		0	1	NOT IDENTICAL: When the useful life of goodwill and other intangible assets cannot be reliably estimated, GAS requires that those assets be amortized over a ten-year period - Although IFRS does not include this clause, it does require a prudent estimate of the useful life	
13	Amortization of intangible assets: useful life that arises from contractual or legal rights	IAS 38.94	-	Article 18.3a9	-		1	0	-		NOT IDENTICAL: According to GAS, the useful life of an intangible asset derived from contractual or other legal rights shall not exceed the period of the contractual or other legal rights, however IFRS allows for a shorter period depending on the duration of the asset's expected usage	**66,67%**
14	Amortization period and amortization method of Intangible assets with finite useful lives	IAS 38. 97	Article 18. par. 3a1-3a3, Article 25. 12	Article 18.3a1-18.3a3-18.3a5	1	1	-		-		Same treatment	
15	Amortization period and amortization method of Intangible assets with finite useful lives: Residual value	IAS 38.100	-	-	-		1	0	-		NOT IDENTICAL (NOT INCLUDED): There are no provisions in GAS that address the residual value of an intangible asset with a finite useful life	
16	Intangible assets with indefinite useful lives	IAS 38. 107	Article 18 par. 3a6	Article 18.3a7	1	1	-		-		Same treatment: Impairment testing, not amortization, is applied to intangible assets with an indefinite useful life	

APPENDIX C: DETAILED COMPARISON OF IAS/IFRS & GREEK ACCOUNTING STANDARDS MEASUREMENT ITEMS (continued)

XVI	INTANGIBLE ASSETS	IAS 38	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	ALLOWED/IDENTICAL IN BOTH IFRS & GAS		ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NON-IDENTICAL IN GAS		ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NON-IDENTICAL IN IFRS	COMMENT	Jaccard's coefficient
17	Annual review for intangibles	IAS 38.104, 109	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED): GAS makes no provision for an annual assessment of the amortization period and method for an intangible asset having a finite useful life. Additionally, GAS do not require a yearly evaluation of the useful life of an unamortized intangible asset to evaluate whether events and circumstances continue to support an indefinite useful life estimate for that asset	**66,67%**
18	Derecognition of an intangible asset	IAS 38.112, 113	Article 18 par. 4	-	1	1	-		-	Same treatment	
XVII	**FINANCIAL INSTRUMENTS:RECOGNITION & MEASUREMENT**	**IAS 39**	**APPLICABLE PROVISION OF LAW 4308/2014**	**ACCOUNTING CIRCULAR OF GAS**	**ALLOWED/IDENTICAL IN BOTH IFRS & GAS**		**ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NOT IDENTICAL IN GAS**		**ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NOT IDENTICAL IN IFRS**	**COMMENT**	**Jaccard's coefficient**
1	Initial recognition and measurement for financial instruments (contractual provisions of the instrument)	IAS 39.14	APPENDIX A OF THE LAW	Article 22.1.3	1	1	-		-	Same treatment: GAS apply the same fundamental recognition criterion as IAS 39 to financial liabilities, whereas the contractual provision criterion for financial assets is derived from the Law's Appendix	
2	Derecognition of a financial asset: Application of derecognition rules to a part of financial asset or a financial asset in its entirety	IAS 39.16	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
3	Derecognition of a financial asset: General Rule	IAS 39.17	Article 19 par. 9	-	1	1	-		-	Same treatment	**38,00%**
4	Derecognition of a financial asset: Conditions to be met for an entity to transfer a financial asset	IAS 39.18	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED): GAS contain no provision for the situation in which an entity retains contractual rights to the financial asset's cash flows but assumes a contractual obligation to pay the cash flows to one or more recipients in an arrangement	

APPENDIX C: DETAILED COMPARISON OF IAS/IFRS & GREEK ACCOUNTING STANDARDS MEASUREMENT ITEMS (continued)

XVII	FINANCIAL INSTRUMENTS:RECOGNITION & MEASUREMENT	IAS 39	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	ALLOWED/IDENTICAL IN BOTH IFRS & GAS	ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NOT IDENTICAL IN GAS		ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NOT IDENTICAL IN IFRS	COMMENT	Jaccard's coefficient
5	Derecognition of a financial asset: Conditions to be met for an entity to transfer a financial asset when it retains the contractual rights to receive the cash flows of the asset but assumes a contractual obligation to pay those cash flows to one or more entities	IAS 39.19	-	-	-	1	0	-	NOT IDENTICAL (NOT INCLUDED)	
6	Derecognition of a financial asset: Evaluation of the extent to which an entity retains the risks and benefits of ownership of a financial asset	IAS 39.20	-	-	-	1	0	-	NOT IDENTICAL (NOT INCLUDED): GAS include no provisions for cases in which an entity transfers or retains substantially all of the risks and rewards associated with ownership of a financial asset, as well as for cases in which an entity neither transfers nor retains substantially all of the risks and rewards associated with ownership of a financial asset	
7	Derecognition of a financial asset: Recognition of a servicing asset or liability as a result of a transfer of a financial asset	IAS 39.24	-	-	-	1	0	-	NOT IDENTICAL (NOT INCLUDED)	
8	Derecognition of a financial asset: Recognition at fair value of a new financial asset or liability as a result of a transfer of a financial asset	IAS 39.25	-	-	-	1	0	-	NOT IDENTICAL (NOT INCLUDED)	
9	Derecognition of a financial asset: Gain or loss from derecognition of a financial asset in its entirety	IAS 39.26	Article 19 par. 10	-	-	1	0	-	NOT IDENTICAL: According to GAS, the difference between the carrying amount and the consideration received (including any new asset obtained less any new liability assumed) must be reported in P&L - In accordance with IAS 39, the difference between: (a) the carrying amount and (b) the sum of (i) the consideration received (including any new asset obtained less any new liability assumed) and (ii) any cumulative gain or loss that had been recognized in other comprehensive income shall be recognized in P&L	**38,00%**
10	Derecognition of a financial asset: Derecognition of a transferred asset that is a part of a larger financial asset-Gain or Loss	IAS 39.27	-	-	-	1	0	-	NOT IDENTICAL (NOT INCLUDED)	

APPENDIX C: DETAILED COMPARISON OF IAS/IFRS & GREEK ACCOUNTING STANDARDS MEASUREMENT ITEMS (continued)

XVII	FINANCIAL INSTRUMENTS:RECOGNITION & MEASUREMENT	IAS 39	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	ALLOWED/IDENTICAL IN BOTH IFRS & GAS		ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NOT IDENTICAL IN GAS		ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NOT IDENTICAL IN IFRS	COMMENT	Jaccard's coefficient
11	Derecognition of a financial asset: If a transfer does not result in derecognition because the entity substantially retains the risks and benefits of ownership of a financial asset	IAS 39.29	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
12	Derecognition of a financial asset: An entity's continuing involvement in transferred assets (neither transfer nor retainment of risks and benefits of the asset)	IAS 39.30-34	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
13	Derecognition of a financial asset: Prohibition of offsetting between a transferred asset & its associated liability	IAS 39.36	Article 17 par. 1c	-	1	1	-		-	Same treatment: GAS prohibits offsetting between assets and liabilities and revenues and expenses unless expressly approved by law	
14	Derecognition of a financial asset: Accounting for non-cash collateral for the transferor & the transferee	IAS 39.37	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	**38,00%**
15	Regular way purchase or sale of a financial asset	IAS 39.38	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
16	Derecognition of a financial liability	IAS 39.39	Article 22 par. 7	Article 22.7.1 - 22.7.2	1	1	-		-	Same treatment	
17	An exchange between an existing borrower and lender of debt instruments with substantially different terms - Recognition of a new liability	IAS 39.40	Article 22 par. 8	Article 22.8.1 - 22.8.2	1	1	-		-	Same treatment	
18	Recognition in P& L of the difference between the carrying amount of a financial liability (or part of a financial liability) extinguished or transferred to another party and the consideration paid	IAS 39.41	Article 22 par. 9	Article 22.9.1	1	1	-		-	Same treatment	

APPENDIX C: DETAILED COMPARISON OF IAS/IFRS & GREEK ACCOUNTING STANDARDS MEASUREMENT ITEMS (continued)

XVII	FINANCIAL INSTRUMENTS:RECOGNITION & MEASUREMENT	IAS 39	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	ALLOWED/IDENTICAL IN BOTH IFRS & GAS	ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NOT IDENTICAL IN GAS		ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NOT IDENTICAL IN IFRS	COMMENT	Jaccard's coefficient
19	Initial measurement of financial assets	IAS 39.43	Article 19 par. 1	Article 19.1.2	-	1	0	-	NOT IDENTICAL: According to GAS, financial assets are initially recognized at cost plus transaction costs	**38,00%**
20	Initial measurement of financial liabilities	IAS 39.43	Article 22 par. 1 & 2	Article 22.1.4.-22.2.1	-	1	0	-	NOT IDENTICAL: Under GAS, financial liabilities are initially recognized at the amount due, while any transaction costs are transferred in profit or loss	
21	Subsequent measurement of financial assets	IAS 39.46, 48	Article 19 par. 2 & 3 - Article 24 par. 9-14	Article 19.2.1-19.3.1, 24.1.4-24.4.1-24.9.1-24.14.3	-	1	0	-	NOT IDENTICAL: According to GAS, financial assets are subsequently measured at cost less impairment loss and in cases of interest-bearing financial assets, at amortized cost using the effective interest rate method or the straight-line method, if the effect of using these methods is material. Alternatively, entities may use fair values to subsequently measure financial assets. Financial assets are then categorized as "Held for Trading", "Available for Sale" and "Hedging"	

APPENDIX C: DETAILED COMPARISON OF IAS/IFRS & GREEK ACCOUNTING STANDARDS MEASUREMENT ITEMS (continued)

XVII	FINANCIAL INSTRUMENTS:RECOGNITION & MEASUREMENT	IAS 39	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	ALLOWED/IDENTICAL IN BOTH IFRS & GAS		ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NOT IDENTICAL IN GAS		ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NOT IDENTICAL IN IFRS	COMMENT	Jaccard's coefficient
22	Subsequent measurement of financial liabilities	IAS 39.47	Article 22 par. 4 - Article 24 par. 9-14	Article 22.4.1-22.4.2-22.4.3-24.1.4-24.4.1, 24.9.1-24.14.3	-		1	0	-	NOT IDENTICAL: According to IAS 39, after initial recognition, an entity must measure all financial liabilities at amortized cost using the effective interest method, except in certain cases (e.g., financial liabilities at fair value through profit or loss-financial guarantee contracts). According to GAS, financial liabilities must be measured at their amount due after initial recognition, except in circumstances when they must be measured at amortized cost using the effective interest method or the straight line method, provided that the effect of applying these methods is material. Alternatively, entities may use fair values to subsequently measure financial liabilities held for trading	**38,00%**
23	Reclassification of financial instruments: Reclassification of financial instruments out of the fair value through Profit or Loss	IAS 39.50	Article 24 par. 4, 14	Article 24.9.1 24.14.1 – 24.14.3	1	1	-		-	With the exception of point b) (GAS does not permit initial recognition of financial assets at fair value), the IAS rules apply to financial assets that GAS permits to be subsequently measured at fair value (Available for Sale, Held for Trading, Hedging)	
24	Reclassification of financial instruments: Reclassification of financial instruments from Held to Maturity to Available for Sale	IAS 39.51	Article 24 par. 14b	Article 24.14.1	1	1	-		-	Same treatment	
25	Reclassification of financial instruments: Reclassification of remaining Held-to-maturity investments as Available for sale	IAS 39.52	Article 24 par. 14b	Article 24.14.1	1	1	-		-	Even though GAS does not contain the specific IAS provision, we presume it is consistent with the GAS rule governing reclassification of financial instruments from Held-to-Maturity to Available for sale	

APPENDIX C: DETAILED COMPARISON OF IAS/IFRS & GREEK ACCOUNTING STANDARDS MEASUREMENT ITEMS (continued)

XVII	FINANCIAL INSTRUMENTS:RECOGNITION & MEASUREMENT	IAS 39	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	ALLOWED/IDENTICAL IN BOTH IFRS & GAS		ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NOT IDENTICAL IN GAS		ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NOT IDENTICAL IN IFRS	COMMENT	Jaccard's coefficient
26	Reclassification of financial instruments: Financial instruments measured at cost as unable to reliably measure fair value	IAS 39.53	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
27	Reclassification of financial instruments: Fair value is no longer reliably measurable	IAS 39.54	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
28	Gains and losses arising from change in the fair value of a financial asset or financial liability that is not part of a hedging relationship	IAS 39.55	Article 24 par. 9, 10	Article 24.9.5-24.10.4	1	1	-		-	Same treatment	
29	Gains and losses for financial assets & liabilities carried at amortized cost upon derecognition or impairment	IAS 39.56	Article 19 par. 10 - Article 22 par.9	-	1	1	-		-	Same treatment	**38,00%**
30	Gains and losses arising from change of fair value of a financial asset which is recognized using settlement date accounting	IAS 39.57	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
31	Impairment of financial assets: General rule	IAS 39.58	Article 19 par. 4-5	Article 19.4.1	1	1	-		-	The main distinction between GAS and IAS on this subject is that IAS require impairment testing at the end of each reporting period, whereas GAS require impairment testing then when specific indications exist	
32	Impairment loss of financial assets carried at amortized cost	IAS 39.63	Article 19 par. 3-8	Article 19.4.1 - 19.8.2	-		1	0	-	NOT IDENTICAL: Interest-bearing financial assets (carried at amortized cost) are subject to the same accounting treatment as provided in IAS 39. Nevertheless, impairment losses on non-current financial assets are recognized only if they become permanent.	
33	Reversal of an impairment loss of financial assets carried at amortized cost	IAS 39.65	Article 19 par. 8	Article 19.8.1	1	1	-		-	Same treatment regarding interest-bearing financial assets carried at amortized cost	

APPENDIX C: DETAILED COMPARISON OF IAS/IFRS & GREEK ACCOUNTING STANDARDS MEASUREMENT ITEMS (continued)

XVII	FINANCIAL INSTRUMENTS:RECOGNITION & MEASUREMENT	IAS 39	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	ALLOWED/IDENTICAL IN BOTH IFRS & GAS		ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NOT IDENTICAL IN GAS		ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NOT IDENTICAL IN IFRS	COMMENT	Jaccard's coefficient
34	Impairment loss of financial assets carried at cost	IAS 39.66	Article 19 par. 4-8	Article 19.6.1 – 19.7.1	1	1	-		-	Even though GAS do not contain specific guidelines concerning unquoted equity instruments and derivatives that are linked to, and settled by, delivery of unquoted equity instruments, we consider the IAS method for calculating the impairment loss on those assets to be nearly equivalent to the GAS method for financial assets carried at cost, as their primary differences are minor.	38,00%
35	Reversal of impairment of financial assets carried at cost	IAS 39.66	Article 19 par. 8	Article 19.8.1	-		1	0	-	NOT IDENTICAL: GAS does not prohibit the reversal of an impairment loss on financial assets carried at cost.	
36	Impairment loss of available for sale financial assets & reversal of Impairment	IAS 39.67	Article 24 par. 9b	Article 24.9.5.-24.9.6	1	1	-		-	Same treatment	
37	Amount of cumulative loss reclassified from equity to profit or loss (Available for Sale Financial Assets)	IAS 39.68	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
38	Reversal of an impairment loss of an equity instrument classified as available for sale	IAS 39.69	Article 24 pr. 9c	-	1	1	-		-	Same treatment	
39	Reversal of an impairment loss of a debt instrument classified as available for sale when the fair value of the asset increases after the impairment loss	IAS 39.70	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
40	Hedging relationship types	IAS 39.86	-	Article 24.11.1- APPENDIX OF THE LAW	1	1	-		-	Same treatment regarding fair value and cash flow hedges (Hedge of a net investment in a foreign operation as defined in IAS 21 is not included in GAS and has already been taken into account in the relevant comparison of IAS 21)	
41	Hedging relationship conditions	IAS 39.88	Article 24 par. 11d	Article 24.11.2	-		1	0	-	NOT IDENTICAL: GAS do not require all five conditions to be met; rather, they require the formal designation and documentation of the hedging relationship, as well as an expectation of high effectiveness.	

APPENDIX C: DETAILED COMPARISON OF IAS/IFRS & GREEK ACCOUNTING STANDARDS MEASUREMENT ITEMS (continued)

XVII	FINANCIAL INSTRUMENTS:RECOGNITION & MEASUREMENT	IAS 39	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	ALLOWED/IDENTICAL IN BOTH IFRS & GAS		ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NOT IDENTICAL IN GAS		ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NOT IDENTICAL IN IFRS	COMMENT	Jaccard's coefficient
42	Fair value hedges: Recognition of gains os losses	IAS 39.89	Article 24 par. 11a	Article 24.11.6-24.11.7	1	1	-		-	Same treatment: GAS permits the use of IFRS guidance due to the complexity of hedging accounting. GAS, like IAS 39, recognizes gain or loss on the change in the fair value of the hedging instrument (IAS.39.89A). The hedged item (asset, liability, etc.) and the hedging instrument (derivative) are both measured at fair value under GAS	
43	Fair value hedges: Discontinuation of hedge accounting	IAS 39.91	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
44	Fair value hedges: Adjustment to the carrying amount of a hedged financial instrument for which the effective interest method is used, arising from the gain or loss on the hedged item attributable to the hedged risk	IAS 39.92	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
45	Cash flow hedges: Recognition of gains or losses	IAS 39.95	Article 24 par. 11b	Article 24.11.10	-		1	0	-	NOT IDENTICAL: Due to the intricacy of hedging accounting, GAS permits the use of IFRS guidance. Gains or losses on changes in the fair value of hedging instruments are reported in equity and are transferred to profit or loss when the hedged cash flows are recognized in profit or loss. On the other hand, IAS 39 makes a distinction between the portion of the hedging instrument recorded in other comprehensive income (effective hedge) and the portion recognized in profit or loss (ineffective portion)	**38,00%**
46	Hedge of a forecast transaction that subsequently results in the recognition of a financial asset or a financial liability	IAS 39.97	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
47	Hedge of a forecast transaction that subsequently results in the recognition of a non-financial asset or a non-financial liability	IAS 39.98 & 99	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED)	
48	Cash flow hedges other than Those included in paragraphs IAS 39.98 & 99	IAS 39.100	Article 24 par. 11b	Article 24.11.10	1	1	-		-	The GAS requirement (gains or losses on the change in fair value of the hedging instrument recognized in equity shall be transferred to profit or loss when the hedged cash flows are recognized in profit or loss) is similar to the IAS 39.100 treatment	

APPENDIX C: DETAILED COMPARISON OF IAS/IFRS & GREEK ACCOUNTING STANDARDS MEASUREMENT ITEMS (continued)

XVII	FINANCIAL INSTRUMENTS:RECOGNITION & MEASUREMENT	IAS 39	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	ALLOWED/IDENTICAL IN BOTH IFRS & GAS	ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NOT IDENTICAL IN GAS		ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NOT IDENTICAL IN IFRS	COMMENT	Jaccard's coefficient
49	Cash value hedges: Discontinuation of hedge acounting	IAS 39.101	-	-	-	1	0	-	NOT IDENTICAL (NOT INCLUDED)	**38,00%**
50	Hedge of a net investment: General rule	IAS 39.102	-	-	-	1	0	-	NOT IDENTICAL (NOT INCLUDED)	
XVIII	**INVESTMENT PROPERTY**	**IAS 40**	**APPLICABLE PROVISION OF LAW 4308/2014**	**ACCOUNTING CIRCULAR OF GAS**	**ALLOWED/IDENTICAL IN BOTH IFRS & GAS**	**ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NOT IDENTICAL IN GAS**		**ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NOT IDENTICAL IN IFRS**	**COMMENT**	**Jaccard's coefficient**
1	General recognition rule of investment property	IAS 40.16	-	-	1	1	-	-	Same treatment: While GAS do not contain specific criteria for the recognition of investment property, investment property should meet the criteria for fixed asset recognition	**38,46%**
2	Initial recognition of investment property	IAS 40.20	-	-	1	1	-	-	Same treatment: Due to the fact that investment property falls under the category of fixed assets, the measurement rules applicable to fixed assets shall be applied to investment property as well	
3	Measurement of investment property subsequent to initial recognition: Choosing accounting policy	IAS 40.30, 32A	Article 24 par. 1 & 2	-	1	1	-	-	Same treatment	
4	Measurement of investment property subsequent to initial recognition: Fair-value model	IAS 40.33, 35	Article 24 par. 6	-	1	1	-	-	Same treatment	
5	Measurement of investment property subsequent to initial recognition: Fair-value model (Inability to measure fair value reliably & use of fair value even if comparable market transactions become less frequent or market prices become less readily available	IAS 40.53, 55	-	-	-	1	0	-	NOT IDENTICAL (NOT INCLUDED): GAS have no particular requirements addressing the subject	
6	Reevaluation of fair value	-	Article 24 par. 6	Article 24.6.2	-	-		0 / 1	NOT IDENTICAL: According to GAS, when the fair value method is used on investment property, fair value must be reviewed at least every two years and whenever there are signs that the investment property's carrying amount is significantly different from fair value. IAS 40 does not contain such a requirement.	
7	Measurement of investment property subsequent to initial recognition: Cost model	IAS 40. 56	-	-	-	1	0	-	NOT IDENTICAL (NOT INCLUDED): GAS do not have any special requirements for subsequent recognition using the cost model, based on the nature of the asset (IFRS 5, IFRS 16 or IAS 16)	

APPENDIX C: DETAILED COMPARISON OF IAS/IFRS & GREEK ACCOUNTING STANDARDS MEASUREMENT ITEMS (continued)

XVIII	INVESTMENT PROPERTY	IAS 40	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	ALLOWED/IDENTICAL IN BOTH IFRS & GAS		ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NOT IDENTICAL IN GAS		ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NOT IDENTICAL IN IFRS	COMMENT	Jaccard's coefficient
8	Transfer to or from investment property - requirements	IAS 40.57	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED): GAS have no particular requirements addressing the subject	**38,46%**
9	Transfer from investment property to owner-occupied property - fair value model	IAS 40.60	-	Article 24.6.4	1	1	-		-	Same treatment	
10	Transfer from owner-occupied property to investment property - fair value model	IAS 40.61	-	Article 24.6.5	-		1	0	-	NOT IDENTICAL (NOT INCLUDED): GAS contains provisions that apply only to the transfer of owner-occupied property measured at fair value to investment property. Additionally, the GAS Accounting Circular suggests that guidance on that subject may be sought under IAS 40	
11	Transfer from inventories to investment property - fair value model	IAS 40.63	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED): GAS have no particular requirements addressing the subject	
12	Completion of the construction or development of a self-constructed investment property that will be carried at fair value	IAS 40.65	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED): GAS have no particular requirements addressing the subject	
13	Disposal of investment property	IAS 40.66, 69, 72	-	-	-		1	0	-	NOT IDENTICAL (NOT INCLUDED): GAS have no particular requirements addressing the subject	

APPENDIX C: DETAILED COMPARISON OF IAS/IFRS & GREEK ACCOUNTING STANDARDS MEASUREMENT ITEMS (continued)

XIX	AGRICULTURE	IAS 41	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	ALLOWED/IDENTICAL IN BOTH IFRS & GAS		ALLOWED/IDENTICAL IN IFRS & NOT ALLOWED/NON-IDENTICAL IN GAS		ALLOWED/IDENTICAL IN GAS & NOT ALLOWED/NON-IDENTICAL IN IFRS		COMMENT	Jaccard's coefficient
1	Recognition of biological assets & agricultural produce	IAS 41.10	APPENDIX A OF THE LAW	-	1	1	-		-		Same treatment: The recognition criteria for the assets listed in Appendix A of the Law are identical to those in IAS 41 for biological assets and agricultural produce	40,00%
2	Initial Recognition of biological assets & agricultural produce	IAS 41.12-13-30	Article18 par. 1	Article 18.1.2	-		1	0	-		NOT IDENTICAL: GAS require that biological assets be valued at acquisition cost	
3	Subsequent measurement of biological assets & agricultural produce	IAS 41.12-13	Article18 par. 1 - Article 24 par. 7	Article18.1.12 - Article 24.7.4	-		-		0	1	NOT IDENTICAL: Following initial recognition, GAS requires that biological assets be measured at cost less any cumulative depreciation and any impairment losses. Subsequent measurement at fair value less costs to sell may be used	
4	Gain and losses on agricultural products and biological assets	IAS 41.26, 28	Article 24 par. 7c	-	1	1	-		-		Same treatment: If fair value measurement is employed, GAS adopts the same approach as IAS/IFRS	
5	Government grants related to biological asset	IAS 41.34, 35	-	-	-		1	0	-		NOT IDENTICAL (NOT INCLUDED)	

APPENDIX D: TABLE OF KEY MEASUREMENT ITEMS (ROBUSTNESS TESTS)

				VARIABLE NAME	
				IAS/IFRS	GAS
INVENTORIES	**APPLICABLE IAS/IFRS:IAS 2**	**APPLICABLE PROVISION OF LAW 4308/2014**	**ACCOUNTING CIRCULAR OF GAS**	**VARIABLE VALUE**	**VARIABLE VALUE**
Measurement of inventories: Initial Recognition	IAS 2.9	Article 20 par. 1	-	1	1
Inventory costs	IAS 2.10	Article 20 par. 2 & 3	Article 20.2.1 & 20.2.2	1	1
Inventory items that are not interchangeable (specific costs are attributed to the specific individual items of inventory)	IAS 2.23	Article 20 par. 7c	Article 20.7.3	1	1
Measurement of inventories: Subsequent measurement	IAS 2.9	Article 20 par. 7	Article 20.6.1	1	1
Capitalization of borrowing costs as part of the cost of inventory	IAS 2.17	Article 20 par. 5	Article 20.5.1	1	1
Ending Inventory valuation (FIFO & Weighted Average)	IAS 2.25	Article 20 par. 7a	Article 20.7.1-20.7.3	1	1
Use of the same cost formula for all inventories having a similar nature and use to the entity.	IAS 2. 26	Article 20 par. 7b	Article 20.7.3	1	1
Recognition as an expense (Cost of goods sold)	IAS 2.34	-	Article 20.6.2	1	1
Recognition of impairment loss	IAS 2.34	-	Article 20.6.2	1	0
Recognition of reversal of impairment (Previously recognized impairment losses can be reversed up to the amount of the original impairment loss)	IAS 2.34	-	-	1	0

				VARIABLE NAME	
				IAS/IFRS	GAS
ACCOUNTING POLICIES, CHANGES IN ACCOUNTING ESTIMATES AND ERRORS	**IAS 8**	**APPLICABLE PROVISION OF LAW 4308/2014**	**ACCOUNTING CIRCULAR OF GAS**	**VARIABLE VALUE**	**VARIABLE VALUE**
Selection and application of accounting policies	IAS 8.7–12	-	Article 17.1.8	1	1
Consistency of accounting policies	IAS 8.13	Article 17 par. 1a	Article 17.1.8	1	1
Changes in accounting policy	IAS 8.14–25	Article 28 par. 1	Article 28.1.8.	1	1
Changes in accounting policy: Limitations on Retrospective Application	IAS 8.14–25	Article 28 par. 1	Article 28.1.8.	1	0
Change in accounting estimates	IAS 8.36–37	Article 28 par. 2	Article 28.2.1.-28.2.2.	1	1
Prior period fundamental errors	IAS 8.42–45	Article 28 par. 1	Article 28.1.8.	1	1
Prior period fundamental errors: Limitations on Retrospective Application	IAS 8.42–45	Article 28 par. 1	Article 28.1.8.	1	0

APPENDIX D: TABLE OF KEY MEASUREMENT ITEMS (ROBUSTNESS TESTS) (continued)

EVENTS AFTER THE REPORTING PERIOD	IAS 10	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	VARIABLE NAME IAS/IFRS VARIABLE VALUE	VARIABLE NAME GAS VARIABLE VALUE
Adjusting events after balance sheet date	IAS 10.8	Article 17 par. 8	Article 17.8.1.-17.8.2.	1	1
Non-adjusting events after balance sheet date	IAS 10.10	Article 17 par. 8	Article 17.8.3.-17.8.4.	1	1
Going concern issues arising after balance sheet date	IAS 10.14	-	-	1	0
Dividends declared after balance sheet date IAS 10.12	IAS 10.12	-	-	1	0

CONSTRUCTION CONTRACTS	1AS 11	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	VARIABLE NAME IAS/IFRS VARIABLE VALUE	VARIABLE NAME GAS VARIABLE VALUE
Combining and segmenting construction contracts	IAS 11.8–10	-	-	1	0
Revenue and expenses costs on a construction contract	IAS 11.11, 16	-	-	1	0
Revenue recognition on a construction contract: General Recognition Rule	IAS 11.22	Article 25 par. 4	-	1	1
Revenue recognition on a construction contract: Fixed Price Contract Recognition Criteria	IAS 11.23	-	-	1	0
Revenue recognition on a construction contract: Cost-Plus Contract Recognition Criteria	IAS 11.24	-	-	1	0
Revenue recognition on a construction contract (When the outcome of a construction contract cannot be estimated reliably)	IAS 11.32	-	Article 25.4.4.	1	1
Revenue recognition on a construction contract (Non-existence of uncertainties)	IAS 11.35	-	-	1	0
Expected loss on a construction contract	IAS 11.36	-	Article 25.4.4.	1	1

INCOME TAXES	IAS 12	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	VARIABLE NAME IAS/IFRS VARIABLE VALUE	VARIABLE NAME GAS VARIABLE VALUE
Recognition & measurement of current tax liabilities and current tax assets	IAS 12.12, 13, 46	-	-	1	0
Recognition of deferred tax liabilities in the balance sheet	IAS 12.15		Article 23.3.3	1	1
Recognition of deferred tax assets in the balance sheet	IAS 12.34		Article 23.3.4	1	1
Criteria to recognize deferred tax asset (DTA) for the carryforward of unused tax losses & unused tax credits	IAS 12.34	-	-	1	0

APPENDIX D: TABLE OF KEY MEASUREMENT ITEMS (ROBUSTNESS TESTS) (continued)

INCOME TAXES	IAS 12	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	VARIABLE NAME	
				IAS/IFRS	GAS
				VARIABLE VALUE	VARIABLE VALUE
Recognition of deferred tax liability arising from Investments in subsidiaries, branches and associates and interests in joint arrangements	IAS 12.39	-	-	1	0
Recognition of deferred tax assets arising from in Investments in subsidiaries, branches and associates and interests in joint arrangements	IAS 12.44	-	-	1	0
Measurement of Deferred tax assets and liabilities	IAS 12. 47-51	-	-	1	0
Discount for DTA and deferred tax liability	IAS 12.53	-	-	1	0
Reduction on DTA - Reversal of reduction on DTA	IAS 12.56	-	-	1	0
Current and deferred tax recognized in profit or loss	IAS 12.58	Article 23 par. 5	Article 23.5.1	1	1
Current and deferred tax recognized outside profit or loss	IAS 12.61	Article 23 par. 5	Article 23.5.1	1	1
Offset of current tax assets and current tax liabilities	IAS 12.71	-	-	1	0
Offset of deferred tax assets and deferred tax liabilities	IAS 12.74	Article 23 par. 3	-	1	0
Presentation of tax expense (income) related to profit or loss from ordinary activities	IAS 12.77	Article 25 par. 12	-	1	1

PROPERTY, PLANT & EQUIPMENT	IAS 16	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	VARIABLE NAME	
				IAS/IFRS	GAS
				VARIABLE VALUE	VARIABLE VALUE
Recognition of property, plant, and equipment (PP&E)	IAS 16.7	-	Article 18.1.1	1	1
Measurement of PP&E at initial recognition	IAS 16.15	Article 18 par. 1	Article 18.1.2	1	1
Measurement of PP&E subsequent to initial recognition: Choice of cost model or reevaluation method	IAS 16.29	Article 24 par.1 & 2	Article 24.1.2&24.2.1	1	1
Measurement of PP&E subsequent to initial recognition: Cost Model	IAS 16.30	-	Article 18.1.12	1	1
Measurement of PP&E subsequent to initial recognition: Re-evaluation Model	IAS 16. 31, 36	Article 24 par. 2 & 3	Article 24.1.2, 24.2.1, 24.3.1	1	0
Frequency of Re-evaluations	IAS 16. 34	Article 24 par. 5d & 5e	Article 24.5.5-24.5.6	1	1
Measurement of PP&E subsequent to initial recognition: Reevaluation Model – Decrease in an asset's carrying amount	IAS 16. 39	Article 24 par. 5a	Article 24.5.3	1	1

APPENDIX D: TABLE OF KEYMEASUREMENT ITEMS (ROBUSTNESS TESTS) (continued)

				VARIABLE NAME	
				IAS/IFRS	GAS
PROPERTY, PLANT & EQUIPMENT	**IAS 16**	**APPLICABLE PROVISION OF LAW 4308/2014**	**ACCOUNTING CIRCULAR OF GAS**	**VARIABLE VALUE**	**VARIABLE VALUE**
Measurement of PP&E subsequent to initial recognition: Re-evaluation Model-Increase in an asset's carrying amount	IAS 16. 40	Article 24 par. 5b	Article 24.5.3	1	1
Depreciation for each part of an item of PP&E	IAS 16.43	Article 18 par. 3a4	-	1	1
Recognition of depreciation charge	IAS 16. 48	Article 25 par. 12	-	1	1
Depreciable amount	IAS 16.50	Article 18 par. 3	Article 18.3.1	1	1
Residual value & useful life	IAS 16.51	Article 18 par. 3	Article 18.3.1	1	0
Depreciation method	IAS 16.60, 61	Article 18 par. 3	Article 18.3.1	1	1
Review of depreciation method	IAS 16.60, 61	Article 18 par. 3	Article 18.3.1	1	0
Compensation for PP&E impairment	IAS 16.65			1	0
De-recognition of PP&E	IAS 16.67, 68, 71	Article 18 par. 4	-	1	1

				VARIABLE NAME	
				IAS/IFRS	GAS
LEASES	**IAS 17**	**APPLICABLE PROVISION OF LAW 4308/2014**	**ACCOUNTING CIRCULAR OF GAS**	**VARIABLE VALUE**	**VARIABLE VALUE**
Classification of finance lease	IAS 17.8	-	Article 18.5.1	1	1
Accounting by finance lessees-recognition	IAS 17.20	Article 18 par. 5a	Article 18.5.4	1	1
Accounting by finance lessees-discount rate	IAS 17.20	-	Article 18.5.4	1	1
Accounting by finance lessees-initial direct costs	IAS 17.20	-	Article 18.5.4	1	1
Accounting by finance lessees-subsequent measurement	IAS 17.25	Article 18 par. 5a	Article 18.5.4	1	1
Accounting by finance lessees-depreciation method	IAS 17.27	Article 18 par. 5a	Article 18.5.4	1	1
Accounting by finance lessors-initial and subsequent measurement	IAS 17.36, 39	Article 18 par. 5b	Article 18.5.5	1	1
Accounting by finance lessors-recognition of lease income by manufacturer or dealer lessors	IAS 17.42	-	Article 18.5.6	1	1
Operating lease-incomes/payments IAS 17.33, 49–50	IAS 17.33, 49–50	Article 18 par. 6	Article 18.6.1	1	1
Operating lease-initial direct costs for lessors	IAS 17.52	-	-	1	0
Operating lease-depreciation method for lessors	IAS 17.53	-	-	1	0
Sale and lease back transactions that result in a finance lease	IAS 17.59	Article 18 par. 5c	Article 18.5.7	1	1
Sale and lease back transactions that result in an operating lease	IAS 17.61	-	Article 18.5.7	1	0

APPENDIX D: TABLE OF KEY MEASUREMENT ITEMS (ROBUSTNESS TESTS) (continued)

				VARIABLE NAME	
				IAS/IFRS	GAS
REVENUE	**IAS 18**	**APPLICABLE PROVISION OF LAW 4308/2014**	**ACCOUNTING CIRCULAR OF GAS**	**VARIABLE VALUE**	**VARIABLE VALUE**
Measurement of revenue—general rule (Revenue shall be measured at the fair value of the consideration received or receivable)	IAS 18.9	-	-	1	0
Recognition of revenue from the sale of goods: Criteria	IAS 18.14	Article 25 par. 3	-	1	0
Recognition of revenue from rendering of services: Criteria	IAS 18.20	Article 25 par. 4	Article 25.4.2	1	1
Recognition of revenue from rendering of services: Method	IAS 18.20	Article 25 par. 4	Article 25.4.5-25.4.7	0	1
Recognition of revenue from rendering of services	IAS 18.26	-	Article 25.4.4	1	1
Recognition of revenue arising from interest, royalties, and dividends	IAS 18.29, 30	Article 25 par. 5	-	1	1

				VARIABLE NAME	
				IAS/IFRS	GAS
EMPLOYEE BENEFITS	**IAS 19**	**APPLICABLE PROVISION OF LAW 4308/2014**	**ACCOUNTING CIRCULAR OF GAS**	**VARIABLE VALUE**	**VARIABLE VALUE**
Short-term employee benefits: General Recognition Rule	IAS 19. 11	-	-	1	0
Short-term employee benefits: Short-term paid absences	IAS 19. 13-18	-	-	1	0
Short-term employee benefits: Profit-sharing and bonus plans	IAS 19. 19-24	-	-	1	0
Multi-employer plans: Treatment as a Defined Contribution Plan or as a Defined Benefit Plan	IAS 19.32-39, 51-52	-	-	1	0
Defined benefit plans that share risks between entities under common control	IAS 19.40–42	-	-	1	0
State plans	IAS 19.43-45	-	-	1	0
Insured benefits	IAS 19.46-49	-	-	1	0
Measurement of defined contribution plans (DCP): recognition and measurement	IAS 19.50-52	-	-	1	0
Measurement of defined benefit plans (DBP): recognition and measurement	IAS 19.55-134	Article 22 par. 13	Article 22.13.1-22.13.3	1	0
Other long-term employee benefits: recognition and measurement	IAS 19.153-157	-	-	1	0
Termination benefits: recognition and measurement	IAS 19.159-170	-	-	1	0

APPENDIX D: TABLE OF KEYMEASUREMENT ITEMS (ROBUSTNESS TESTS) (continued)

				VARIABLE NAME	
				IAS/IFRS	GAS
ACCOUNTING FOR GOVERNMENT GRANTS	**IAS 20**	**APPLICABLE PROVISION OF LAW 4308/2014**	**ACCOUNTING CIRCULAR OF GAS**	**VARIABLE VALUE**	**VARIABLE VALUE**
Criteria to recognize government grants	IAS 20.7	Article 23 par. 1, 2	Article 23.1.2	1	1
General rules to recognize government grants	IAS 2020.12,	Article 23 par. 1, 2	Article 23.1.2 - 23.2.1	1	1
Recognition of government grants related to expenses or losses already incurred or for the purpose of giving immediate financial support to the entity with no future related costs	IAS 20. 20	Article 23 par. 1, 2	Article 23.1.2 - 23.2.1	1	0
Measurement of non-monetary government grants	IAS 20.23	-	-	1	0
Recognition of government grants related to assets on balance sheet date	IAS 20.24	Article 23 par. 1, 2	Article 23.1.2	1	0
Recognition of government grants related to income on balance sheet date	IAS 20.29	-	Article 23.2.1	1	1
Repayment of government grants	IAS 20.32	-	-	1	0

				VARIABLE NAME	
				IAS/IFRS	GAS
THE EFFECTS OF CHANGES IN FOREIGN EXHANGE RATES	**IAS 21**	**APPLICABLE PROVISION OF LAW 4308/2014**	**ACCOUNTING CIRCULAR OF GAS**	**VARIABLE VALUE**	**VARIABLE VALUE**
Determination of functional currency	IAS 21.9-14	-	-	1	0
Initial recognition of foreign currency transaction	IAS 21.21, 22	Article 27 par. 1	Article 27.1.3	1	1
Reporting at the ends of subsequent reporting periods	IAS 21.23	Article 27 par. 2	Article 27.2.1	1	1
Recognition of exchange differences (Exchange differences arising on the settlement of monetary items)	IAS 21.28,	Article 27 par. 3	Article 27.3.1	1	1
Recognition of exchange differences (Gain or loss on a non-monetary item)	IAS 21. 30	Article 27 par. 3	Article 27.2.2	1	1
Recognition of exchange differences (Exchange differences arising on a monetary item that forms part of a reporting entity's net investment in a foreign operation)	IAS 21. 32	Article 27 par. 4	Article 27.4.1 -27.4.2	1	1
Change in functional currency	IAS 21.35	-	-	1	0
Method of translating financial statement of foreign operations	IAS 21.39, 47	-	-	1	0
Disposal of a foreign operation	IAS 21.48	-	-	1	0

APPENDIX D: TABLE OF KEY MEASUREMENT ITEMS (ROBUSTNESS TESTS) (continued)

				VARIABLE NAME	
				IAS/IFRS	GAS
BORROWING COSTS	**IAS 23**	**APPLICABLE PROVISION OF LAW 4308/2014**	**ACCOUNTING CIRCULAR OF GAS**	**VARIABLE VALUE**	**VARIABLE VALUE**
Recognition of borrowing costs	IAS 23.8	Article 18 par. 2d - Article 20 par. 5	Article 18.2.1 - Article 20.5.1-20.5.2	1	1
Borrowing costs eligible for capitalization	IAS 23.12	-	Article 18.2.2	1	0
Borrowing costs eligible for capitalization: Capitalization rate	IAS 23.14	-	Article 18.2.2	1	1
Commencement of capitalization of borrowing costs	IAS 23.17	-	-	1	0
Suspension of capitalization of borrowing costs	IAS 23.20	-	Article 18.2.2	1	1
Cessation of capitalization of borrowing costs	IAS 23.22-24	-	-	1	0

				VARIABLE NAME	
				IAS/IFRS	GAS
IMPAIRMENT OF ASSETS	**IAS 36**	**APPLICABLE PROVISION OF LAW 4308/2014**	**ACCOUNTING CIRCULAR OF GAS**	**VARIABLE VALUE**	**VARIABLE VALUE**
Identifying impairment asset: frequency (General Rule)	IAS 36.9	Article 18 par. 3b	-	1	0
Identifying impairment asset: frequency (Intangible asset with an indefinite useful life)	IAS 36.10	Article 18 par. 3b	-	1	1
Identifying impairment asset: Indicators	IAS 36.12	Article 18 par. 3b	-	1	0
Measuring recoverable amount of impaired asset	IAS 36.30, 33, 39, 44, 50, 52, 55	Article 18 par. 3b	Article 18.3b.5	1	0
Recognition of an impairment loss: General Rules	IAS 36.59	Article 18 par. 3b	Article 18.3b.3	1	1
Recognition of an impairment loss	IAS 36.60-62	Article 18 par. 3b	Article 18.3b.3	1	0
Recognition of an impairment loss: Depreciation	IAS 36.63	Article 18 par. 3b	Article 18.3b.3	1	1
Identifying cash-generating units (CGU) to which an impaired asset belongs	IAS 36.66, 70, 72, 75	-	-	1	0
Allocating goodwill to CGU and impairment of goodwill	IAS 36.80–105, 108	-	-	1	0
Reversal of an impairment loss: Frequency	IAS 36.110	Article 18 par. 3b	Article 18.3b.5	1	0
Reversal of an impairment loss: indicators	IAS 36.111	Article 18 par. 3b	Article 18.3b.5	1	0
Reversal of an impairment loss: General Rule	IAS 36.114	Article 18 par. 3b	Article 18.3b.5	1	1
Reversal of an impairment loss: General rule for recognition of impairment loss reversal	IAS 36.117	Article 18 par. 3b	Article 18.3b.5	1	1
Reversal of an impairment loss: recognition in profit or loss	IAS 36.119	Article 18 par. 3b	Article 18.3b.5	1	1

APPENDIX D: TABLE OF KEY MEASUREMENT ITEMS (ROBUSTNESS TESTS) (continued)

				VARIABLE NAME	
				IAS/IFRS	GAS
IMPAIRMENT OF ASSETS	**IAS 36**	**APPLICABLE PROVISION OF LAW 4308/2014**	**ACCOUNTING CIRCULAR OF GAS**	**VARIABLE VALUE**	**VARIABLE VALUE**
Reversal of an impairment loss: recognition in cases of assets carried revalued amount	IAS 36.119	-	-	1	0
Reversal of an impairment loss: Adjustment of depreciation (amortization) charge	IAS 36.121	-	-	1	0
Reversal of an impairment loss for a CGU	IAS 36.122-123	-	-	1	0
Reversal of an impairment loss for GOODWILL	IAS 36.124	Article 18 par. 3b	Article 18.3b.5	1	1

				VARIABLE NAME	
				IAS/IFRS	GAS
PROVISIONS, CONTIGENT LIABILITIES AND CONTIGENT ASSETS	**IAS 37**	**APPLICABLE PROVISION OF LAW 4308/2014**	**ACCOUNTING CIRCULAR OF GAS**	**VARIABLE VALUE**	**VARIABLE VALUE**
Provisions-Recognition Criteria	IAS 37.14-26	-	-	1	0
Provisions-Initial Recognition	IAS 37.36-44	Article 22 par. 11	Article 22. 11.2 - 22. 12.1	1	1
Provisions-Initial Recognition (materiality of time value of money)	IAS 37.45-47	Article 22 par. 12	Article 22. 12.1	1	1
Provisions-Subsequent Measurement	IAS 37.59	Article 22 par. 11	Article 22. 11.2 - 22. 12.1	1	1
Provisions-Future Events	IAS 37.48	-	-	1	0
Provisions-expected disposal of assets	IAS 37.51	-	-	1	0
Provisions-Reimbursements	IAS 37.53-54	-	-	1	0
Provisions-Use of provisions	IAS 37.61	-	-	1	0
Provisions-Future Operating Losses	IAS 37.63	-	-	1	0
Provisions-Onerous Contracts	IAS 37.66	-	-	1	0
Provisions arising from restructuring of an entity	IAS 37.72, 78, 80	-	-	1	0
Contingent Assets and Liabilities	IAS 37.27, 31	Article 17 par. 4	Article 17.4.1	1	1

				VARIABLE NAME	
				IAS/IFRS	GAS
INTANGIBLE ASSETS	**IAS 38**	**APPLICABLE PROVISION OF LAW 4308/2014**	**ACCOUNTING CIRCULAR OF GAS**	**VARIABLE VALUE**	**VARIABLE VALUE**
Initial recognition of intangible assets-Identifiability	IAS 38. 11-12	APPENDIX A OF THE LAW	-	1	1
Recognition of intangible assets: General Rule	IAS 38.21-22	-	Article 18.1.1	1	1
Initial recognition of intangible assets at cost	IAS 38.24	Article 18 par. 1	Article 18.1.2.	1	1
Non - Recognition of Internally generated goodwill	IAS 38.48	Article 18 par. 2	-	1	1

APPENDIX D: TABLE OF KEY MEASUREMENT ITEMS (ROBUSTNESS TESTS) (continued)

				VARIABLE NAME	
				IAS/IFRS	GAS
INTANGIBLE ASSETS	**IAS 38**	**APPLICABLE PROVISION OF LAW 4308/2014**	**ACCOUNTING CIRCULAR OF GAS**	**VARIABLE VALUE**	**VARIABLE VALUE**
Internally generated intangible assets: Research phase	IAS 38.54	Article 25 par. 12	-	1	1
Internally generated intangible assets: Development phase	IAS 38.57	Article 18 par. 1	Article 18.1.9.	1	1
Internally generated intangible assets: Brands, Mastheads, Publishing Titles, Customer Lists and items similar in substance	IAS 38.63	Article 18 par. 2	-	1	1
Initial recognition of intangible assets: Recognition of an expenditure on an intangible item	IAS 38.68	-	-	1	1
Initial recognition of intangible assets: Past expenses not to be recognized as an asset	IAS 38.71	-	-	1	0
Measurement of intangible assets subsequent to initial recognition	IAS 38.72, 74–75, 81–82, 85–86	Article 18 par. 1	Article 18.1.2.	1	0
Amortization of intangible assets: Useful Life	IAS 38.88	-	Article 18.3a6	1	1
Amortization of intangible assets: Uncertainty regarding Useful Life Estimation	IAS 38.93	Article 18 par. 3a7	Article 18.3a8	0	1
Amortization of intangible assets: useful life that arises from contractual or legal rights	IAS 38.94	-	Article 18.3a9	1	0
Amortization period and amortization method of Intangible assets with finite useful lives	IAS 38. 97	Article 18 par. 3a1-3a3	Article 18.3a1-18.3a4-18.3a5	1	1
Amortization period and amortization method of Intangible assets with finite useful lives: Residual value	IAS 38.100	-	-	1	0
Intangible assets with indefinite useful lives	IAS 38. 107	Article 18 par. 3a6	Article 18.3a7	1	1
Annual review for intangibles	IAS 38.104, 109	-	-	1	0
De-recognition of an intangible asset	IAS 38.112, 113	Article 18 par. 4	-	1	1

				VARIABLE NAME	
				IAS/IFRS	GAS
FINANCIAL INSTRUMENTS:RECOGNITION & MEASUREMENT	**IAS 39**	**APPLICABLE PROVISION OF LAW 4308/2014**	**ACCOUNTING CIRCULAR OF GAS**	**VARIABLE VALUE**	**VARIABLE VALUE**
Initial recognition and measurement for financial instruments (contractual provisions of the instrument)	IAS 39.14	APPENDIX A OF THE LAW	Article 22.1.3	1	1

APPENDIX D: TABLE OF KEY MEASUREMENT ITEMS (ROBUSTNESS TESTS) (continued)

				VARIABLE NAME	
				IAS/IFRS	GAS
FINANCIAL INSTRUMENTS:RECOGNITION & MEASUREMENT	**IAS 39**	**APPLICABLE PROVISION OF LAW 4308/2014**	**ACCOUNTING CIRCULAR OF GAS**	**VARIABLE VALUE**	**VARIABLE VALUE**
De-recognition of a financial asset: Application of de-recognition rules to a part of financial asset or a financial asset in its entirety	IAS 39.16	-	-	1	0
De-recognition of a financial asset: General Rule	IAS 39.17	Article 19 par. 9	-	1	1
De-recognition of a financial asset: Conditions to be met for an entity to transfer a financial asset	IAS 39.18	-	-	1	0
De-recognition of a financial asset: Conditions to be met for an entity to transfer a financial asset when it retains the contractual rights to receive the cash flows of the asset but assumes a contractual obligation to pay those cash flows to one or more entities	IAS 39.19	-	-	1	0
De-recognition of a financial asset: Evaluation of the extent to which an entity retains the risks and benefits of ownership of a financial asset	IAS 39.20	-	-	1	0
De-recognition of a financial asset: Recognition of a servicing asset or liability as a result of a transfer of a financial asset	IAS 39.24	-	-	1	0
De-recognition of a financial asset: Recognition at fair value of a new financial asset or liability as a result of a transfer of a financial asset	IAS 39.25	-	-	1	0
De-recognition of a financial asset: Gain or Loss from de-recognition of a financial asset in its entirety	IAS 39.26	Article 19 par. 10	-	1	0
De-recognition of a financial asset: De-recognition of a transferred financial asset that is a part of a larger financial asset-Gains or Losses	IAS 39.27	-	-	1	0
De-recognition of a financial asset: If a transfer does not result in de-recognition because the entity substantially retains the risks and rewards of ownership of a financial asset	IAS 39.29	-	-	1	0
De-recognition of a financial asset: An entity's continuing involvement in transferred assets (neither transfer nor retain of the risks and benefits of the asset)	IAS 39.30-34	-	-	1	0

APPENDIX D: TABLE OF KEYMEASUREMENT ITEMS (ROBUSTNESS TESTS) (continued)

				VARIABLE NAME	
				IAS/IFRS	GAS
FINANCIAL INSTRUMENTS:RECOGNITION & MEASUREMENT	**IAS 39**	**APPLICABLE PROVISION OF LAW 4308/2014**	**ACCOUNTING CIRCULAR OF GAS**	**VARIABLE VALUE**	**VARIABLE VALUE**
De-recognition of a financial asset: Prohibition of offsetting between a transferred asset & its associated liability	IAS 39.36	Article 17 par. 1c	-	1	1
De-recognition of a financial asset: Accounting for non-cash collateral for the transferor & the transferee	IAS 39.37	-	-	1	0
Regular way purchase or sale of a financial asset	IAS 39.38	-	-	1	0
De-recognition of a financial liability	IAS 39.39	Article 22 par. 7	Article 22.8.1-22.8.2	1	1
An exchange between an existing borrower and lender of debt instruments with substantially different terms-Recognition of a new liability	IAS 39.40	Article 22 par. 8	Article 22.7.1-22.7.3	1	1
Recognition in P& L of the difference between the carrying amount of a financial liability (or part of a financial liability) extinguished or transferred to another party and the consideration paid	IAS 39.41	Article 22 par. 9	Article 22.9.1	1	1
Initial measurement of financial assets	IAS 39.43	Article 19 par. 1	Article 19.1.2	1	0
Initial measurement of financial liabilities	IAS 39.43	Article 22 par. 2	Article 22.1.4.-22.2.1	1	0
Subsequent measurement of financial assets	IAS 39.46, 48	Article 19 par. 2, 3 - Article 24 par. 9-14	Article 19.2.1-19.3.1, 24.1.4-24.4.1-24.9.1-24.14.3	1	0
Subsequent measurement of financial liabilities	IAS 39.47	Article 22 par. 4 - Article 24 par. 9-14	Article 22.4.1-22.4.2.-22.4.3-24.1.4-24.4.1, 24.9.1-24.14.3	1	0
Reclassification of financial instruments: Re-classification of Financial Instruments at fair value through Profit or Loss	IAS 39.50	Article 24 par. 14a	Article 24.14.3	1	1
Reclassification of financial instruments: Re-classification of Financial Instruments from HTM to AFS	IAS 39.51	Article 24 par. 14b	Article 24.14.1	1	1
Reclassification of financial instruments: Re-classification of Financial Instruments from AFS to HTM	IAS 39.52	Article 24 par. 14b	Article 24.14.2	1	1

APPENDIX D: TABLE OF KEYMEASUREMENT ITEMS (ROBUSTNESS TESTS) (continued)

				VARIABLE NAME	
				IAS/IFRS	GAS
FINANCIAL INSTRUMENTS:RECOGNITION & MEASUREMENT	IAS 39	APPLICABLE PROVISION OF LAW 4308/2014	ACCOUNTING CIRCULAR OF GAS	VARIABLE VALUE	VARIABLE VALUE
Reclassification of financial instruments: Financial instruments measured at cost as unable to reliably measure fair value	IAS 39.53	-	-	1	0
Reclassification of financial instruments: Fair value measurement is no longer reliably measurable	IAS 39.54	-	-	1	0
Gains and losses arising from change in the fair value of a financial asset or financial liability that is not part of a hedging relationship	IAS 39.55	Article 24 par. 9-11	Article 24.9.5-24.9.6	1	1
Gains and losses for financial assets & liabilities carried at amortized cost upon de-recognition or impairment	IAS 39.56	Article 19 par. 10 - Article 22 par. 9	-	1	1
Gains and losses arising from change of fair value of a financial asset which is recognized using settlement date accounting	IAS 39.57	-	-	1	0
Impairment of financial instruments: General Rule	IAS 39.58	Article 19 par. 4-5	Article 19.4.1	1	1
Impairment loss of financial assets carried at amortized cost (loans and receivables or held-to-maturity investments)	IAS 39.63	Article 19 par. 4-8	Article 19.8.2	1	0
Reversal of an impairment loss of financial assets carried at amortized cost	IAS 39.65	Article 19 par. 8	Article 19.8.1	1	1
Impairment loss of financial assets carried at cost	IAS 39.66	Article 19 par. 4-8	Article 19.6.1 - 19.7.1	1	1
Reversal of impairment of financial assets carried at cost	IAS 39.66	Article 19 par. 8	Article 19.8.1	1	0
Impairment loss of available for sale financial assets & Reversal of Impairment	IAS 39.67	Article 24 par. 9b	Article 24.9.5.-24.9.6	1	1
Amount of cumulative loss reclassified from equity to profit or loss	IAS 39.68	-	-	1	0
Reversal of an impairment loss of an equity instrument classified as available for sale	IAS 39.69	Article 24 par. 9c	-	1	1

APPENDIX C: TABLE OF KEY MEASUREMENT ITEMS (ROBUSTNESS TESTS) (continued)

				VARIABLE NAME	
				IAS/IFRS	GAS
FINANCIAL INSTRUMENTS:RECOGNITION & MEASUREMENT	**IAS 39**	**APPLICABLE PROVISION OF LAW 4308/2014**	**ACCOUNTING CIRCULAR OF GAS**	**VARIABLE VALUE**	**VARIABLE VALUE**
Reversal of an impairment loss of a debt instrument classified as available for sale when the fair value of the asset increases after the impairment loss	IAS 39.70	-	-	1	0
Hedging relationship types	IAS 39.86	-	Article 24.11.1-Appendix of the Law	1	1
Hedging relationship conditions	IAS 39.88	Article 24 par. 11d	Article 24.11.2	1	0
Fair value hedges: Recognition of gains or losses	IAS 39.89	Article 24 par. 11a	Article 24.11.6-24.11.7	1	1
Fair value hedges: Discontinuation of hedge accounting	IAS 39.91	-	-	1	0
Fair value hedges: Adjustment arising the gain or loss (attributable to the hedged risk) to the carrying amount of a hedged financial instrument for which the effective interest method is used	IAS 39.92	-	-	1	0
Cash flow hedges: Recognition of gains or losses	IAS 39.95	Article 24 par. 11b	Article 24.11.9-24.11.10	1	0
Hedge of a forecast transaction that subsequently results in the recognition of a financial asset or a financial liability	IAS 39.97	-	-	1	0
Hedge of a forecast transaction that subsequently results in the recognition of a non-financial asset or a non-financial liability	IAS 39.98-99	-	-	1	0
Cash flow hedges other than previous paragraphs	IAS 39.100	Article 24 par. 11b	Article 24.11.9-24.11.10	1	1
Cash value hedges: Discontinuation of hedge accounting	IAS 39.101	-	-	1	0
Hedge of a net investment: general rule	IAS 39.102	-	-	1	0

				VARIABLE NAME	
				IAS/IFRS	GAS
INVESTMENT PROPERTY	**IAS 40**	**APPLICABLE PROVISION OF LAW 4308/2014**	**ACCOUNTING CIRCULAR OF GAS**	**VARIABLE VALUE**	**VARIABLE VALUE**
General recognition rule of property investment	IAS 40.16, 20	-	-	1	1
Initial recognition of property investment	IAS 40.21	-	-	1	1
Measurement of property investment subsequent to initial recognition: Choosing accounting policy	IAS 40.30, 32A	Article 24 par. 1-2	-	1	1

APPENDIX C: TABLE OF KEY MEASUREMENT ITEMS (ROBUSTNESS TESTS) (continued)

				VARIABLE NAME	
				IAS/IFRS	GAS
INVESTMENT PROPERTY	**IAS 40**	**APPLICABLE PROVISION OF LAW 4308/2014**	**ACCOUNTING CIRCULAR OF GAS**	**VARIABLE VALUE**	**VARIABLE VALUE**
Measurement of investment property subsequent to initial recognition: Fair-value model	IAS 40.33 - 35	Article 24 par. 6	-	1	1
Measurement of property investment subsequent to initial recognition: Fair-value model (Inability to measure fair value reliably & use of fair value even if comparable market transactions become less frequent or market prices become less readily available	IAS 40., 53, 55	-	-	1	0
Re-evaluation of fair value	-	Article 24 par. 6	Article 24.6.2	0	1
Measurement of property investment subsequent to initial recognition: Cost model	IAS 40. 56	-	-	1	0
Transfer to or from investment property-requirements	IAS 40.57	-	-	1	0
Transfer from investment property to owner-occupied property-fair value model	IAS 40.60	-	Article 24.6.4	1	1
Transfer from owner-occupied property to investment property-fair value model	IAS 40.61	-	Article 24.6.5	1	0
Transfer from inventories to investment property-fair value model (Differences between fair value and the carrying amount will be recognized in profit or loss)	IAS 40.63	-	-	1	0
Completion of the construction or development of a self-constructed investment property that will be carried at fair value (Differences between fair value and the carrying amount will be recognized in profit or loss)	IAS 40.65	-	-	1	0
Disposal of investment property	IAS 40.66, 69, 72	-	-	1	0

APPENDIX C: TABLE OF KEY MEASUREMENT ITEMS (ROBUSTNESS TESTS) (continued)

				VARIABLE NAME	
				IAS/IFRS	GAS
AGRICULTURE	**IAS 41**	**APPLICABLE PROVISION OF LAW 4308/2014**	**ACCOUNTING CIRCULAR OF GAS**	**VARIABLE VALUE**	**VARIABLE VALUE**
Recognition of agricultural products	IAS 41.10	APPENDIX A OF THE LAW	-	1	1
Initial Recognition of biological assets & agricultural produce	IAS 41.12-13-30	Article18 par. 1	Article 18.1.2	1	0
Subsequent measurement of biological assets & agricultural produce	IAS 41.12-13	Article18 par. 1 - Article 24 par. 7	Article18.1.12 - Article 24.7.4	0	1
Gain and losses on agricultural products and biological assets	IAS 41.26, 28	Article 24 par. 6	-	1	1
Government grants related to biological asset	IAS 41.34, 35	-	-	1	0

Chapter 2: An examination of the factors affecting the deviation of Greece's new accounting Standards from IAS/IFRS

2.1. Introduction

According to the findings of Section 1.9. of Chapter 1, the Greek Accounting Standards are 47,58 % harmonized with IFRS. The purpose of this chapter is to investigate the effect of country-specific factors on the observed deviation of the new Greek Accounting Standards from IFRS.

Previous research has extensively examined the importance of country-specific factors in accounting. National factors such as legal tradition, capital market size, educational attainment, the relationship between tax and accounting, and other national characteristics have been shown to exert a significant influence not only on the financial statements of companies, but also on the formulation of national accounting standards. Additionally, countries classified into similar clusters based on their development stage (developed-developing) or orientation (Anglo-American/Continental Europe) demonstrated comparable characteristics.

Aisbitt (2001, p. 60) asserts that "*companies are not preparing their annual reports in a vacuum*", which appears to be a fairly exact statement. As Aisbitt (2001) explains, companies' financial statements are influenced by a range of causal factors, including regulatory changes, accounting practice advancements, as well as industry and market considerations.

Ali and Hwang (2000) proved the truth of Aisbitt's (2001) remark regarding the value relevance of earnings and book value of equity. Their analysis of data from manufacturing firms in 16 countries reveals that the value relevance of earnings differs significantly amongst firms from countries with varying country-specific features. In particular, Ali and Hwang (2000) discover that country characteristics such as the economy's bank orientation, the close alignment of tax and accounting rules, the lack of private sector involvement in standard creation, and limited spending on external auditing services all have a negative effect on firms' value relevance of earnings. On the other hand, they discover that enterprises located in countries with the completely opposite characteristics demonstrate a greater value relevance of earnings.

The seminal research of Ball et al. (2000) examines the effect of political influence on two dimensions of accounting income: timeliness and conservatism. Their findings

show that countries belonging to different groupings (code-law systems with significant political influence vs common law systems with a strong private sector effect on accounting) exhibit varying characteristics regarding the timeliness and conservatism of accounting income[50].

Additionally, Ball et al. (2003) assess the impact of institutional factors such as political influence and enforcement mechanisms on the quality of financial reporting in Hong Kong, Malaysia, Singapore, and Thailand. Their research demonstrates that, despite the fact that these countries' accounting rules are based on common law, their accounting income is comparable to that of code-law countries in terms of timeliness, owing primarily to incentives outweighing accounting practices.

Apart from value relevance and accounting income, institutional factors also influence earnings management and the cost of capital, as demonstrated by Leuz et al. (2003) and Hail and Leuz (2006), respectively.

Leuz et al. (2003) investigate the impact of institutional factors on earnings management. In their landmark study, Leuz et al. (2003) conduct a comprehensive cluster analysis to find groups of nations with comparable institutional characteristics and demonstrate that earnings management varies systematic across these institutional groupings. They conclude that economies with a polydisperse ownership structure, effective investor protection, and developed stock markets have lower levels of earnings management than economies with a concentrated ownership structure, weak investor protection, and less developed stock markets.

Hail and Leuz (2006) discover substantial correlations between countries' legal systems and costs of equity capital, demonstrating that firms in countries with stricter disclosure requirements and securities regulation, as well as, to a lesser extent, firms in countries with higher-quality legal systems, have a lower cost of capital, even after accounting for traditional firm and country risk.

Aisbitt's (2001, p. 60) landmark phrase that "*companies are not preparing their annual reports in a vacuum*", also applies to the framework within which companies prepare their financial statements: accounting standards. As Zeghal and Mhedhbi (2006) note, a country's accounting standards are determined by a complex interplay of environmental influences. Additionally, Jaafar and McLeay (2007) emphasize that

[50] For instance, Ball et al. (2000) discover that the accounting incomes of Code-law countries are more "smoothed" and less timely in integrating changes in market value during the current period than those of common-law countries.

accounting practice harmonization should not be presumed to result in uniform practices, as real-world situations may produce widely divergent outcomes.

Various researchers have thoroughly examined the effect of country-specific factors on accounting standards. A body of research explores the effect of country-specific factors on observed deviations between national accounting standards and IFRS. Ding et al. (2005) and Ding et al. (2007) conducted two of the most prominent research studies in this literature stream.

Ding et al. (2005) examine whether cultural variations contribute to the difference between national accounting standards and IAS. They develop two indices (i.e., the Divergence Index and the Absence Index) for 52 nations using the "GAAP 2001: A Survey of National Accounting Rules Benchmarked Against International Accounting Standards" publication. The Divergence and Absence Indexes indicate the number of items[51] for which national GAAP and IAS diverge or are excluded from national GAAP in comparison to IAS, respectively. They then apply well-established cultural dimensions from prior research (i.e., Hofstede, 2001; Schwartz, 1994) to their analysis and conclude that culture is a significant determinant of international accounting harmonization, as their Divergence and Absence Indexes are associated with the cultural variables used.

Ding et al. (2007)[52] examine the role of five institutional factors as potential determinants of the differences between domestic accounting standards and IAS for a sample of 30 countries using the Divergence and Absence indexes (similar to Ding et al., 2005). Their research demonstrates that absence of specific IAS accounting items from national accounting standards is more prevalent in countries with less developed equity markets and greater ownership concentration, whereas divergence between domestic accounting standards and IAS is positively associated with economic development and the strength of the accounting profession, but is constrained by the importance of equity markets.

Although Ding et al.'s (2005) and Ding et al.'s (2007) research studies have been criticized for a variety of reasons, this does not diminish their significance. Regarding Ding et al.'s (2005) study, Papadaki (2005) notes that the researchers should consider

[51] The total number of accounting items included in the "GAAP 2001: A Survey of National Accounting Rules Benchmarked against International Accounting Standards" are 111 IAS items.

[52] Hereafter, 'Ding et al.' refers to Ding et al. (2007), unless noted otherwise.

additional significant factors in their analysis rather than focusing exclusively on Hofstede's cultural dimensions. Ding et al. (2005a) emphasize in their answer to Papadaki (2005) that integrating such a large number of factors in their model would probably create statistical issues (i.e., potential multi-collinearity). Additionally, Nobes (2009) raises doubt on the methodology used by Ding et al. (2007).

Another line of research examines whether country-specific characteristics have an effect on the likelihood of IFRS adoption at the national level. For example, Zeghal and Mhedhbi (2006) examine the elements that may contribute to developing nations' adoption of IAS, focusing on a variety of factors (e.g., economic growth, education level, the degree of external economic openness etc.). They find that developing countries with the highest levels of literacy, capital markets, and Anglo-American culture are more likely to adopt IAS.

Francis et al. (2008) also evaluate the influence of country-specific characteristics on private companies' voluntary IAS adoption in 56 countries, concluding that firm characteristics outweigh country characteristics in more developed countries, whereas country characteristics outweigh firm characteristics in less developed countries when it comes to explaining IAS adoption.

Additionally, researchers examined whether country-specific factors might influence a possible adoption of IFRS for SMEs. For instance, Kaya and Koch (2015) examine the factors that may influence a country's decision to adopt IFRS for SMEs and discover that country-specific factors such as limited funding options, deficient auditing and financial reporting systems, and an unfavorable business environment may facilitate IFRS for SMEs adoption, whereas high-quality governance and a heavy reliance on tax revenues may act as impediments.

Additionally, Sellami and Gafsi (2018) examine the environmental factors that influence a country's decision to adopt IFRS for SMEs and discover that the importance of the SME sector, reliance on external financing, and degree of external openness all have a positive effect on a country's decision to adopt IFRS for SMEs, while high book-tax conformity has a detrimental impact on countries' decision to adopt IFRS for SMEs.

Damak-Ayadi et al. (2020) also study the impact of environmental and institutional factors on the adoption of IFRS for SMEs and discover that the potential adoption of the Standard is strongly related to the quality of law enforcement, culture, trading

networks, and economic growth, as well as with the combined effect of audit and law enforcement quality.

Scholars and accounting practitioners alike have emphasized the critical role of country-specific elements in achieving accounting standard harmonization and convergence. For example, nearly half of the countries surveyed in the GAAP 2002 survey (sponsored and conducted by the world's six top accounting firms) recognized the tax-oriented nature of their national accounting regime as a barrier to IFRS convergence. Thus, scholars and practitioners agree on the importance of book-tax conformity as a significant determinant of national accounting choices and the IFRS harmonization process.

Overall, as demonstrated, country-specific factors have a significant impact on all facets of accounting. Additionally, this effect is well-established in the accounting literature, offering fertile ground for our research objective, which is to investigate the effects of Greece-specific factors on the observed deviation of Greece's new accounting standards from IFRS.

2.2. Research methodology

To determine if Greece's country-specific characteristics have an effect on the observed deviation between Greek Accounting Standards and IFRS, we must first define the components of the observed deviation.

In the preceding Chapter, we established that the primary cause for the variance between Greek Accounting Standards and IAS/IFRS is the absence of particular accounting rules, rather than accounting treatment differentiation. Additionally, we identified other instances where the two frameworks differed. Thus, the distinctions between the two accounting systems stem from the absence and divergence of accounting items.

We follow Ding et al.'s approach (2007) to quantify the absence and divergence of accounting items between Greek Accounting Standards and IAS/IFRS. To begin, we partition our list of accounting items into absent items and items with different treatment (divergent items) and calculate both indexes. Table 2.1 tabulates the partitioning of accounting items and the calculation of the Absence and Divergence Indexes.

Table 2.1: Partition of accounting Items

ACCOUNTING AREAS		SAME TREATMENT AS IAS/IFRS	DIFFERENT TREATMENT FROM IAS/IFRS (DIVERGENCE)	NON-INCLUSION COMPARED TO IAS/IFRS (ABSENCE)	SUM
I	**INVENTORIES**	8	1	1	10
II	**ACCOUNTING POLICIES, CHANGES IN ACCOUNTING ESTIMATES AND ERRORS**	5	0	2	7
III	**EVENTS AFTER THE REPORTING PERIOD**	2	0	2	4
IV	**CONSTRUCTION CONTRACTS**	3	0	5	8
V	**INCOME TAXES**	5	0	9	14
VI	**PROPERTY, PLANT & EQUIPMENT**	12	1	3	16
VII	**LEASES**	10	1	2	13
VIII	**REVENUE**	3	2	1	6
IX	**EMPLOYEE BENEFITS**	0	0	11	11
X	**ACCOUNTING FOR GOVERNMENT GRANTS**	3	1	3	7
XI	**THE EFFECTS OF CHANGES IN FOREIGN EXHANGE RATES**	5	0	4	9
XII	**BORROWING COSTS**	3	1	2	6
XIV	**IMPAIRMENT OF ASSETS**	7	3	8	18
XV	**PROVISIONS, CONTIGENT LIABILITIES AND CONTIGENT ASSETS**	4	0	8	12
XVI	**INTANGIBLE ASSETS**	12	3	3	18
XVII	**FINANCIAL INSTRUMENTS: RECOGNITION & MEASUREMENT**	19	9	22	50
XVIII	**INVESTMENT PROPERTY**	5	1	7	13
XIX	**AGRICULTURE**	2	2	1	5
TOTAL		108	25	94	227
DIVERGENCE INDEX		**11,01%**			
ABSENCE INDEX		**41,41%**			

As Ding et al. note, the use of Absence and Divergence Indexes more accurately capture accounting differences between countries. Additionally, Ding et al. contend that absence and divergence cannot be considered interchangeable or complementary concepts because they pertain to distinct features of accounting differences. As a result, by considering the two distinct aspects (i.e., absence/divergence) of the observed deviation of Greek Accounting Standards from IAS/IFRS, we may conduct a more in-depth examination of the effect of Greece's country-specific factors on each aspect.

To assess the effect of country-specific factors on the Absence and Divergence Indexes, we create two country subsets, drawing data from Ding et al. Both country subsets include all EU member states (14 countries including UK and Greece) from

Ding et al.'s research, but each country subset is distinct in terms of Greece's Absence and Divergence Index values. In particular, the first country subset includes the values of Ding et al.'s Absence and Divergence Indexes for the 14 EU countries while the second country subset differs from the first country subset only in terms of Greece's new Absence and Divergence Indexes (reported in Table 2.1). We focus on EU countries, because the European context is more homogeneous, and EU Member States are required to apply EU policies such as transposing EU Directives into national law or adopting IFRS.

Greece's new Absence and Divergence Indexes are notably different from those calculated in Ding et al.'s research. As detailed in Chapter 1, the level of harmonization between Greece's new accounting standards and IAS/IFRS is calculated by comparing the differences in accounting measurement items between Greek Accounting Standards and IAS/IFRS, excluding disclosure items.

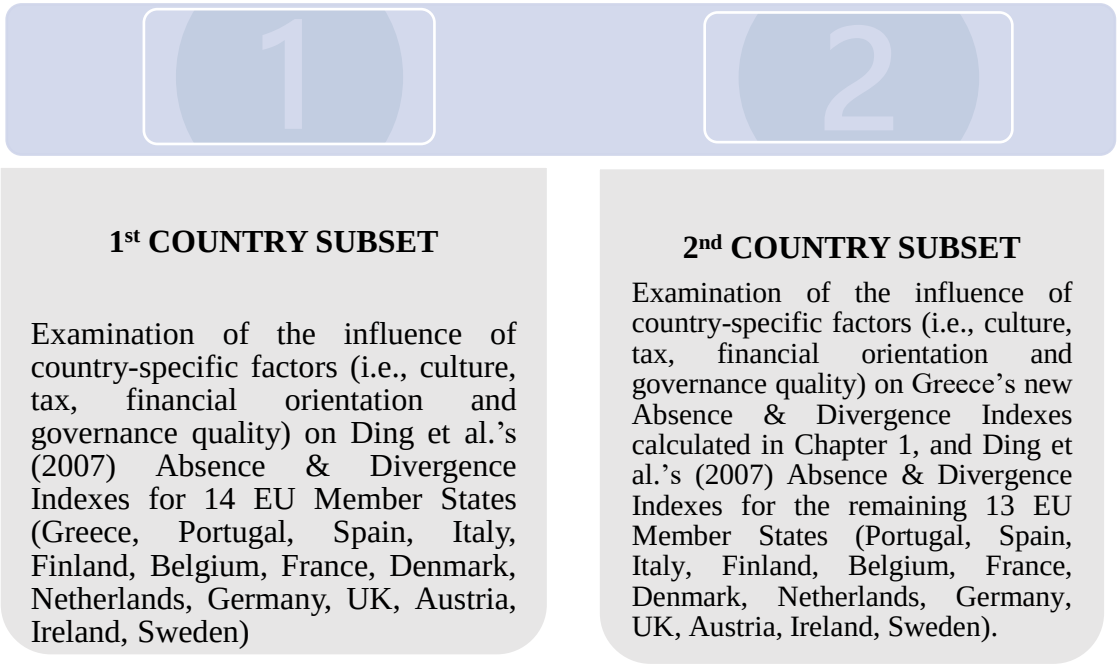
Therefore, Greece's new Absence and Divergence Indexes depict absent and divergent measurement accounting items compared to their IAS/IFRS equivalents. Ding et al.'s indexes, on the other hand, reflect both measurement and disclosure differences between countries' domestic accounting standards and IAS, as determined the GAAP 2001 Survey.

Moreover, we study the effect of country-specific factors on the Absence and Divergence Indexes, in a manner distinct from Ding et al. That is, we examine several country-specific factors that have not been used in the exploration of differences among accounting frameworks.

Thus, our research is in line with the main idea of prior studies (e.g., Ding et al., 2005; Ding et al., 2007) that explore the influence of country-specific factors on the differences between national accounting standards and IAS/IFRS.

Nevertheless, we introduce new country-specific factors in the central idea of these research studies. We focus on the cultural aspect of accounting, the level of book-tax conformity, financial orientation and governance quality, mainly for two reasons: First, Greece is unique in terms of the aforementioned factors; second, these factors have influenced the evolution of accounting in Greece, over time. Figure 2.1 summarizes our research methodology for the two country subsets:

Figure 2.1: Summary of the applied methodology



Our approach has several advantages: First, we can examine the influence of several newly-introduced country-specific factors in the differentiation of national accounting standards from IAS/IFRS in several EU countries and particularly in Greece; second, we can evaluate the efficacy of Greece's new Absence and Divergence Indexes in comparison to Ding et al.'s indexes; third, we can examine the effect of these country-specific factors on both Ding et al.'s indexes and Greece's new Absence and Divergence Indexes, as well.

The primary objective of our research design is to discover whether the influence of country-specific factors on national accounting standards is intertemporal. By including Greece's new Absence and Divergence Indexes (which reflect current variations between Greek Accounting Standards and IAS/IFRS) in the second country subset and holding all other countries' relevant values stable, we can analyze the effect of country-specific factors over time. This enables us to assess the sustainability of country-specific factors in the formulation of accounting standards on a national and European level.

According to Perera (1989, p. 141) "*accounting is a product of its environment, and a particular environment is unique to its time and locality*". The next section builds on Perera's (1989) remark and outlines the country-specific factors that we apply in our

research and their impact on the development of accounting standards on a national and worldwide scale.

2.3. Description of research variables

2.3.1. Cultural Effects

Our research's first country-specific factor concerns the influence of culture on accounting. Schultz and Lopez (2001) emphasize the importance of cultural diversity in explaining differences in the evolution of accounting systems. Hope (2003) believes that researchers should not overlook culture as a significant aspect in accounting research. According to Perera et al. (2012), there has been a growing realization over the last decades, that culture has a significant impact on accounting.

In the case of Greece, Robinson and Venieris (1996) observe that the cultural inclination toward Uncertainty Avoidance had a considerable influence on the establishment of accounting standards in Greece. Ballas et al. (2010) suggest that Greece's cultural setting makes the use of accounting frameworks such as IFRS dubious, as such frameworks require managers to make several decisions.

We follow Ding et al. (2005) in developing our cultural variables, who analyze the influence of culture on their Absence and Divergence Indexes utilizing Hofstede's (1984)[53] cultural dimensions (i.e., Uncertainty Avoidance, Individualism, Power Distance, Masculinity)[54]. Additionally, we follow Hope et al. (2008), who present a novel technique that quantitatively combines Hofstede's theory with Gray's (1988)[55] accounting values (i.e., Professionalism vs Statutory Control, Uniformity vs Flexibility, Conservatism vs Optimism, and Secrecy vs Transparency).

Gray's Uniformity and Conservatism accounting values have one thing in common: high Uncertainty Avoidance. Gray postulates that the higher a country ranks in Uncertainty Avoidance, the more probable it is to rank highly in Uniformity and Conservatism. The fact that Greece ranks top in Uncertainty Avoidance (according to Hofstede's research) and that Uniformity and Conservatism are two of the most prominent features of the Greek accounting environment demonstrates Gray's theory's applicability to Greece.

---

[53] Hereafter, 'Hofstede' refers to Hofstede (1984), unless noted otherwise.

[54] An analysis of Hofstede's cultural dimensions and Gray' s accounting values is included in section 1.4. of Chapter 1 of the Thesis.

[55] Hereafter, 'Gray' refers to Gray (1988), unless noted otherwise.

Regarding his Professionalism (vs Statutory Control) accounting value, Gray hypothesizes that the higher a country ranks in terms of Individualism and the lower it ranks in terms of Uncertainty Avoidance and Power Distance, the more likely it is to rank high in terms of Professionalism.

By reversing Gray's Professionalism hypothesis, one can deduce that the higher a country ranks in terms of Uncertainty Avoidance and Power Distance, and the lower it ranks in terms of Individualism, the more likely it is to rank highly in terms of Statutory Control. Thus, Gray's reverse Professionalism hypothesis coincides to his Uniformity hypothesis, and by examining Uniformity, we indirectly assess the influence of Statutory Control on the differentiation of national accounting standards from IAS/IFRS.

As a result, rather than investigating the effect of Hofstede's social values on the Absence and Divergence Indexes, as Ding et al. (2005) do, we examine the effect of Gray's accounting values on the Absence and Divergence Indexes (which are based on Hofstede's theory). Thus, we conduct a more accounting-based analysis of the cultural effect on the observed diversity of national accounting standards (and specifically Greek Accounting Standards) from IAS/IFRS.

Gray's Secrecy accounting value is excluded from our analysis since secrecy is more closely tied to financial disclosure considerations (e.g., Jaggi and Low, 2000) or auditor choice (e.g., Hope et al., 2008). While Ding et al.'s relevant indexes contain both measurement and disclosure items, the derivation of our Absence and Divergence Indexes is based on measurement accounting items only, excluding disclosure items. Consequently, Gray's Secrecy accounting value is outside the scope of our research and the omission of disclosure items does not alter the essence of our indexes.

2.3.2. Tax considerations

The second country-specific factor of our research relates to the degree to which accounting is aligned with tax laws. Nobes (1998) contends, that differences in tax laws between countries result in global accounting variations for accounting systems in which tax and accounting are inextricably intertwined. According to Eberhartinger (1999), taxation's dependency on financial reporting might result in a significant influence of tax rules on the formation of accounting standards. Craig and Diga (1999) note that changes in tax legislation have a substantial impact on accounting in macro-user countries (e.g., Greece). Guenther and Young (2000) suggest that when

financial accounting is required to comply with tax regulations, tax incentives may trump all other firm-level concerns.

Numerous experts perceive taxation as a significant impediment to European and international harmonization. Guenther and Hussein (1995), for example, observe that financial and tax reporting conformance obstructs harmonization since the ties between tax and financial reporting systems are greater in certain countries than in others. Also, Lamb et al. (1998) contend that certain countries' firmly rooted linkages between tax and accounting make comparing individual company accounts more difficult and consequently less harmonized.

When it comes to harmonization of national accounting standards with IFRS, Sellhorn amd Tomaszewski (2006) regard taxation as a factor affecting countries' willingness to adopt IFRS. Ballas et al. (2010) observe that the complexity of specific IFRS, as well as the strong ties between financial reporting and tax laws in the majority of European countries, are important hurdles to national standards convergence with IFRS. Also, Fontes et al. (2005) concur with Ballas et al. (2010), citing the complexity of specific IFRS and the tax-motivated and legalistic nature of Portuguese GAAP, as major impediments to accounting convergence with IFRS in Portugal.

Similarly, as numerous national researchers have underlined, tax rules have a substantial influence on the evolution of accounting in Greece (e.g., Ballas, 1994; Ballas et al., 1998; Koumanakos et al., 2005; Tzovas, 2006; Tsakumis, 2007; Karampinis and Hevas, 2011; Dimitropoulos et al., 2013; Karampinis and Hevas, 2013; Tsalavoutas, 2017).

Thus, the close relationship between tax rules and accounting that exists in many continental EU Member States is likely to play a significant role in explaining national accounting variations from IAS/IFRS, which justifies our choice of the level of a country's book-tax conformity as a valid country-specific factor.

2.3.3. Financial system orientation

Another significant country-specific factor affecting the development of accounting is the financial system's orientation (i.e., whether the financial system is bank-oriented or market-oriented). According to Ali and Hwang (2000), under bank-oriented systems, banks are the primary financiers of businesses and have direct access to any corporate information they deem necessary, reducing the need for publicly available financial statements. Moreover, as Ali and Hwang (2000) assert, market-oriented

systems differ from bank-oriented systems in that they are comprised of a varied array of investors who lack direct access to corporate information.

Demirgüç-Kunt and Levine (2001) highlight the central role of banks in bank-based financial systems and capital markets in market-based financial systems, in terms of pulling on the economy's strings. These forces that pull the strings behind a country's financial system (i.e., banks or the capital market) strongly influence the development and formulation of accounting standards. Both Ball et al. (2000) and Guenther and Young (2000) confirm this assertion, suggesting that governments, labor unions, banks, business associations, and shareholders, among other factors, are significant determinants of accounting standards development. Ball et al. (2003) use the term "politicization" to describe the processes by which accounting standards are developed in code-law countries in response to pressure from a variety of lobbyists, including governments, banks, labor unions, and large corporations.

Additionally, prior research has established a link between a country's financial system orientation and the quality and content of accounting standards. For instance, Schultz and Lopez (2001) argue that the need for comprehensive accounting standards is lessened in countries where the majority of financing is provided by banks, governments, and families.

Additionally, Demirgüç-Kunt and Levine (2001) argue that countries that are market-based typically have competent and high-quality accounting standards in addition to a number of shared traits, including a common law tradition, strong investor protection, and low corruption rates. By contrast, they argue that countries with small capital markets and weak financial systems typically adhere to minimum accounting standards and share similar characteristics such as a civil law tradition, inadequate investor protection, and high corruption rates.

Schmukler and Vesperoni (2000), as well as Kwok and Tadesse (2006), emphasize the relationship-based nature of bank-based systems, as opposed to market-based systems, which function more formally.

Berger and Udell (2006) suggest in their analysis of SME financing that banks and lending institutions operating in relationship-based financing systems depend on their first-hand relationships with SMEs to collect SME-related information and address the SME information gap. De la Torre et al. (2008) describe this information gap for SMEs as the opacity problem, which refers to the difficulty in obtaining information about a company's ability to meet its debt-related commitments. In contrast to

relationship-based funding systems, which confront the opacity problem, arm's-length financing systems require high-quality information, as De la Torre et al. (2008) point out.

In respect to country-specific characteristics, Rajan and Zingales (2003) argue that relationship-based financing is ideal for countries with small markets, where the majority of companies are SMEs, and where legal protection and transparency are limited. On the other hand, as they observe, arm's-length financing is advantageous in countries with larger markets and businesses, as well as robust enforcement systems and a high level of transparency. De la Torre et al. (2008) express a similar view to Rajan and Zingales (2003). They emphasize in particular that banks in advanced economies rely on more sophisticated enforcement mechanisms and do not lend to customers only on the basis of their relationship with them.

Therefore, it is demonstrated that a country's financial system not only interacts with its accounting system but also influences the development of national accounting standards. In comparison to bank-oriented countries, which rely on other sources of information rather than highly detailed accounting standards, market-based countries are subject to more accounting requirements (due to their capital market financing, as De la Torre et al., 2008 contend, and thus have a greater likelihood of having higher-quality accounting standards.

Prior studies have emphasized the banks' major role in financing Greek businesses, as well as Greece's overall bank orientation (e.g., Robinson and Venieris, 1996; Tzovas, 2006; Karampinis and Hevas, 2011). The financial orientation of a country is expected to influence the degree of deviation between national accounting standards and IAS/IFRS, as bank-oriented countries have a lower demand for more advanced and investor-oriented accounting standards (Frost and Ramin, 1996; cited in Ali and Hwang, 2000). Thus, our third country-specific factor pertains to a country's financial system's bank or market orientation.

2.3.4. Governance Quality

Rodriguez-Pose and Garcilazo (2013, 2015) define governance quality in great detail. They believe that a country's quality governance is characterized by the behavior and stance of its leaders and legislators, as well as their commitment to promoting transparency and the general well-being and advancement of the population.

As a result of Rodriguez-Pose and Garcilazo's (2013, 2015) description, it is possible to infer that the quality of a country's governance is a critical component of its overall

development and economic reality. For example, La Porta et al. (1999) emphasize the critical role of a country's institutional quality in achieving economic growth. Globerman and Shapiro (2003) emphasize the critical role of governance institutional quality in determining US Foreign Direct Investment (FDI).

Li and Filer (2007) attribute investors' preference for direct investment over portfolio investment to low-quality governance environments. Rodriguez-Pose and Garcilazo (2013, 2015) and Rodriguez-Pose and Di Cataldo (2015), respectively, emphasize the critical role of government quality in achieving economic growth at the EU level.

Before delving into the relationship between governance quality and accounting, it is necessary to consider what constitutes governance quality. Rothstein and Teorell (2012) contextualize the phrase "high quality governance" by connecting it with "government quality", so establishing a link between the two concepts. Kaufmann et al. (1999b) of the World Bank define governance as a plexus of governments, governmental policies, citizens, and the state that coexist and interact in ways that determine the quality of governance. Globerman and Shapiro (2003) adopt a similar definition to Kaufmann et al. (1999b), stating that the governance structure consists of all government-created institutions and policies that serve as the economic and legal underpinnings of society.

Rothstein and Teorell (2008, 2012) add another dimension to government quality by associating the term with the neutrality and objectivity that institutions should display when enforcing laws and policies. According to Rapanos and Kaplanoglou (2014), governance encompasses a broad range of activities that government institutions (including the state and political system) should engage in, including the provision of public goods and the efficient implementation of policies.

The question that arises is how various researchers perceive governance quality in relation to accounting. Ramanna and Sletten (2009) respond to this topic by stating that a country's governance system encompasses both national accounting standards and accompanying components such as auditing, enforcement, and regulatory systems. Thus, national accounting standards are interconnected with and influenced by the distinct pillars that comprise a country's governing structure. It can be inferred that when a country's governance infrastructure is deficient, high-quality accounting standards cannot serve their objective of providing high-quality information to various users of financial statements.

Li et al. (2003) examine the relationship between governance quality and accounting standards in a different way. They make a distinction between two types of economic governance: relational economic governance and rule-based economic governance. As they underline, public rules are clear, fair, and neutrally enforced in rule-based governance systems, whereas public rules are arbitrary, ambiguous, and not evenhandedly imposed in relational governance systems. In terms of the relation of accounting and their two governance models, Li et al. (2003) suggest that when a country's information infrastructure, which also includes accounting, is effective at supplying accurate and high-quality data, the rules-based governance model gains value. On the other hand, Li & Filer (2007) state that relational governance models are defined by low-quality accounting rules that reflect their inadequate information infrastructure.

Numerous prior studies have examined the effect of governance quality on accounting, particularly in connection to IFRS adoption. For instance, Ramanna and Sletten (2009) discover that nations with low governance quality are less amenable to modernizing their accounting frameworks through the adoption of IFRS. Beneish et al. (2012) investigate whether the 2005 IFRS adoption had a substantial impact on the debt and stock markets, concluding that only countries with high-quality governance saw an increase in foreign equity investment following IFRS adoption.

According to Alon and Dwyer (2014), IFRS adoption is related to a country's resource dependence. As a result, they argue, countries that rely heavily on natural resources while also having low governance quality and underdeveloped economies were more likely to be the first to adopt IFRS. Also, Kaya and Koch (2015) and Sellami and Gafsi (2018), find that lower governance quality is positively associated with countries' adoption of IFRS for SMEs, implying that emerging economies can strengthen their overall status through IFRS for SMEs adoption.

As a result of the aforementioned research studies, it is clear that there is an association between governance quality and accounting standards, and that the adoption of high-quality accounting standards (IFRS/IFRS for SMEs) is dependent on governance quality, among other country-specific factors. The question therefore becomes whether the adoption of high-quality accounting standards is associated with lower governance quality (e.g., Alon and Dwyer, 2014; Kaya and Koch, 2015; Sellami and Gafsi, 2018) or whether lower governance quality acts as a constraint on the adoption of high-quality accounting standards (e.g., Ramanna and Sletten, 2009).

To address this question, we will refer to Daske et al. (2008) and Christensen et al (2011). Daske et al. (2008) find that the positive capital market benefits of IFRS adoption are not just attributable to the quality of IFRS but also to countries' attempts to improve their enforcement and governance mechanisms in order to further facilitate IFRS adoption. Christensen et al. (2011) also underline the beneficial effects of high-quality governance, noting that countries that invest more in improving their governance structure are more efficient at implementing and enforcing the EU Market Abuse Directive (MAD) and Transparency Directive (TPD).

On that account, high-quality governance is an essential requirement for a country to embrace structural reforms in a variety of sectors, including accounting. The presence of effective governance, or the improvement of existing governance infrastructures, creates the necessary conditions for the efficient application of newly enacted legislation. Given that high-quality laws and regulations necessitate high-quality governance, the issue at hand is Greece's governance quality. According to evidence from related research studies and foreign organizations' reports, low governance quality is one of the primary causes of the Greek economy's pathogenies.

Mitsopoulos and Pelagidis (2009) assert that Greece's low-quality governance and unfavorable business environment adds to the country's lack of competitiveness. Additionally, Pelagidis (2010) cites a variety of surveys (e.g., the OECD Regulation Database, the World Economic Forum Competitiveness Survey, and others) to demonstrate Greece's disproportionate administrative burden, inordinately regulated markets, and government intervention in a variety of critical issues.

Furthermore, Rapanos and Kaplanoglou (2014) argue that not only did Greece's weak governance infrastructure contribute significantly to the country's severe recession, but that subsequent governance-related structural reforms implemented in the aftermath of the crisis were ineffective, reflecting Greece's unwillingness and inability to integrate significant changes.

Mungiu-Pipidi (2019) echoes Rapanos and Kaplanoglou's (2014) assessment, claiming that structural governance improvements in Greece are not only sluggish, but also face opposition from a number of powerful groups. Also, according to the OECD "Government at a Glance 2019 Report", Greece's 2017 iREG score[56] was one of the

[56] iREG indicators measure progress made by OECD countries in improving the way they regulate.

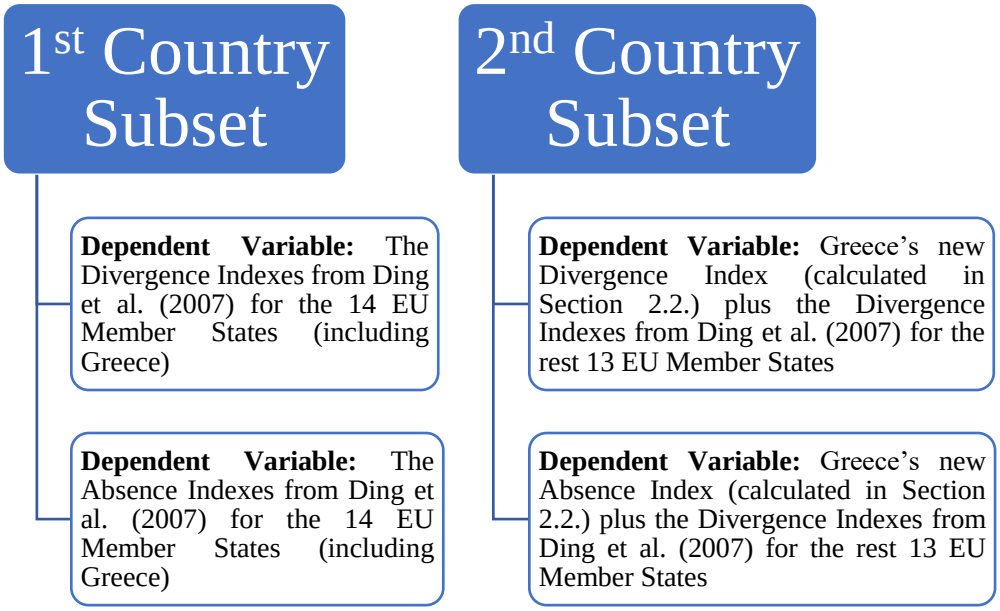
lowest (0.21) in both primary laws and for subordinate regulations (in comparison to an OECD average of 1.75 and 1.70).

Regardless of Greece's poor governance, Ramanna and Sletten (2009) assert that the weaker a country's governance, the less susceptible it is to international accounting standards adoption. As a result, the divergence of national accounting standards from IAS/IFRS or the absence of specific IAS/IFRS rules from national accounting standards may be due to a country's poor governance quality, offering solid ground for considering governance quality as a determining country-specific factor of national accounting standards.

2.4. Definition of research variables

Figure 2.2 depicts the definitions of our dependent variables for the two country subsets.

Figure 2.2: Dependent variables definition



Our independent variables consist of the following:

i. We follow Hope et al. (2008) in calculating Gray's accounting Values for Uniformity/Statutory Control and Conservatism. Hope et al. (2008) establish a score for the Secrecy accounting value based on Gray's hypothesis. We build our independent variables Uni/Stat and Cons in the following manner, based on Hope et al.'s (2008) methodology and Gray's hypothesis about Uniformity and Conservatism:

- Gray (1988, p. 10) hypothesizes that "*the higher a country ranks in terms of Uncertainty Avoidance and Power Distance and the lower it ranks in terms of Individualism then the more likely it is to rank highly in terms of Uniformity*". As previously stated, Gray's Uniformity hypothesis equates to a reverse Professionalism hypothesis, indicating when Statutory Control trumps Professionalism at the national level.
- Therefore, our measure of Uniformity/Statutory Control (Uni/Stat) is equal to the sum of the Uncertainty Avoidance (UA) and Power Distance (PD) scores, minus the Individualism (IND) score:

$$Uni/Stat = UA + PD - IND \quad (1)$$

Where, UA, PD and IND are country scores from Hofstede (1984)

- Gray (1988, p. 10) hypothesizes that "*the higher a country ranks in terms of Uncertainty Avoidance and the lower it ranks in terms of Individualism and Masculinity then the more likely it is to rank highly in terms of Conservatism*". Thus, our measure of Conservatism (Cons) equals the score for Uncertainty Avoidance (UA) minus the score for Individualism (IND). We follow Hope et al. (2008) and omit the Masculinity score from the calculation of Conservatism, as Masculinity appears to have a little role in the system of accounting values, according to Gray (1988):

$$Cons = UA - IND \quad (2)$$

Where, UA and IND are country scores from Hofstede (1984)

By following Hope et al. (2008) and using composite measures rather than Hofstede's individual nation scores, we may be able to overcome the problem of multicollinearity induced by the high correlation between the cultural measures, as Hope et al. (2008) highlight[57]. Additionally, despite the fact that our composite measures are based on Hofstede's scores dated nearly 40 years ago, we believe they are relevant for our study since, as Hope et al. (2008) remark, cultural values shift slowly over time.

[57] The problem of multicollinearity between Hofstede's individual country scores is highlighted by Papadaki (2005) in her reply to Ding et al. (2005).

Hope et al.'s (2008) composite measures have been validated in similar research (e.g., Salter et al., 2013), yielding substantial findings, so establishing their utility as a proxy for the effect of societal values on accounting.

ii. In comparison to previous research, we employ an innovative technique to mapping book-tax compliance. According to Watrin et al. (2012), labeling EU countries as having high or low book-tax conformity is arbitrary and empirically unfounded, as it represents the perceived, rather than the actual, extent to which tax accounting adheres to financial accounting rules. Tang (2015) further notes that prior studies on book-tax conformity relied on an indicator variable to categorize countries as having a high or low degree of compliance based on intuitive perceptions.

For example, Hung (2001), Burgstahler et al. (2006), Kaya and Koch (2015), and Sellami and Gafsi (2016) employ a binary variable to distinguish countries with high and low book-tax conformity. This variable takes on the value one when financial and tax accounts are closely aligned and zero otherwise.

To address the issues raised by Watrin et al. (2012) and Tang (2015), we employ a quantifiable measure of a country's book-tax conformity. We follow Watrin et al. (2012) and use their book-tax conformity measure, which is based on the permanent book-tax differences of single financial statements of all publicly traded non-financial enterprises in the EU from 2004 to 2009. Watrin et al. (2012) focus exclusively on permanent book-tax differences, excluding temporary book-tax differences, in order to eradicate the effect of earnings management. Additionally, Watrin et al. (2012) quantify book-tax conformity using solely single financial statements rather than consolidated financial statements, as they believe the EU's definition of book-tax conformity refers to the degree of alignment between single financial statements and tax statements.

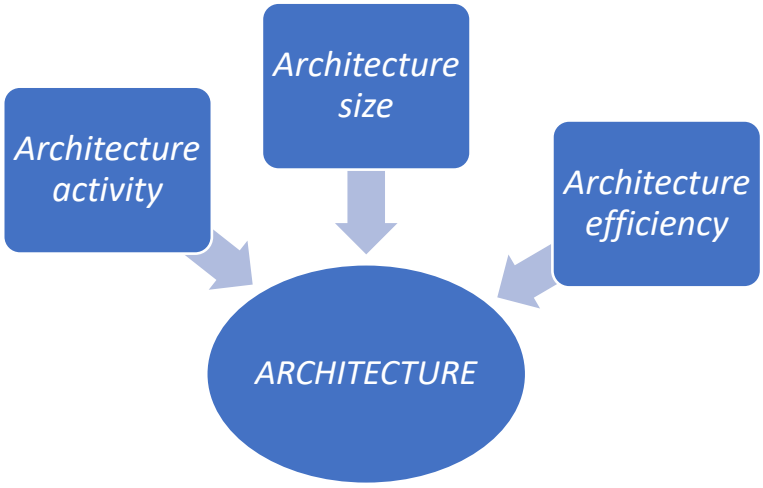
Therefore, even though Watrin et al.'s (2012) book-tax conformity measure is based on data from publicly traded companies, we believe it is reflective of Europe's (and particularly Greece's) book-tax rules gap, because Watrin et al. (2012) built their metric using raw EU accounting data that embodies the EU's accounting practices.

iii. Given the likely influence of a country's financial system orientation on the evolution of accounting standards, we follow Demirgüç-Kunt and Levine (2001)[58]

[58] Demirgüç-Kunt and Levine first presented their financial structure measure in their 1999 working paper "*Bank-based and Market-Based Financial Systems: Cross-Country*

and use their financial structure metric to classify nations as bank- or market-based. Tadesse (2002) also uses Demirgüç-Kunt and Levine's[59] financial structure measure to investigate how a country's financial architecture (structure) influences performance in the real economy, utilizing data from 36 countries from 1980 to 1995. Tadesse (2002) uses the term ARCHITECTURE to refer to Demirgüç-Kunt and Levine's measure of financial structure, which consists of three variables: Architecture size, Architecture activity, and Architecture efficiency (shown in Figure 2.3).

Figure 2.3: Elements of the ARCHITECTURE Index



Tadesse (2002, pp. 434-435) defines the ARCHITECTURE metric and its core components, as follows:

- *ARCHITECTURE*: "*an index of the degree of stock market orientation of a financial system. Higher values of this index indicate a more market-oriented financial system. ARCHITECTURE reflects the means-removed average of Architecture size, Architecture activity, and Architecture efficiency*".
- *Architecture size*: "*measures the relative size of stock markets to that of banks in the financial system (i.e., capitalization to bank credit ratio). Larger values indicate more market orientation*".

Comparisons",http://documents1.worldbank.org/curated/en/259341468739463577/126526322_20041117172106/additional/multi-page.pdf.

[59] Tadesse (2002) uses Demirgüç-Kunt and Levine's financial structure measure, which was introduced in their 1999 working paper "*Bank-based and Market-Based Financial Systems: Cross-Country Comparisons*".

➢ *Architecture activity*: "*measures the activity of stock markets relative to that of banks (i.e., the ratio of total value of stocks traded to bank credit ratio)*".

➢ *Architecture efficiency*: "*measures the relative efficiency of a country's stock markets vis-`a-vis that of its banks (i.e., the product of value traded and overhead costs)*".

Kwok and Tadesse (2006) explore the effect of national culture on a country's financial orientation using Tadesse's (2002) ARCHITECTURE index and Hofstede's cultural values. They discover that countries with a high level of Uncertainty Avoidance are more bank-oriented, whereas more market-oriented countries adhere to higher-quality accounting standards.

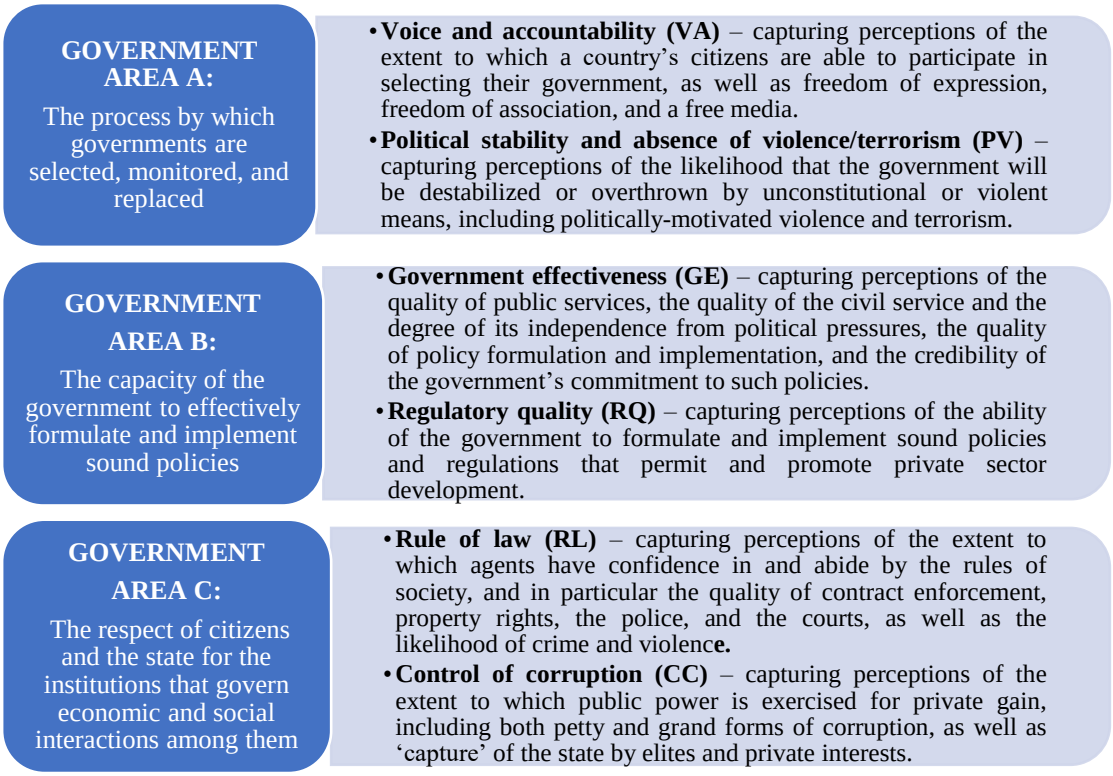
Taking the foregoing into account, in order to investigate the effect of financial orientation on Greece's spotted deviation from IAS/IFRS, we use the relevant ARCHITECTURE score for the 14 EU Member States, developed by Demirgüç-Kunt and Levine (2001) and applied by Tadesse (2002) and Kwok and Tadesse (2006).

iv. As Rodríguez-Pose and Garcilazo (2013, 2015) point out, assessing the quality of government is a difficult undertaking since governance quality cannot be precisely defined. Nonetheless, recognition of the critical nature of governance quality has resulted in the development of a variety of quantitative metrics in an attempt to capture the essence of good governance in the most accurate manner possible.

The World Bank's Worldwide Governance Indicators, originally developed by Kaufmann et al. (1999a, 1999b, 2002) and then by Kaufmann et al. (2007, 2008, 2009, 2010, 2011), are among the most widely recognized indicators of governance quality. As Kaufmann et al (2011, p. 221) state:

"*The Worldwide Governance Indicators (WGI) are a long-standing research project to develop cross-country indicators of governance. The WGI has covered over two hundred countries since 1996, for six composite indicators of broad dimensions of governance: Voice and Accountability, Political Stability and Absence of Violence/Terrorism, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption. These indicators are based on several hundred variables obtained from 31 different data sources, capturing governance perceptions as reported by survey respondents, non-governmental organizations, commercial business information providers, and public sector organizations worldwide*". According to Kaufmann et al. (2011, p. 223), these six dimensions of governance and their associated governance areas are as follows:

Figure 2.4: Kaufmann et al.'s six dimensions of governance



Numerous studies have emphasized the World Bank's Worldwide Governance Indicators' benefits and advantages. One significant advantage of these indicators is that they can be used independently to investigate a single field of interest or in combination to create an aggregate index, as Williams and Siddique (2008) note. Also, Rothstein and Teorell (2012), as well as Charron and Lapuente (2010), emphasize the World Bank's Worldwide Governance Indicators' value as an effective and practical research tool.

Nonetheless, the main reason that makes the World Bank's Worldwide Governance Indicators suitable for our research is encapsulated in Charron et al.'s (2010) and Charron et al.'s (2014) conclusion that the World Bank's Worldwide Governance Indicators provide a solid basis when assessing the quality of EU governance.

Researchers use the World Bank Governance Indicators in a variety of ways. Some researchers use a single indicator to capture a unique governance aspect (e.g., Daske et al., 2008; Christensen et al., 2011); others create a governance index by averaging[60] all or a subset of the World Bank Governance Indicators (e.g., Beneish et al., 2012;

[60] The idea of using average values of indicators for institutional environment was developed by Manning et al. (2000).

Kaya and Koch, 2015; Sellami and Gafsi., 2018; Damak-Ayadi et al., 2020); others calculate an aggregate measure using the sum of all World Bank Governance Indicators (e.g., Li & Filer, 2007; Houqe et al., 2012; Alon and Dwyer, 2014); finally, others employ Principal Component Analysis to derive an aggregate measure of governance quality from the World Bank Governance Indicators' first principal component (e.g., Globerman and Shapiro, 2003; Charron et al., 2010; Anastasiou et al., 2019).

Among the various methods used in the prior literature, we follow Globerman and Shapiro (2003) and develop our governance quality indicator as the first principal component of the World Bank Governance Indicators using Principal Component Analysis.

By employing Principal Component Analysis[61] to develop an aggregate governance index, we address the issue of possible multicollinearity among World Bank Governance Indicators, as suggested by prior literature (e.g., Globerman and Shapiro, 2003). Additionally, as Anastasiou et al. (2019) emphasize, the aggregate measure generated from Principal Component Analysis reflects and accounts for the variance in the governance indicators to a feasible extent.

Our country governance quality index is calculated over a series of different periods for our two country subsets. To be more precise, we calculate an aggregate governance index for the 1st country subset in 2002. For our 2nd country subset, we calculate an aggregate governance index for Greece from 2002 to 2014, which provides a comprehensive picture of the country's governance quality prior to the adoption of Greek Accounting Standards (Law 4308/2014). Additionally, we calculate an aggregate governance index for the remaining 13 EU member states for the year 2002. Thus, our aggregate governance indices are representative of our dependent variables' reference periods.

[61] An extremely helpful description of the Principal Component Analysis can be found on OECD'S (2008), "Handbook on Constructing Composite Indicators" (https://www.oecd.org/els/soc/handbookonconstructingcompositeindicatorsmethodologyanduserguide.htm) and in Abdi, H., & Williams, L. J. (2010), "Principal component analysis", Wiley interdisciplinary reviews: Computational statistics, 2(4), 433-459.

We calculate the aggregate governance index using four of the six World Bank Governance Indicators[62], specifically Government Effectiveness, Regulatory Quality, Rule of Law, and Corruption Control. We exclude the Voice & Accountability and Political Stability & Absence of Violence/Terrorism Indicators from our aggregate governance index calculation because they are not as relevant to our research objective as the other four dimensions of governance quality.

On the contrary, Rule of Law (i.e., the manner in which the law is enforced), Regulatory Quality (i.e., the existence of sound policies), Government Effectiveness (i.e., the government's commitment to quality regulation), and Control of Corruption (as reflected in the government's anti-corruption efforts) are all related to a country's information infrastructure, and thus to accounting standards[63].

3. In addition to the dependent and independent variables discussed above, we control for other aspects relevant to our research, by selecting control variables from previous research that are likely to affect our Absence and Divergence Indexes.

We include two control variables in our tests that reflect the economic activity and development of a country. Earlier research (e.g., Morck et al., 2000; Ramanna and Sletten, 2009; Kaya and Koch, 2015) asserts that a country's geographical area is proportional to its economic activity and power level. Additionally, prior research indicates that a country's geographical area has an effect on IFRS adoption. Ramanna and Sletten (2009), for example, discover that partial IFRS adopters (i.e., nations that require or accept the use of IFRS for some of their listed businesses) have smaller areas than non-IFRS adopters (i.e., countries not permitting IFRS for listed companies).

As a consequence, because a country's size might affect its economic activity and, subsequently, the necessity for more or less complicated accounting rules, our first control variable is the logarithm of the geographical area in square kilometers of the 14 EU member[64].

Our second control variable indicates the economic development of a country. Gross Domestic Product (GDP) per capita is one of the most often cited indicators of

[62] The World Governance Indicators used to calculate aggregate governance indexes are drawn from https://info.worldbank.org/governance/wgi/.

[63] A detailed calculation of the aggregate governance quality indexes for the two country subsets using Principal Component Analysis is included in Appendix E of the current Chapter.

[64] We are inspired by Ramanna and Sletten (2009) and draw data regarding countries' geographical areas from www.worldatlas.com.

economic development in the preceding literature. Not only is per capita GDP a proxy for economic growth (Morck et al., 2000), but it also plays a major role in understanding country differences in economic dimensions (Hail and Leuz, 2006) and governance quality (Ramanna and Sletten, 2009). Moreover, prior research indicates that economic growth is related to the implementation of IFRS (e.g., Zeghal and Mhedhbi, 2006; Ding et al. 2007; Francis et al. 2008; Kaya and Koch, 2015) and International Standards on Auditing (ISA) (e.g., Boolaky and Soobaroyen, 2017).

To account for the potential impact of economic growth on the Absence and Divergence Indexes, we utilize the natural logarithm of the 14 EU member states' gross domestic product per capita (in constant 2010 US dollars)[65].

2.5. Statistical Models

To evaluate the influence of country-specific factors on the absence and divergence of national accounting standards from IAS/IFRS, we estimate the following four models (2 models per country subset):

1st country subset

$$Div=a_o+a_1Uni/Stat+a_2Cons+a_3BookTax+a_4FinArch+a_5GovQual_{2002}+a_6AREA+a_7GDP_{2001}+\varepsilon_i$$

$$Abs=a_o+a_1Uni/Stat+a_2Cons+a_3BookTax+a_4FinArch+a5GovQual_{2002}+a_6AREA+a_7GDP_{2001}+\varepsilon_i$$

2nd country subset

$$Div_{NEW}=a_o+a_1Uni/Stat+a_2Cons+a_3BookTax+a_4FinArch+a_5GovQual_{NEW}+a_6AREA+a_7GDP_{NEW}+\varepsilon_i$$

$$Abs_{NEW}= a_o+a_1Uni/Stat+a_2Cons+a_3BookTax+a_4FinArch+a_5GovQual_{NEW}+a_6AREA+a_7GDP_{NEW}+\varepsilon_i$$

The following tables, organized by country subset, include the definitions of dependent, independent, and control variables:

Table 2.2: Variable Names & Definitions (1st country subset)

Variable Name	*Definition*
Div	The Divergence Index for the 14 EU sample countries (Source: Ding et al., 2007)
Abs	The Absence Index for the 14 EU sample countries (Source: Ding et al., 2007)
Uni/Stat	Gray's Uniformity/Statutory Control Accounting Values (Sources: Gray, 1988; Hope et al., 2008)
Cons	Gray's Conservatism Accounting Value (Sources: Gray, 1988; Hope et al., 2008)

[65] Data regarding GDP per capita (in constant 2010 US dollars) are drawn from https://www.worldbank.org (https://databank.worldbank.org/source/sustainable-development-goals-(sdgs)/Series/NY.GDP.PCAP.KD).

Table 2.2: Variable Names & Definitions (1st country subset)(continued)

Variable Name	*Definition*
BookTax	Book-Tax Conformity score for the 14 EU sample countries (Source: Watrin et al., 2012)
FinArch	Financial Architecture score for the 14 EU sample countries (Source: Demirgüç-Kunt & Levine, 2001)
$GovQual_{2002}$	The first principal component of World Bank's Governance Indicators (Government Effectiveness, Regulatory Quality, Rule of Law and Control of Corruption) for the 14 EU sample countries in 2002 (Source: World Bank)
Area	The natural logarithm of the geographical area of the 14 EU sample countries (Source: www.worldatlas.com)
GDP_{2001}	The natural logarithm of the gross domestic product per capita (in constant 2010 US dollars) in 2001 for the 14 EU sample countries (Source: World Bank)

Table 2.3: Variable Names & Definitions (2nd country subset)

Variable Name	*Definition*
Div_{NEW}	Greece's new Divergence Index and Ding et al.'s (2007) Divergence Indexes for the rest 13 EU sample countries
Abs_{NEW}	Greece's new Absence Index and Ding et al.'s (2007) Absence Indexes for the rest 13 EU sample countries
Uni/Stat	Gray's Uniformity/Statutory Control Accounting Values (Sources: Gray,1988; Hope et al., 2008)
Cons	Gray's Conservatism Accounting Value (Sources: Gray, 1988; Hope et al., 2008)
BookTax	Book-Tax Conformity score for the 14 EU sample countries (Source: Watrin et al., 2012)
FinArch	Financial Architecture score for the 14 EU sample countries (Source: Demirgüç-Kunt and Levine, 2001)
$GovQual_{NEW}$	The first principal component of World Bank's Governance Indicators (Government Effectiveness, Regulatory Quality, Rule of Law and Control of Corruption) for Greece from 2002 to 2014 and the first principal component of World Bank's Governance Indicators (Government Effectiveness, Regulatory Quality, Rule of Law and Control of Corruption) for the rest 13 EU sample countries in 2002 (Source: World Bank)

Table 2.3: Variable Names & Definitions (2nd country subset) (continued)

Variable Name	*Definition*
Area	The natural logarithm of the geographical area of the 14 EU sample countries (Source: www.worldatlas.com)
GDP_{NEW}	The natural logarithm of Greece's gross domestic product per capita (in constant 2010 US dollars) averaged for 2002-2014 and the natural logarithm of the gross domestic product per capita (in constant 2010 US dollars) in 2001 for the rest 13 EU sample countries (Source: World Bank)

2.6.Descriptive Statistics & Univariate results

2.6.1. 1st country subset

Table 2.4 summarizes the descriptive statistics for the variables included in the first country subset's regression equations. On average, nearly 21 items covered by IAS/IFRS are absent from national accounting standards, whereas 30 items require distinct treatment under IAS/IFRS.

Given the entire number of accounting items investigated by Ding et al. (i.e., 111 items), the sum of the mean absent and divergent items in the 14 EU sample countries demonstrates that, despite the adoption of international accounting standards, national contexts greatly impact accounting choices. Additionally, the 14 EU sample countries are bank-based (FinArc:-0.1286) and exhibit a low level of conservatism and a moderate amount of conformity between accounting and tax legislation.

Table 2.4: Descriptive Statistics (1st country subset)

Variable	Mean	Std. Deviation	N	Variable	Mean	Std. Deviation	N
Abs	20.857	12.13296	14	Div	30.571	5.52914	14
Uni/Stat	43.857	55.88292	14	Uni/Stat	43.857	55.88292	14
Cons	1.5714	42.16764	14	Cons	1.5714	42.16764	14
BookTax	0.4405	0.32715	14	BookTax	0.4405	0.32715	14
FinArch	-0.1286	0.53873	14	FinArch	-0.1286	0.53873	14
$GovQual_{2002}$	0.000	1.000	14	$GovQual_{2002}$	0.000	1.000	14
Area	11.958	1.03122	14	Area	11.958	1.03122	14
GDP_{2001}	10.539	0.25916	14	GDP_{2001}	10.539	0.25916	14

The Pearson and Spearman correlation coefficients between the Absence and Divergence Index and country-specific factors are presented in Tables 2.5 and 2.6,

respectively. What's most intriguing is how the Absence and Divergence Indexes interact with country-specific factors in very different ways.

We observe that there is no statistically significant correlation between the Divergence Index and country-specific factors. This observation is consistent with the conclusion reached by Ding et al. that the drivers of absence and divergence are extremely distinct. Thus, notwithstanding the EU's homogeneity, divergence of accounting standards from IAS/IFRS should be analyzed through a more thorough country-specific lens.

On the other hand, the Absence Index, which reflects IAS/IFRS items that are not included in national accounting standards, is influenced by the majority of our analysis's country-specific factors. The Absence Index is positively and significantly associated with Uniformity, Statutory Control, and Conservatism (Gray's accounting values), showing the importance of cultural values in the formation and development of accounting standards.

Additionally, Book-Tax conformity is strongly and significantly associated with the Absence Index, indicating that countries with strong linkages between accounting and tax law are less likely to adopt IAS/IFRS. This finding is in line with Kaya and Koch (2015) and Sellami and Gafsi (2018), who find that the costs of IFRS adoption for SMEs outweigh the benefits of accounting system reform in tax-dependent regimes.

Furthermore, the Absence Index is negatively and significantly correlated with a country's financial orientation (FinArch), which is consistent with Ding et al.'s finding that the Absence Index is inversely correlated with equity market importance. The fact that the 14 EU sample countries are, on average, bank-based explains the negative correlation between FinArch and the Absence Index, as sophisticated accounting rules are not essential in less developed equity markets.

Between the Absence Index and Governance Quality, we observe a negative but insignificant correlation. The inverse relationship between the absence of specific IAS/IFRS items in national accounting standards and governance quality may indicate that countries with high-quality governance have the infrastructure to support more sophisticated standards and thus have fewer IAS/IFRS absent items in their national accounting standards.

Additionally, we observe negative and statistically insignificant correlations between the Absence Index and the size and economic growth of countries. The observed lack of significance of size and economic development proxies in relation to the Absence

Table 2.5: Pearson and Spearman Correlations between the Absence Index and country-specific variables (1st country subset)

	Abs	Uni/Stat	Cons	BookTax	FinArch	$GovQual_{2002}$	Area	GDP_{2001}
N	14	14	14	14	14	14	14	14
Abs	1	0.492	0.639	0.622	-0.556	-0.278	-0.101	-0.3
	.	(0.074)*	(0.014)**	(0.018)**	(0.039)**	(0.336)	(0.73)	(0.298)
Uni/Stat	0.603	1	0.960	0.793	-0.684	-0.749	0.196	-0.745
	(0.022)**	.	(0.000)***	(0.001)***	(0.007)***	(0.002)***	(0.503)	(0.002)***
Cons	0.700	0.970	1	0.725	-0.742	-0.698	0.09	-0.650
	(0.005)***	(0.000)***	.	(0.003)***	(0.002)***	(0.005)***	(0.759)	(0.012)**
BookTax	0.648	0.844	0.802	1	-0.481	-0.508	0.09	-0.644
	(0.012)**	(0.000)***	(0.001)***	.	(0.081)*	(0.064)*	(0.759)	(0.013)**
FinArch	-0.637	-0.605	-0.677	-0.526	1	0.411	0.165	0.349
	(0.014)**	(0.022)**	(0.008)***	(0.053)*	.	(0.144)	(0.573)	(0.221)
$GovQual_{2002}$	-0.448	-0.731	-0.666	-0.631	0.407	1	-0.231	0.727
	(0.108)	(0.003)***	(0.009)***	(0.016)**	(0.148)	.	(0.427)	(0.003)***
Area	-0.057	0.095	0.042	0.099	0.274	-0.178	1	-0.402
	(0.848)	(0.747)	(0.886)	(0.737)	(0.343)	(0.542)	.	(0.154)
GDP_{2001}	-0.419	-0.866	-0.859	-0.763	0.336	0.671	-0.217	1
	(0.136)	(0.000)***	(0.000)***	(0.002)***	(0.241)	(0.009)***	(0.456)	.

Notes: Pearson correlation coefficients are shown below the diagonal, while Spearman correlation coefficients are shown above the diagonal.

***Correlation is significant at the 0.01 level (2-tailed).

** Correlation is significant at the 0.05 level (2-tailed).

* Correlation is significant at the 0.10 level (2-tailed).

Table 2.6: Pearson and Spearman Correlations between the Divergence Index and country-specific variables (1st country subset)

	Div	Uni/Stat	Cons	BookTax	FinArch	$GovQual_{2002}$	Area	GDP_{2001}
	14	14	14	14	14	14	14	14
Div	1	-0.007	-0.03	-0.293	-0.2	-0.235	0.275	-0.176
	.	(0.982)	(0.92)	(0.31)	(0.493)	(0.418)	(0.341)	(0.547)
Uni/Stat	-0.095	1	0.960	0.793	-0.684	-0.749	0.196	-0.745
	(0.746)	.	(0.000)***	(0.001)***	(0.007)***	(0.002)***	(0.503)	(0.002)***
Cons	-0.1	0.970	1	0.725	-0.742	-0.698	0.09	-0.650
	(0.733)	(0.000)***	.	(0.003)***	(0.002)***	(0.005)***	(0.759)	(0.012)**
BookTax	-0.288	0.844	0.802	1	-0.481	-0.508	0.09	-0.644
	(0.318)	(0.000)***	(0.001)***	.	(0.081)*	(0.064)*	(0.759)	(0.013)***
FinArch	-0.134	-0.605	-0.677	-0.526	1	0.411	0.165	0.349
	(0.648)	(0.022)**	(0.008)***	(0.053)*	.	(0.144)	(0.573)	(0.221)
$GovQual_{2002}$	-0.172	-0.731	-0.666	-0.631	0.407	1	-0.231	0.727
	(0.556)	(0.003)***	(0.009)***	(0.016)**	(0.148)	.	(0.427)	(0.003)***
Area	0.365	0.095	0.042	0.099	0.274	-0.178	1	-0.402
	(0.199)	(0.747)	(0.886)	(0.737)	(0.343)	(0.542)	.	(0.154)
GDP_{2001}	0.095	-0.866	-0.859	-0.763	0.336	0.671	-0.217	1
	(0.747)	(0.000)***	(0.000)***	(0.002)***	(0.241)	(0.009)***	(0.456)	.

Notes: Pearson correlation coefficients are shown below the diagonal, while Spearman correlation coefficients are shown above the diagonal.

***Correlation is significant at the 0.01 level (2-tailed).

** Correlation is significant at the 0.05 level (2-tailed).

* Correlation is significant at the 0.10 level (2-tailed).

Index could be explained by the fact that while size and economic development are possible determinants of broad accounting choices such as the adoption of a specific accounting framework (e.g., IAS/IFRS or IFRS for SMEs), they have no effect on more specialized accounting choices such as the level of absent IAS/IFRS items from national accounting standards.

2.6.2. 2nd country subset

The descriptive statistics and correlations between variables for the 2nd country subset are presented in Tables 2.7, 2.8, and 2.9. The mean and standard deviation of the new Absence Index increase as a result of Greece's new Absence Index increasing in comparison to Ding et al.'s equivalent index. Ding et al. reported that 40 IAS/IFRS accounting items were missing from Greece's national accounting standards at the time their research was conducted, whereas we discovered that 94 IAS/IFRS accounting items are missing from Greece's new accounting standards.

The mean new Divergence Index has remained virtually unaltered, as Ding et al.'s Divergence Index regarding Greece and Greece's new Divergence Index, after the adoption of the new Greek Accounting Standards are nearly equal. Ding et al. found that 28 items require different approaches under Greek national accounting standards and IAS/IFRS, compared to 25 items where the new Greek Accounting Standards vary from IAS/IFRS, based on our study.

Table 2.7: Descriptive Statistics (2nd country subset)

Variable	Mean	Std. Deviation	N	Variable	Mean	Std. Deviation	N
Abs_{NEW}	24.7143	22.6832	14	Div_{NEW}	30.3571	5.6922	14
Uni/Stat	43.8571	55.88292	14	Uni/Stat	43.8571	55.88292	14
Cons	1.5714	42.16764	14	Cons	1.5714	42.16764	14
BookTax	0.4405	0.32715	14	BookTax	0.4405	0.32715	14
FinArch	-0.1286	0.53873	14	FinArch	-0.1286	0.53873	14
$GovQual_{NEW}$	1.6552	0.4971	14	$GovQual_{NEW}$	1.6552	0.4971	14
Area	11.958	1.03122	14	Area	11.958	1.03122	14
GDP_{NEW}	10.545	0.24794	14	GDP_{NEW}	10.545	0.24794	14

Additionally, Tables 2.8 and 2.9 report results that are similar with those from the 1st country subset. The new Divergence Index is not significantly correlated with both the independent and control variables. This finding solidifies the previous section's conclusion that divergence between national accounting standards and IAS/IFRS in

Table 2.8: Pearson and Spearman Correlations between the Absence Index and country-specific variables (2nd country subset)

	Abs_{NEW}	Uni/Stat	Cons	BookTax	FinArch	$GovQual_{NEW}$	Area	GDP_{NEW}
N	14	14	14	14	14	14	14	14
Abs_{NEW}	1	0.492	0.639	0.622	-0.556	-0.066	-0.101	-0.3
	.	(0.074)*	(0.014)**	(0.018)**	(0.039)**	(0.822)	(0.73)	(0.298)
Uni/Stat	0.628	1	0.960	0.793	-0.684	-0.648	0.196	-0.745
	(0.016)**		(0.000)***	(0.001)***	(0.007)***	(0.012)**	(0.503)	(0.002)***
Cons	0.702	0.970	1	0.725	-0.742	-0.568	0.09	-0.650
	(0.005)***	(0.000)***	.	(0.003)***	(0.002)***	(0.034)**	(0.759)	(0.012)**
BookTax	0.636	0.844	0.802	1	-0.481	-0.336	0.09	-0.644
	(0.014)**	(0.000)***	(0.001)***		(0.081)*	(0.24)	(0.759)	(0.013)**
FinArch	-0.413	-0.605	-0.677	-0.526	1	0.411	0.165	0.349
	(0.142)	(0.022)**	(0.008)***	(0.053)*	.	(0.144)	(0.573)	(0.221)
$GovQual_{NEW}$	-0.008	-0.491	-0.386	-0.39	0.393	1	-0.27	0.604
	(0.977)	(0.075)*	(0.173)	(0.168)	(0.164)		(0.35)	(0.022)**
Area	-0.06	0.095	0.042	0.099	0.274	-0.247	1	-0.402
	(0.838)	(0.747)	(0.886)	(0.737)	(0.343)	(0.394)	.	(0.154)
GDP_{NEW}	-0.541	-0.866	-0.859	-0.763	0.336	0.406	-0.217	1
	(0.046)**	(0.000)***	(0.000)***	(0.002)***	(0.241)	(0.15)	(0.456)	.

Notes: Pearson correlation coefficients are shown below the diagonal, while Spearman correlation coefficients are shown above the diagonal.

***Correlation is significant at the 0.01 level (2-tailed).

** Correlation is significant at the 0.05 level (2-tailed).

* Correlation is significant at the 0.10 level (2-tailed).

Table 2.9: Pearson and Spearman Correlations between the Divergence Index and country-specific variables (2nd country subset)

	Div_{NEW}	Uni/Stat	Cons	BookTax	FinArch	$GovQual_{NEW}$	Area	GDP_{NEW}
N	14	14	14	14	14	14	14	14
Div_{NEW}	1	-0.068	-0.095	-0.368	-0.159	-0.333	0.286	-0.112
	.	(0.817)	(0.747)	(0.196)	(0.588)	(0.245)	(0.321)	(0.702)
Uni/Stat	-0.16	1	0.960	0.793	-0.684	-0.648	0.196	-0.745
	(0.585)	.	(0.000)***	(0.001)***	(0.007)***	(0.012)**	(0.503)	(0.002)***
Cons	-0.17	0.970	1	0.725	-0.742	-0.568	0.09	-0.650
	(0.561)	(0.000)***	.	(0.003)***	(0.002)***	(0.034)**	(0.759)	(0.012)**
BookTax	-0.344	0.844	0.802	1	-0.481	-0.336	0.09	-0.644
	(0.228)	(0.000)***	(0.001)***	.	(0.081)*	(0.24)	(0.759)	(0.013)**
FinArch	-0.114	-0.605	-0.677	-0.526	1	0.411	0.165	0.349
	(0.697)	(0.022)**	(0.008)***	(0.053)*	.	(0.144)	(0.573)	(0.221)
$GovQual_{NEW}$	-0.318	-0.491	-0.386	-0.39	0.393	1	-0.27	0.604
	(0.268)	(0.075)*	(0.173)	(0.168)	(0.164)	.	(0.35)	(0.022)**
Area	0.361	0.095	0.042	0.099	0.274	-0.247	1	-0.402
	(0.205)	(0.747)	(0.886)	(0.737)	(0.343)	(0.394)		(0.154)
GDP_{NEW}	0.162	-0.866	-0.859	-0.763	0.336	0.406	-0.217	1
	(0.58)	(0.000)***	(0.000)***	(0.002)***	(0.241)	(0.15)	(0.456)	.

Notes: Pearson correlation coefficients are shown below the diagonal, while Spearman correlation coefficients are shown above the diagonal.

***Correlation is significant at the 0.01 level (2-tailed).

** Correlation is significant at the 0.05 level (2-tailed).

* Correlation is significant at the 0.10 level (2-tailed).

Europe, regardless of the number of divergent items or the methodology used to calculate the Divergence Index, should be examined on a country-by-country basis using a more pragmatic approach.

As with the first country subset, the new Absence Index has a positive and statistically significant correlation with Uniformity/Statutory Control, Conservatism, and the degree of Book-Tax conformity. These findings corroborate the effect of culture and book-tax conformity on the absence of specific IAS/IFRS accounting items in national accounting standards.

Correlations between the new Absence Index and Governance Quality and geographical area remain negative and insignificant. We see that the new Absence Index's correlation with financial orientation remains negative but has become insignificant. Additionally, unlike the 1st country subset, the new Absence Index is negatively and strongly correlated with economic growth, indicating that more developed countries' national accounting standards are more aligned with IAS/IFRS.

2.7.Multivariate Analysis

The results of multivariate analysis on the influence of country-specific factors on the Absence and Divergence Indexes of both country subsets are presented in Tables 2.10 and 2.11.

According to Zeghal and Mhedhbi (2006), correlations between independent variables are insufficient to indicate the presence of likely multicollinearity. Thus, we perform collinearity diagnostics based on variance inflation factor (VIF) to determine the degree of collinearity.

Another reason we believe collinearity diagnostics are critical to our analysis is that Hofstede's cultural values, on which Gray's accounting values of Uniformity/Statutory Control and Conservatism are based, are highly correlated, as Hope et al. (2008) note. Additionally, the fact that these high correlations exist between Uniformity/Statutory Control and Conservatism in both sub-country sets (i.e., Tables 2.5, 2.6, 2.8, & 2.9) confirms the importance of further investigating the existence of multicollinearity.

The results in Tables 2.10 and 2.11 demonstrate a strong presence of multicollinearity with respect to Gray's accounting values (Uni/Stat & Cons variables) in both models for the 1st and 2nd country subsets.

Table 2.10: Multiple Regression results on the effects of country-specific factors on the Absence & Divergence Indexes (1^{st} country subset)

Model: $Abs=a_o+a_1Uni/Stat+a_2Cons+a_3BookTax+a_4FinArch+a_5GovQual_{2002}+a_6AREA+a_7GDP_{2001}$			***Model:*** $Div= a_o+a_1Uni/Stat+a_2Cons+a_3BookTax+a_4FinArch+a_5GovQual_{2002}+a_6AREA+a_7GDP_{2001}$		
	Coefficients	VIF		Coefficients	VIF
(Constant)	-519.612		(Constant)	135.93	
	(0.044)**			(0.383)	
Uni/Stat	-0.513	28.877	Uni/Stat	0.071	28.877
	(0.024)**			(0.576)	
Cons	0.953	34.233	Cons	-0.192	34.233
	(0.008)***			(0.313)	
BookTax	29.304	3.867	BookTax	-16.489	3.867
	(0.034)**			(0.071)*	
FinArch	8.017	3.971	FinArch	-10.452	3.971
	(0.268)			(0.065)*	
$GovQual_{2002}$	-4.345	2.535	$GovQual_{2002}$	-1.72	2.535
	(0.175)			(0.422)	
Area	0.332	1.260	Area	2.928	1.260
	(0.869)			(0.076)*	
GDP_{2001}	51.774	7.807	GDP_{2001}	-13.026	7.807
	(0.035)**			(0.373)	

Notes: Multiple regression coefficients of country-specific factors' effect on the Absence and Divergence Indexes. P-values are presented in parentheses and the right column shows VIF estimates for collinearity diagnostics.

∗∗∗ indicates statistical significance at the 1% level.

∗∗ indicates statistical significance at the 5% level.

∗ indicates statistical significance at the 10% level.

Table 2.11: Multiple Regression results on the effects of country-specific factors on the Absence & Divergence Indexes (2nd country subset)

Model: Abs_{NEW}=ao+a_1Uni/Stat+a_2Cons+a_3BookTax+a_4FinArch+ $a_5GovQual_{NEW}$+a_6AREA+a_7GDP_{NEW}			***Model: Div_{NEW}= ao+a_1Uni/Stat+a_2Cons+a_3BookTax+a_4FinArch+ $a_5GovQual_{NEW}$+a_6AREA+a_7GDP_{NEW}***		
	Coefficients	VIF		Coefficients	VIF
(Constant)	-809.171		(Constant)	157.906	
	(0.041)**			(0.277)	
Uni/Stat	-1.013	27.070	Uni/Stat	0.103	27.070
	(0.007)***			(0.377)	
Cons	1.899	32.339	Cons	-0.254	32.339
	(0.002)***			(0.156)	
BookTax	48.15	3.85	BookTax	-17.738	3.85
	(0.026)**			(0.044)**	
FinArch	33.238	3.827	FinArch	-12.165	3.827
	(0.016)**			(0.028)**	
$GovQual_{NEW}$	-30.552	2.388	$GovQual_{NEW}$	-2.608	2.388
	(0.012)**			(0.497)	
Area	-2.948	1.244	Area	3.193	1.244
	(0.359)			(0.044)**	
GDP_{NEW}	89.592	7.703	GDP_{NEW}	-15.114	7.703
	(0.022)**			(0.269)	

Notes: Multiple regression coefficients of country-specific factors' effect on the Absence and Divergence Indexes. P-values are presented in parentheses and the right column shows VIF estimates for collinearity diagnostics.

∗∗∗ indicates statistical significance at the 1% level.

∗∗ indicates statistical significance at the 5% level.

∗ indicates statistical significance at the 10% level.

Specifically, the Uni/Stat and Cons independent variables exhibit a high degree of multicollinearity (VIF>10) as a result of their high correlation with one another and possibly with the remaining independent variables. Thus, while Pearson-Spearman correlations indicate that country-specific factors appear to affect the Absence Indexes of both country subsets, this effect may be misleading, as Alin (2010) points that one of the primary disadvantages of multicollinearity is that it renders the coefficients of the relevant independent variables potentially unreliable.

Additionally, the presence of a high degree of multicollinearity among the regressor variables (as observed in our research) casts doubt on the relevant results between the Absence Index and country-specific factors, as multicollinearity among the regressor variables may be more detrimental than multicollinearity between the response variable and the regressor variables (Gunst and Webster, 1975).

Despite the presence of sizable multicollinearity, we make two observations: The selected country-specific factors appear to have a greater impact on the absence of IAS/IFRS accounting items from national accounting standards; second, the selected country-specific factors do not appear to have a significant impact on the divergence between national accounting standards and IAS/IFRS.

Given our objective of examining the validity of previous findings despite the presence of collinearity in our data set, we present two alternative approaches in the following sections of this Chapter, without removing any of our key independent variables.

The reason we have not deleted any of our key independent variables, particularly Uni/Stat and Cons, which have the highest VIFs, is that we believe cultural values are critical in shaping national accounting standards. Additionally, numerous researchers (e.g., Hope et al., 2008) have established the validity of Gray's accounting values, motivating us to keep building our research while maintaining these variables.

2.8.Dealing with multicollinearity

The variables included in a model have a direct impact on the problem of multicollinearity. Gunst and Webster (1975) and Chen (2012) indicate that removing the variables that cause multicollinearity may have detrimental ramifications not only because the omitted variables may be of significant importance, but also because deleting these variables may result in model specification errors. As a result, rather than avoiding collinearities, Graham (2003) contends that it is essential to comprehend and resolve the complications they cause.

To overcome the problem of variable selection and to address the issue of multicollinearity among the independent variables related to Gray's accounting values, as well as possibly among the other independent variables in our models, we employ Principal Component Regression (PCR), a technique that is well-established in the prior literature and addresses the issue of multicollinearity.

Kendall (1957) is credited with introducing the concept of principal components in regression, as various researchers (e.g., Massy, 1965; Jeffers, 1967) argue, although Jolliffe (1982) notes that Hotelling (1957) suggested PCR in his article the same year Kendall did (1957).

Massy (1965, p. 235) describes the general idea of PCR as follows:

"*The objective of principal components analysis is to find a linear transformation of a set of n variates of X into a new set denoted by P, where the new set has certain desirable properties. These properties, which provide the rationale for using the p's rather than the original x's, are: (i) the elements of p are uncorrelated with each other in the sample (orthogonality); and (ii) each element of P, progressing from* p_1 *to* p_2*, etc., accounts for as much of the combined variance of the x's as possible, consistent with being orthogonal to the preceding p's*".

Apart from the fundamental concept of PCR as stated by Massy (1965), Jeffers (1967) offers eight practical goals for PCR use. These objectives include, but are not limited to, determining the correlations between variables, excluding variables that contribute little extra information, and so forth. Given that at least two of the original independent variables in our research are highly collinear, it may be appropriate to transform them into principal components and regress them against the dependent variable, as Massy (1965) suggests.

Thus, by employing PCR, we not only aim to eliminate variables with low information content but also to construct more meaningful indices. Additionally, using PCR assures us that any potential multicollinearity will be eradicated, resulting in uncorrelated components (Chan and Park, 2005).

Jolliffe (1982) refers to a point of contention among eminent statisticians regarding the application of PCR, namely the rule for determining which principal components to retain in the regression. According to a body of research (e.g., Massy, 1965; Mansfield et al., 1977; Mason and Gunst, 1985; Lafi and Kaneene, 1992), the optimal

criterion for selecting which principal components to retain is those with the highest eigenvalues[66].

On the other hand, some researchers (e.g., Hotelling, 1957; Jeffers, 1967; Hill et al., 1977; Jolliffe, 1982) argue against the deletion of principal components under the low-eigenvalue criterion, contending that doing so may result in the deletion of significant components and the loss of critical information.

Few researchers (e.g., Naes and Martens, 1988; Sutter et al., 1992; Sun, 1995; Xie and Kalivas, 1997) in the other scientifical fields and particularly in Near-infrared (NIR) spectroscopy[67] added a new perspective regarding the criterion of selecting principal components. Specifically, they conclude that the criterion of selecting principal components lies in whether the goal of the research is estimation or prediction.

A clarification between explanatory and predictive statistical modelling is given by Shmueli (2010) in his seminar research paper. According to Shmueli (2010), the primary distinction between predictive modeling and explanatory modeling is that prediction models are aimed at forecasting potential outcomes, whereas explanatory models are aimed at exploring the cause-and-effect relationship between a group of factors.

Our research aims to determine the effect of country-specific factors on the absence and divergence of national accounting standards from IAS/IFRS, focusing on whether those country-specific factors affect the absence of specific IAS/IFRS items from national accounting standards or the divergence of specific national accounting items from their IAS/IFRS equivalents. As a result, our research models fall under the category of explanatory modeling, as defined by Shmueli (2010).

Returning to the selection criteria for principal components and the notion that selecting principal components is dependent on the research objective (i.e., estimation or prediction), we follow Mansfield et al. (1977) and Mason and Gunst (1984) and select principal components based on the magnitudes of the eigenvalues, as our research is explanatory in nature rather than predictive.

Sun (1995) notes that when the objective of the research is estimation rather than prediction, choosing principle components with low variances can result in very large

[66] According to Liu et al. (2003), eigenvalues indicate the number of different dimensions between independent variables.

[67] According to Vigneau et al. (1997), near-infrared (NIR) spectroscopy is used to quickly identify the chemical makeup of food and feed products.

and hence worthless confidence intervals for the regression parameters. As a result, our eigenvalue-based selection criterion for principal components is not only reasonable but also appropriate.

Despite its widespread use in a variety of scientific fields, PCR has come under fire from a number of researchers (e.g., Hadi and Ling, 1998; Artigue and Smith, 2019).

Our analysis makes use of PCR to address the problem of multicollinearity among our independent variables, not the issue of a large number of potential explanatory variables. Thus, Artigue and Smith's (2019) observation that as the number of explanatory variables increases, PCR becomes less efficient, and misleading does not appear to apply to our research.

In general, one of PCR's primary benefits, as described by Peres-Neto et al. (2005), is the generation of linear combinations of variables with similar variational patterns. This can significantly aid our research, especially given the observed multicollinearity between several of our key explanatory variables (e.g., Gray's accounting values).

2.8.1.1st alternative approach

To address the observed multicollinearity, we first employ Principal Component Analysis (PCA) through the use of the SPSS factor analysis function. After extracting the principal component(s) and reducing the number of initial explanatory and control variables, we regress the resulting principal component(s) on the Absence and Divergence Indexes for both country subsets.

Before we proceed with our analysis, it is necessary to address several points regarding our research's use of Principal Component Analysis (PCA).

To begin, one should determine whether to derive the principal component(s) from a correlation or a covariance matrix. When performing principal component analysis, the choice between a correlation or covariance matrix is highly dependent on the variance and unit of measurement of the research variable.

According to prior research (e.g., Wold et al., 1987; Jolliffe, 1990), the rational and reasonable tactic for dealing with the differing measurement scales of the variables that constitute principal components is variable standardization and, consequently, principal component extraction from a correlation matrix, as Jolliffe and Cadima (2016) mention. Due to the different measurement scales and the resulting high variance of our independent variables (as shown in Tables 2.4 and 2.7), the principal component(s) will be extracted from a correlation matrix.

Another significant issue in PCA is the selection of principal components. We previously discussed our strategy for selecting principal components, which is based on the magnitudes of the principal components' eigenvalues (Mansfield et al., 1977; Mason and Gunst, 1984). Additionally, we employ two additional selection criteria for principal components: the Kaiser-Gutman criterion and Catell's (1966) scree test.

The Kaiser-Guttman criterion is probably the most widely applied rule for principal component analysis (e.g., Velicer, 1976; Yeomans and Golder, 1982; Zwick and Velicer, 1982; Hubbard and Allen, 1987; Jackson, 1993). Guttman (1954) proposed the technique, which Kaiser (1960, 1961) adopted and developed, as Yeomans and Golder (1982) state. The Kaiser-Guttman rule is based on the principle of maintaining all principal components of a correlation matrix with eigenvalues equal to or greater than unity (Hubbard and Allen, 1987), as these components encapsulate greater information than any single original variable (Jackson, 1993).

Another criterion for selecting principal components that we use is Cattell's (1966) "*scree test*". Hubbard and Allen (1987, p. 175) provide for an excellent description of Cattell's scree test, as follows:

"*This test requires the successive plotting of eigenvalues after they have been ordered from large to small. A visual inspection of the resultant graph is then made in an effort to detect a convincing elbow or break in the curve. The number of components to be retained is decided by observing the number of eigenvalues lying above the elbow. The rationale for the scree test rests on the assumption that components accounting for substantial proportions of the variation in a data set (i.e., those with large eigenvalues) represent major or meaningful dimensions. As such they ought to be clearly distinguishable from components of small variation since the latter are understood to reflect nothing more than different combinations of measurement and sampling error. In short, a convincing break in the plot of eigenvalues should be present, just as the slope of a mountain is readily identifiable from that of the scree or rubble found at its base*".

As Jolliffe (1993) points out, both the Kaiser-Guttman rule and Cattell's scree are intrinsically related to PCA's fundamental goal of reducing the initial number of variables to a much smaller number of principal component that retain the majority of the original variables' variance.

Another critical point to consider when applying PCA is the rotation of principal components. Principal component rotation is critical when performing Principal

Component Analysis for a variety of reasons, as outlined in prior research. These reasons include the enhancement of the analysis of the extracted components (Jolliffe, 1993; Abdi and Williams, 2010), the more equitable redistribution of total variance among rotated components (Jolliffe, 2002), and, finally, the unrotated components' low scientific value (Goldberg and Velicer, 2006).

According to Abdi and Williams (2010), two major kinds of rotation are most frequently used: orthogonal and oblique. We perform orthogonal rotation of our principal components, applying Kaiser's orthogonal Normal Varimax rotation (1958), for several reasons.

For start, when sample sizes are small (as in our research), orthogonal rotations produce more stable and replicable results (Budaev, 2010); additionally, orthogonal rotations produce uncorrelated, simpler, and easier to interpret components (Forina et al., 1988; Kieffer, 1998), whereas oblique rotation permits factor correlation (Ford et al., 1986); Thirdly, Varimax rotation produces unambiguous results since variables clearly load or unload onto each component (Howard, 2016); finally, Kaiser normalization implies dividing each variable's loadings by the square root of their communalities in order to ensure that each variable exerts an equal amount of impact on the rotation process (Dien et al., 2005).

Following the presentation of the theoretical basis for our primary choices regarding the application of PCA, the subsequent sections present the results of our analysis for the two country subsets.

2.8.1.1. 1st country subset.

To begin, we determine whether our data are suitable for Principal Component Analysis using the Kaiser- Meyer-Olkin (KMO) sampling adequacy measure (Kaiser, 1970; 1974) and Bartlett's sphericity test (1950, 1951).

According to Howard (2016), these tests indicate the presence of adequately substantial associations within the data set of interest. The Kaiser–Meyer–Olkin (KMO) sampling adequacy metric is used to determine the amount of shared variance within a data set (Howard, 2016) Also, Hubard and Allen (1987) notice that by comparing the differentiation of a correlation matrix to an identity matrix, Bartlett's sphericity test establishes a valid basis for performing principal component analysis.

Table 2.12 summarizes the results of the Kaiser-Meyer-Olkin (KMO) and Bartlett's sphericity tests.

Table 2.12: Kaiser-Meyer-Olkin (KMO) and Bartlett's Test (1st alternative approach- 1st country subset)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.726
Bartlett's Test of Sphericity	Approx. Chi-Square	78.07
	df	15
	Sig.	.000

Kaiser-Meyer-Olkin (KMO) value is greater than .50, which Kaiser (1974) defines as the boundary line of permissibility, whereas the significance of Bartlett's sphericity test is 0.000, indicating that our sample meets the criteria for PCA. We omit the control variable Area from the analysis due to its low shared variance with the extracted components and perform Principal Component Analysis (PCA) on the remaining explanatory variables[68].

As Table 2.13 indicates, the application of PCA resulted in the extraction of six principle components for the 1st country subset.

Table 2.13: Total Variance explained by the resulting principal components (1st alternative approach - 1st country subset)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.514	75.239	75.239	4.514	75.239	75.239
2	0.725	12.078	87.318			
3	0.414	6.9	94.217			
4	0.246	4.096	98.313			
5	0.085	1.414	99.727			
6	0.016	0.273	100			

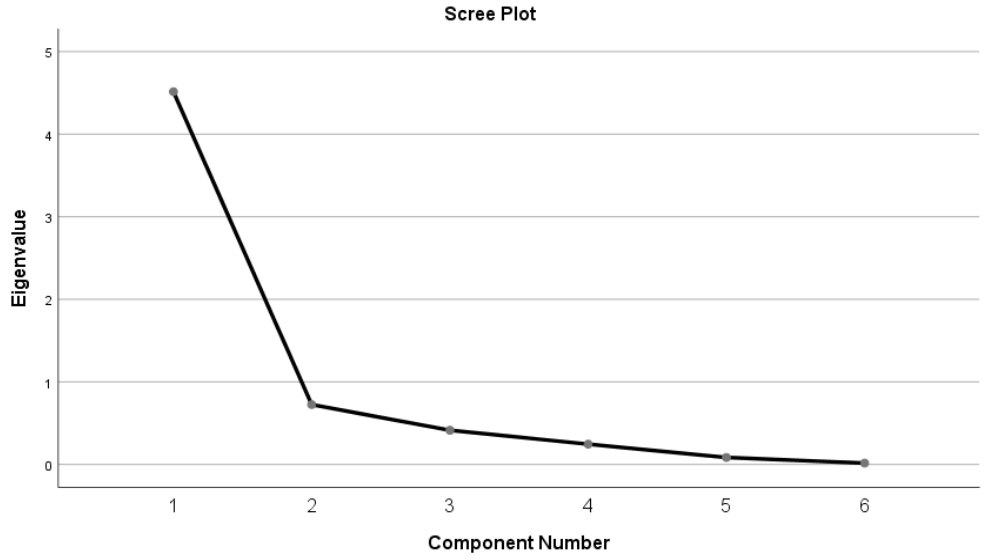
The first principle component is the only one with an eigenvalue greater than one; it accounts for 75.239 % variance, whereas the remaining principal components all have an eigenvalue less than one. We choose the first principal component for analysis using the Kaiser-Guttman criterion (eigenvalues>1), since it represents the greater proportion of total variance shared by the explanatory variables.

[68] Principal Components Analysis resulted in the exclusion of the control variable Area from all further tests in this Chapter due to the control variable's insufficient representation in the extracted components.

Apart from the Kaiser-Guttman criterion, we also use Cattell's scree test to ensure that the first principal component was correctly chosen. We follow Kaufman and Dunlap's observation (2000) and look for a discontinuity in the plot of the eigenvalues that denotes the separation of meaningful and insignificant components.

As indicated by the scree plot (Figure 2.5), eigenvalues appear to level off after the first principal component and the Kaufman and Dunlap (2000)-mentioned discontinuity is observed in the second principal component at the "elbow" joint. As a result of Cattell's scree test, the first principal component should be the primary focus, as it accounts for the majority of the total variance of the independent variables. The resulting principal component is termed to as "Aggregate Country-Specific Factor Effect", as it encapsulates the cumulative effect of the explanatory variables/country-specific factors included in our analysis.

Figure 2.5:
Scree test for principal components selection (1st alternative approach-1st country subset)



After extracting our component, it is of great importance to explore the loadings[69] of the independent variables on the specific component. Budaev (2010) provides recommendations on the acceptable level of factor loadings, stating that loadings should be larger than 0.4 when the sample size is large (N>100), but greater than 0.5 or even 0.7 when the sample size is small.

[69] According to Abdi and Williams (2010), in PCA, the term loading refers to the correlation between a component and a variable and is a measure of the information shared by the component and the variable.

The Component Matrix section of Table 2.14 demonstrates that the absolute value of the loadings for the research variables is greater than 0.5, ranging from -0.663 to 0.976. The observed high loadings reflect the high correlations between the extracted principal component ("Aggregate Country-Specific Factor Effect") and the country-specific factors examined.

Additionally, we observe that Gray's accounting values (Uni/Stat & Cons variables) and Book-Tax conformity have significant positive loadings on the Aggregate Country-Specific Factor Effect, whereas Financial Architecture, Government Quality, and economic development level (GDP_{2001}) have substantial negative loadings on the extracted component. Thus, the Aggregate Country-Specific Factor Effect incorporates both the positive and negative effects of the underlying explanatory variables.

Table 2.14: Component Matrix/Component Score Coefficient Matrix (1st alternative approach-1st country subset)

Component Matrix		***Component Score Coefficient Matrix***	
	Component		Component
	1		1
Uni/Stat	0,976	Uni/Stat	0,216
Cons	0,965	Cons	0,214
BookTax	0,887	BookTax	0,197
FinArch	-0,663	FinArch	-0,147
$GovQual_{2002}$	-0,791	$GovQual_{2002}$	-0,175
GDP_{2001}	-0,883	GDP_{2001}	-0,196

The Component Score Coefficient Matrix section of Table 2.14 illustrates the weights (i.e., coefficients) by which explanatory variables are multiplied to obtain the Aggregate Country-Specific Factor Effect:

Aggregate Country-Specific Factor Effect =

0,216*Uni/Stat+0,214 Cons+0,197*BookTax-0,147*FinArch-0,175* $GovQual_{2002}$-0,196* GDP_{2001}

Then, in the following regression models, we use the Aggregate Country-Specific Factor Effect (ACSFE) principal component as our independent variable:

1st alternative approach-1st country subset

Model 1: $Abs = a_o + a_1 ACSFE + \varepsilon_i$

Model 2: $Div = a_o + a_1 ACSFE + \varepsilon_i$

Consequently, we can assess the cumulative effect of our research's country-specific factors on the Absence and Divergence Indexes for the 1st country subset.

Table 2.15 summarizes the results of the regressions for Models 1 and 2. We observe a marked difference between Models 1 and 2 in terms of statistical significance and explanatory power. Model 1 exhibits an R^2 value of 0.437, indicating that the Aggregate Country-Specific Factor Effect explains 43.7 % of the variance in the Absence Index. Additionally, Model 1 has an Adjusted R^2 value of 0.390, indicating that the model is reasonably fit.

The difference between Model's 1 R^2 and Adjusted R^2 values (0.437-0.390=0.047) indicates that if Model 1 were derived from the population rather than our sample, it would account for approximately 4.7 % less variance in the outcome. Additionally, Model 1 is statistically significant, as evidenced by the F value of 9.323, which is statistically significant at the $p<0.05$ level. Model 2, on the other hand, lacks explanatory power and statistical significance, as indicated by the values of R^2, Adjusted R^2 and F statistic, respectively.

We assess the credibility of Model 1, in terms of normality, independence and homogeneity of variance of the residuals, and the results of the relevant tests indicate that the conditions of normality[70], independence[71] and homogeneity of variance[72] are met.

The difference between the two models is due to the Aggregate Country-Specific Factor Effect's role. Specifically, the ACSFE variable is statistically significant at the 0.05 level in Model 1, indicating that the extracted principal component is a significant explanatory factor for the Absence Index. On the contrary, the ACSFE variable is not a statistically significant variable of Model 2 and thus, has no effect on the Divergence Index.

[70] Kolmogorov-Smirnov test, p-value: 0.157.
[71] Runs Test, p-value: 0.404.
[72] Levene's test based on median, p-value: 0.469.

Table 2.15: Principal Component Regression results on the effects of country-specific factors on the Absence & Divergence Indexes (1^{st} alternative approach-1^{st} country subset)

Model 1: $Abs=a_o+a_1ACSFE+\varepsilon_i$ (R^2:0.437, Adj.R^2: 0.390, F: 9.323, (p=0.01))			***Model 2: $Div=a_o+a_1ACSFE+\varepsilon_i$ (R^2:0.005, Adj.R^2: -0.078, F: 0.055, (p=0.819))***		
	Coefficients	t-stat		Coefficients	t-stat
(Constant)	20.857	8.238	(Constant)	30.571	19.922
	(0.000)***			(0.000)***	
ACSFE	8.023	3.053	ACSFE	-0.372	-0.234
	(0.01)**			(0.819)	

Notes: Principal regression coefficients of country-specific factors' effect on the Absence and Divergence Indexes. P-values are presented in parentheses.

∗∗∗ indicates statistical significance at the 1% level.

∗∗ indicates statistical significance at the 5% level.

∗ indicates statistical significance at the 10% level.

ACSFE has a positive coefficient, indicating a positive correlation between ACSFE and the Absence Index. To acquire a better understanding of ACSFE's effect on the Absence Index, we evaluate the correlations between the explanatory factors listed in Table 2.14's Rotated-Component Matrix section.

Correlations between the explanatory variables indicate that less developed, bank-based countries with a strong emphasis on Uniformity, Statutory Control and Conservatism, as well as close links between accounting and tax rules and lower governance quality, are expected to have a higher Absence Index. On the other hand, developed, market-based countries with lower Uniformity, Conservatism, and Book-Tax conformity, less state interference, and stronger governance quality are likely to have lower Absence Indexes.

A review of Models 1 and 2 reveals some significant results. To begin, the country-specific features considered in our study affect the absence of specific IAS/IFRS items from national accounting standards in the first country subset, but appear to have no effect on national accounting standards divergence from IAS/IFRS. Thus, in contrast to the absence of particular IAS/IFRS items in national accounting standards, divergence of national accounting standards from IAS/IFRS should presumably be analyzed through the prism of more customized country-specific variables. Second, it appears as though the absence of specific IAS/IFRS items from national accounting standards is driven by the cumulative effect of country-specific factors rather than their individual effects.

Third, the ACSFE variable provides a comprehensive image of various significant aspects that appear to affect a country's accounting system, particularly when the reasons for the absence of certain international accounting regulations are investigated. Fourth, the elements that form the ACSFE variable appear to be extremely relevant when studying the contributing factors to a country's accounting standards

Our findings differ significantly from those of Ding et al. (2005) and Ding et al. (2007) in that, unlike their studies, we focus on a European setting, and hence our findings are geographically distinctive. Additionally, while Ding et al. (2005) and Ding et al. (2007) examine the individual effect of country-specific factors on the Absence and Divergence Indexes, we focus on the combined effect of country-specific factors on the Absence and Divergence Indexes.

In general, our decision to focus on a European context rather than an international context is rewarded by our analysis's findings, as conclusions can be drawn more easily from a more homogeneous environment, such as the EU context.

2.8.1.2. 2nd country subset

We use the methodology described in the preceding section to determine whether including the new Absence and Divergence Indexes in the 2nd country subset will have an effect on the reported results for the 1st country subset.

The Kaiser-Meyer-Olkin (KMO) and Bartlett's sphericity tests are used to determine the suitability of the data from the 2nd country subset for PCA. The KMO test value exceeds 0.50, and also the Bartlett's test is significant (as indicated in Table 2.16); hence, the data from the second 2nd country subset are suitable for PCA.

Table 2.16: Kaiser-Meyer-Olkin (KMO) and Bartlett's Test (1st alternative approach- 2nd country subset)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0,745
Bartlett's Test of Sphericity	Approx. Chi-Square	77,597
	df	15
	Sig.	.000

Under the Kaiser-Guttman rule (Table 2.17) and Cattell's scree test (Figure 2.6), PCA resulted in the identification of a single principal component that accounts for 75,32 % variance shared by the independent variables. The extracted component is termed to as the New Aggregate Country-Specific Factor Effect ($ACSFE_{NEW}$).

Table 2.18 outlines the loadings of variables on the extracted principal component ($ACSFE_{NEW}$) and the coefficients of explanatory variables used to calculate the value of $ACSFE_{NEW}$. We find no significant differences between the analysis of the 1st country subset and the analysis of the 2nd country subset in terms of the magnitude and direction of the correlations between the independent variables and $ACSFE_{NEW}$. Additionally, no significant changes in the level and direction of the coefficients are noticed in the Component Score Coefficient Matrix part of Table 2.18.

Table 2.17: Total Variance explained by the resulting principal components (1st alternative approach - 2nd country subset)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4,519	75,32	75,32	4,519	75,32	75,32
2	0,735	12,242	87,562			
3	0,399	6,644	94,206			
4	0,245	4,088	98,293			
5	0,085	1,413	99,707			
6	0,018	0,293	100			

Figure 2.6:
Scree test for principal components selection (1st alternative approach-2nd country subset)

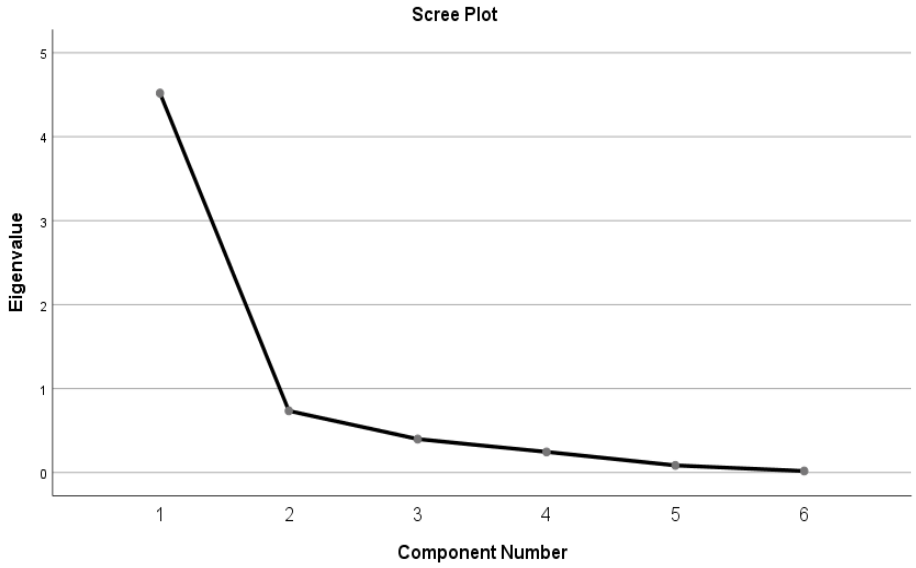


Table 2.18: Component Matrix/Component Score Coefficient Matrix (1st alternative approach-2nd country subset)

Component Matrix		***Component Score Coefficient Matrix***	
	Component		Component
	1		1
Uni/Stat	0,975	Uni/Stat	0,216
Cons	0,966	Cons	0,214
BookTax	0,887	BookTax	0,196
FinArch	-0,659	FinArch	-0,146
$GovQual_{NEW}$	-0,794	$GovQual_{NEW}$	-0,176
GDP_{NEW}	-0,885	GDP_{NEW}	-0,196

Following that, $ACSFE_{NEW}$ is regressed on the 2nd country subset's new Absence and Divergence Indexes using the following two regression models:

1st alternative approach-2nd Country subset

Model 3: $Abs_{NEW} = a_o + a_1 ACSFE_{NEW} + \varepsilon_i$

Model 4: $Div_{NEW} = a_o + a_1 ACSFE_{NEW} + \varepsilon_i$

As seen in Table 2.19, the regression results are mildly better than those for the 1st country subset. Model 3 outperforms Model 1 of the 1st country subset, as it is statistically significant at the $p<0.01$ level (while Model 1 is statistically significant at the $p<0.05$ level).

Additionally, Model 3 of the 2nd country subset has a higher R^2 (0.475) and Adjusted R^2 (0.431) value than Model 1 of the 1st country subset, and the difference between R^2 and Adjusted R^2 (0.443-0.396=0.044) is moderately lower than the difference between R^2 and Adjusted R^2 of Model l (i.e., 0.047). Thus, Model 3 has a marginally greater explanatory power than Model 1.

As with the 1st country subset, regression of $ACSFE_{NEW}$ against the new Divergence Index yields no effect, as Model 4 is not statistically significant and thus has no explanatory power. The new aggregate country factor ($ACSFE_{NEW}$) has a positive effect on the new Absence Index and its statistical significance ($p<0.01$) is improved, compared with ACSFE's statistical significance ($p<0.05$). Additionally, we note that $ACSFE_{NEW}$'s coefficient size (15.637) is significantly larger than that of ACSFE (8.023). This increase indicates that the $ACSFE_{NEW}$ factor has a greater impact on the new Absence Index and is hence more relevant in relation to it.

By referring to the composition of the Absence Index of the 2nd country subset[73], we conclude that $ACSFE_{NEW}$ illustrates the interaction between country-specific factors and the absence of specific IAS/IFRS accounting items from national accounting standards in general, and specifically in the case of Greece's new accounting framework.

[73] As mentioned in section 2.5., the Absence Index of the 2nd country subset includes Greece's new Absence Index (concerning the new Greek Accounting Standards, calculated in section 2.2) and Ding et al.'s Absence Indexes for the rest 13 EU sample countries)

Table 2.19: Principal Component Regression results on the effects of country-specific factors on the Absence & Divergence Indexes (1st alternative approach-2nd country subset)

Model 3: $Abs_{NEW}=a_o+a_1ACSFE_{NEW}+\varepsilon_i$ (R^2:0.475, Adj.R^2: 0.431, F: 10.866, (p=0.006))			***Model 4: $Div_{NEW}=a_o+a_1ACSFE_{NEW}+\varepsilon_i$ (R^2:0.021, Adj.R^2: -0.061, F: 0.253, (p=0.624))***		
	Coefficients	t-stat		Coefficients	t-stat
(Constant)	24.714 (0,000)***	5.407	(Constant)	30.357 (0,000)***	19.373
$ACSFE_{NEW}$	15.637 (0,006)***	3.296	$ACSFE_{NEW}$	-0.818 (0,624)	-0.503

Notes: Principal Component regression coefficients of country-specific factors' effect on the Absence and Divergence Indexes. P-values are presented in parentheses.

∗∗∗ indicates statistical significance at the 1% level.

∗∗ indicates statistical significance at the 5% level.

∗ indicates statistical significance at the 10% level.

Additionally, we assess the Abs_{NEW} model's (Model 3) credibility, in terms of normality, independence and homogeneity of variance of the residuals and find no violations of the relevant conditions[74].

In general, the regression results for the 2nd country subset confirm the effect of country-specific factors on the absence of certain IAS/IFRS items in national accounting standards. Additionally, the regression results for the 2nd country subset suggest that the analysis of divergence between national accounting standards and IAS/IFRS is a rather specialized area of research that should take into consideration each country's unique circumstances that influence accounting choices.

Finally, it can be asserted that the country-specific factors included in our analysis have a considerable impact on Greece's level of absence of specific IAS/IFRS accounting items from its recently implemented national accounting standards (i.e., Greek Accounting Standards). As a result, the regression analysis results for Model 3 further establish the importance of Abs_{NEW} and $ACSFE_{NEW}$, respectively.

2.8.2. 2nd alternative approach

The second approach entails decomposing two of the initial explanatory variables without changing the other dependent and independent variables. To be more specific, we decompose Gray's accounting values (i.e., the Uni/Stat and Cons explanatory variables) into Hofstede's initial cultural values (i.e., Uncertainty Avoidance, Power Distance & Individualism).

We exclude Hofstede's Masculinity cultural value from our analysis for two reasons: first, Masculinity was not included in the calculation of the initial variables Uni/Stat and Cons; and second, according to Gray, Masculinity is not closely related to the accounting system, and thus its effect on the Absence and Divergence Indexes may be difficult to interpret.

Additionally, we decompose the independent variable Governance Quality into its constituent governance factors (i.e., Government Effectiveness, Regulatory Quality, Rule of Law and Control of Corruption).

We include only the definitions of the newly decomposed variables per country subset in the following Tables, as the other variables remain unchanged:

[74] Kolmogorov-Smirnov test/p-value:0.353; Runs test/p-value:0.781; and Levene's test based on median/p-value:0.082.

Table 2.20: Decomposed Variable Names & Definitions (1st country subset)

Variable Name	*Definition*
UA	Hofstede's Uncertainty Avoidance cultural value per sample country (Source: Hofstede, 1984)
PD	Hofstede's Power Distance cultural value per sample country (Source: Hofstede, 1984)
IND	Hofstede's Individualism cultural value per sample country Source: Hofstede, 1984)
$GovEff_{2002}$	The World Bank Government Effectiveness Indicator per sample country in 2002 (Source: World Bank)
$RegQual_{2002}$	The World Bank Regulatory Quality Indicator per sample country in 2002 (Source: World Bank)
$RuleLaw_{2002}$	The World Bank Rule of Law Indicator per sample country in 2002 (Source: World Bank)
$ConCorr_{2002}$	The World Bank Control of Corruption Indicator per sample country in 2002 (Source: World Bank)

Table 2.21: Decomposed Variable Names & Definitions (2nd country subset)

Variable Name	*Definition*
UA	Hofstede's Uncertainty Avoidance cultural value per sample country (Source: Hofstede, 1984)
PD	Hofstede's Power Distance cultural value per sample country (Source: Hofstede, 1984)
IND	Hofstede's Individualism cultural value per sample country (Source: Hofstede, 1984)
$GovEff_{NEW}$	The average of the World Bank's Government Effectiveness Indicator for Greece from 2002 to 2014 and the World Bank's Government Effectiveness Indicator for the rest 13 sample countries in 2002 (Source: World Bank)
$RegQual_{NEW}$	The average of the World Bank's Regulatory Quality Indicator for Greece from 2002 to 2014 and the World Bank's Regulatory Quality Indicator for the rest 13 sample countries in 2002 (Source: World Bank)
$RuleLaw_{NEW}$	The average of the World Bank's Rule of Law Indicator for Greece from 2002 to 2014 and the World Bank's Rule of Law Indicator for the rest 13 sample countries in 2002 (Source: World Bank)
$ConCorr_{NEW}$	The average of the World Bank's Control of Corruption Indicator for Greece from 2002 to 2014 and the World Bank's Control of Corruption Indicator for the rest 13 sample countries in 2002 (Source: World Bank)

This decomposition enables us to investigate the cumulative influence of a larger number of factors on the absence of specific IAS/IFRS accounting items from national accounting standards and the divergence of national accounting items from IAS/IFRS. As a result, our technique is fundamentally different from that of Ding et al. (2005), who evaluate the individual effect of Hofstede's cultural values on their Absence and Divergence Indexes.

Accordingly, we perform Principal Component Analysis (PCA) using the methodology described in the 1st alternative approach. In this way, in comparison to the 1st alternative approach, we strive to create principal components/factors that reflect the combined effect and various characteristics of a larger set of country-specific factors. Following that, we regress the resulting principal component/s against the Absence and Divergence Indexes for both country subsets, with the goal of elucidating new relationships between a different set of country-specific factors and the Absence and Divergence Indexes.

Our choice to perform PCA is strengthened further by the observed high correlations between the new set of country-specific factors, as shown in Tables 2.22 (1st country subset) and 2.23 (2nd country subset), which may indicate multicollinearity.

Additionally, prior research has identified possible multicollinearity issues with various variables in our study. For example, Papadaki (2005) and Hope et al. (2008) argue that the high correlations between Hofstede's cultural variables may cause problems with multicollinearity. Additionally, Li and Filer (2007) and Houqe et al. (2012) discuss the substantial correlations between the World Bank's governance quality metrics (i.e., Government Effectiveness, Regulatory Quality, Rule of Law, Control of Corruption).

As a result of the foregoing, we consider that Principal Component Analysis (PCA) and Principal Component Regression (PCR) are appropriate techniques for our research.

Table 2.22: Pearson and Spearman Correlations between the new set of country-specific variables (2nd alternative approach- 1st country subset)

	UA	PD	IND	BookTax	FinArch	GDP_{2001}	$GovEff_{2002}$	$RegQual_{2002}$	$RuleLaw_{2002}$	$ConCorr_{2002}$
N	14	14	14	14	14	14	14	14	14	14
UA	1	0.786	-0.513	0.751	-0.725	-0.738	-0.588	-0.774	-0.740	-0.773
	.	(0.001)***	(0.061)*	(0.002)***	(0.003)***	(0.003)***	(0.027)**	(0.001)***	(0.002)***	(0.001)***
PD	0.777	1	-0.068	0.660	-0.332	-0.636	-0.502	-0.667	-0.770	-0.667
	(0.001)***	.	(0.817)	(0.010)**	(0.246)	(0.015)**	(0.068)*	(0.009)***	(0.001)***	(0.009)***
IND	-0.679	-0.329	1	-0.440	0.482	0.429	0.218	0.267	0.183	0.312
	(0.008)***	(0.251)	.	(0.115)	(0.081)*	(0.126)	(0.454)	(0.356)	(0.532)	(0.277)
BookTax	0.794	0.733	-0.649	1	-0.481	-0.644	-0.327	-0.526	-0.53	-0.495
	(0.001)***	(0.003)***	(0.012)**	.	(0.081)*	(0.013)**	(0.253)	(0.053)*	(0.051)*	(0.072)*
FinArch	-0.689	-0.288	0.516	-0.526	1	0.349	0.358	0.504	0.292	0.446
	(0.006)***	(0.317)	(0.059)	(0.053)*	.	(0.221)	(0.208)	(0.066)*	(0.311)	(0.110)
GDP_{2001}	-0.797	-0.670	0.783	-0.763	0.336	1	0.675	0.685	0.692	0.675
	(0.001)***	(0.009)***	(0.001)***	(0.002)***	(0.241)	.	(0.008)***	(0.007)***	(0.006)***	(0.008)***
$GovEff_{2002}$	-0.579	-0.504	0.451	-0.529	0.353	0.661	1	0.744	0.864	0.921
	(0.030)**	(0.066)*	(0.106)	(0.052)*	(0.215)	(0.010)**		(0.002)***	(0.000)***	(0.000)***
$RegQual_{2002}$	-0.769	-0.749	0.39	-0.608	0.428	0.598	0.783	1	0.835	0.852
	(0.001)***	(0.002)***	(0.168)	(0.021)**	(0.127)	(0.024)**	(0.001)***	.	(0.000)***	(0.000)***
$RuleLaw_{2002}$	-0.724	-0.757	0.348	-0.677	0.353	0.656	0.879	0.907	1	0.965
	(0.003)***	(0.002)***	(0.222)	(0.008)***	(0.216)	(0.011)**	(0.000)***	(0.000)***		(0.000)***
$ConCorr_{2002}$	-0.714	-0.677	0.429	-0.596	0.426	0.652	0.909	0.883	0.967	1
	(0.004)***	(0.008)***	(0.126)	(0.024)**	(0.128)	(0.012)**	(0.000)***	(0.000)***	(0.000)***	.

Notes: Pearson correlation coefficients are shown below the diagonal, while Spearman correlation coefficients are shown above the diagonal.

***Correlation is significant at the 0.01 level (2-tailed).

** Correlation is significant at the 0.05 level (2-tailed).

* Correlation is significant at the 0.10 level (2-tailed).

Table 2.23: Pearson and Spearman Correlations between the new set of country-specific variables (2nd alternative approach- 2nd country subset)

	UA	PD	IND	BookTax	FinArch	GDP_{NEW}	$GovEff_{NEW}$	$RegQual_{NEW}$	$RuleLaw_{NEW}$	$ConCorr_{NEW}$
N	14	14	14	14	14	14	14	14	14	14
UA	1	0.786	-0.513	0.751	-0.725	-0.738	-0.610	-0.796	-0.740	-0.773
	.	(0.001)***	(0.061)*	(0.002)***	(0.003)***	(0.003)***	(0.021)**	(0.001)***	(0.002)***	(0.001)***
PD	0.777	1	-0.068	0.660	-0.332	-0.636	-0.510	-0.676	-0.770	-0.667
	(0.001)***	.	(0.817)	(0.010)**	(0.246)	(0.015)**	(0.062)	(0.008)***	(0.001)***	(0.009)***
IND	-0.679	-0.329	1	-0.440	0.482	0.429	0.262	0.311	0.183	0.312
	(0.008)***	(0.251)	.	(0.115)	(0.081)*	(0.126)	(0.366)	(0.279)	(0.532)	(0.277)
BookTax	0.794	0.733	-0.649	1	-0.481	-0.644	-0.345	-0.544	-0.530	-0.495
	(0.001)***	(0.003)***	(0.012)**	.	(0.081)*	(0.013)**	(0.227)	(0.044)	(0.051)	(0.072)
FinArch	-0.689	-0.288	0.516	-0.526	1	0.349	0.349	0.496	0.292	0.446
	(0.006)***	(0.317)	(0.059)	(0.053)*	.	(0.221)	(0.221)	(0.072)	(0.311)	(0.110)
GDP_{NEW}	-0.797	-0.670	0.783	-0.763	0.336	1	0.688	0.698	0.692	0.675
	(0.001)***	(0.009)***	(0.001)***	(0.002)***	(0.241)	.	(0.007)***	(0.005)***	(0.006)***	(0.008)***
$GovEff_{NEW}$	-0.592	-0.501	0.478	-0.546	0.341	0.673	1	0.744	0.868	0.925
	(0.026)**	(0.068)*	(0.084)*	(0.044)**	(0.233)	(0.008)***	.	(0.002)***	(0.000)***	(0.000)***
$RegQual_{NEW}$	-0.783	-0.733	0.441	-0.634	0.411	0.632	0.821	1	0.839	0.857
	(0.001)***	(0.003)***	(0.114)	(0.015)**	(0.144)	(0.015)**	(0.000)***	.	(0.000)***	(0.000)***
$RuleLaw_{NEW}$	-0.726	-0.752	0.360	-0.681	0.350	0.661	0.886	0.925	1	0.965
	(0.003)***	(0.002)***	(0.206)`	(0.007)***	(0.220)	(0.010)**	(0.000)***	(0.000)***	.	(0.000)***
$ConCorr_{NEW}$	-0.719	-0.665	0.455	-0.608	0.412	0.664	0.921	0.968	0.965	1
	(0.004)***	(0.010)***	(0.102)	(0.021)**	(0.143)	(0.010)***	(0.000)***	(0.000)***	(0.000)***	.

Notes: Pearson correlation coefficients are shown below the diagonal, while Spearman correlation coefficients are shown above the diagonal.

***Correlation is significant at the 0.01 level (2-tailed).

** Correlation is significant at the 0.05 level (2-tailed).

* Correlation is significant at the 0.10 level (2-tailed).

2.8.2.1. 1st country subset

We apply the methodology of the 1st alternative approach and calculate the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test to examine whether the new data from the 1st country subset are appropriate for Principal Component Analysis (PCA). The results in Table 2.24 indicate the data's suitability for PCA, as the KMO value surpasses the 0.50 threshold and the Bartlett's test is significant at the $p<0.01$ level.

Table 2.24: Kaiser-Meyer-Olkin (KMO) and Bartlett's Test (2nd alternative approach- 1st country subset)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0,533
Bartlett's Test of Sphericity	Approx. Chi-Square	151.787
	df	45
	Sig.	.000

Given that we are examining a new set of independent variables, we must decide whether to extract principal components from a covariance or a correlation matrix. The main diagonal of the Covariance Matrix (Table 2.25) indicates that the new set of explanatory variables has significant variance differences due to their different measurement scales. As a result, principal components will be extracted from a correlation matrix.

We use the Kaiser-Guttman criterion and Cattell's scree test to select principal components. The results of PCA using the two criteria indicate that two principal components are extracted that adequately represent the initial ten independent variables. As illustrated in Table 2.26, the first two principal components have an eigenvalue greater than one (Kaiser-Guttman rule) and account for 80,396 % of the total variance, whereas the remaining eight principal components account for nearly 20% of the total variance.

Following component extraction, we perform Kaiser Varimax orthogonal rotation and observe that the cumulative percentage of variation explained by the extracted components remains constant, but the variance is more evenly distributed among the extracted components (Rotation Sums of Squared Loadings column of Table 2.26).

Table 2.25: Covariance Matrix
(2nd alternative approach- 1st country subset)

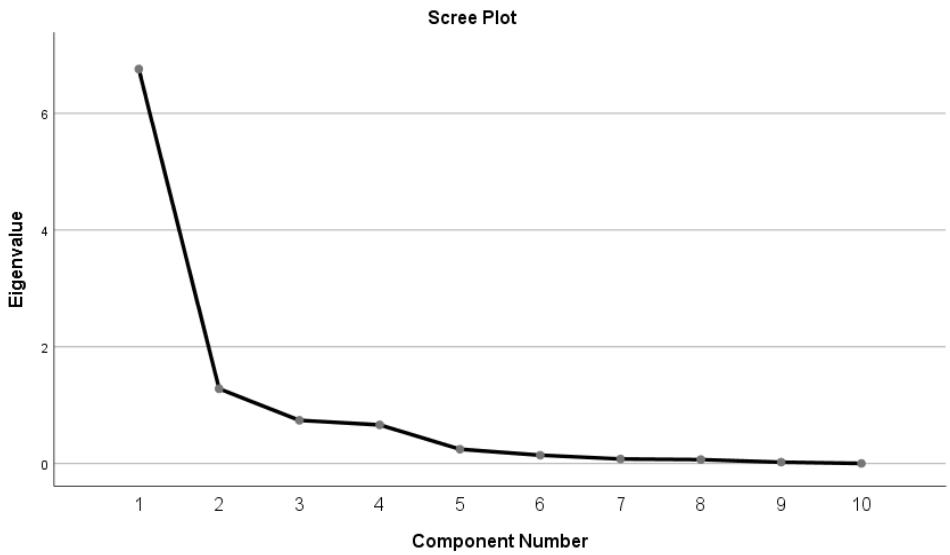
	UA	PD	IND	$GovEff_{2002}$	$RegQual_{2002}$	$RuleLaw_{2002}$	$ConCorr_{2002}$	BookTax	FinArch	GDP_{2001}
UA	**815.36264**									
PD	403.8022	**331.2967**								
IND	-333.4725	-102.9451	**295.802**							
$GovEff_{2002}$	-7.33974	-4.08651	3.44977	**0.19739**						
$RegQual_{2002}$	-7.24104	-4.48417	2.21107	0.11436	**0.1084**					
$RuleLaw_{2002}$	-8.24968	-5.5039	2.42221	0.15602	0.11898	**0.15932**				
$ConCorr_{2002}$	-12.99624	-7.85374	4.70928	0.25742	0.18521	0.24601	**0.40637**			
BookTax	7.4129	4.36457	-3.65233	-0.07699	-0.06536	-0.0887	-0.1243	**0.10703**		
FinArch	-10.60099	-2.82813	4.78143	0.08436	0.07606	0.07582	0.14639	-0.09266	**0.2902**	
GDP_{2001}	-5.89804	-3.15851	3.48831	0.07623	0.05103	0.06805	0.10781	-0.06466	0.0469	**0.0672**

Table 2.26: Total Variance explained by the resulting principal components (2nd alternative approach- 1st country subset)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.76	67.583	67.583	6.76	67.583	67.583	4.68	46.748	46.748
2	1.28	12.813	80.396	1.28	12.813	80.396	3.37	33.648	80.396
3	0.74	7.401	87.797						
4	0.66	6.627	94.424						
5	0.25	2.445	96.869						
6	0.14	1.427	98.296						
7	0.08	0.783	99.079						
8	0.07	0.668	99.747						
9	0.02	0.234	99.981						
10	0	0.019	100						

Cattell's scree test (Figure 2.7) confirms the extraction of two components that jointly account for the majority of total variance. After the second component, we observe a shift in the direction of the curve, which serves as the cut-off point for our decision regarding the selection or principal components.

Figure 2.7: Scree test for principal components selection (2nd alternative approach- 1st country subset)



Following the selection of the first two principal components that adequately capture the majority of information about the independent variables for our analysis, we examine the loadings of each variable on each component.

Table 2.27: Rotated Component Matrix/Component Score Coefficient Matrix
(2^{nd} alternative approach- 1^{st} country subset)

Rotated Component Matrix			***Component Score Coefficient Matrix***		
	Component			Component	
	1	2		1	2
UA	-0.566	-0.760	UA	0.014	-0.237
PD	-0.725	-0.383	PD	-0.164	0.016
IND	0.144	0.887	IND	-0.216	0.435
BookTax	-0.489	-0.733	BookTax	0.035	-0.245
FinArch	0.160	0.726	FinArch	-0.161	0.343
GDP_{2001}	0.525	0.702	GDP_{2001}	-0.012	0.218
$GovEff_{2002}$	0.849	0.252	$GovEff_{2002}$	0.252	-0.124
$RegQual_{2002}$	0.887	0.300	$RegQual_{2002}$	0.252	-0.110
$RuleLaw_{2002}$	0.958	0.248	$RuleLaw_{2002}$	0.296	-0.160
$ConCorr_{2002}$	0.919	0.287	$ConCorr_{2002}$	0.269	-0.127

Table 2.27's Rotated Component Matrix section demonstrates that independent variable loadings vary by principal component. The Power Distance (PD) variable, as well as governance indicators ($GovEff_{2002}$, $RegQual_{2002}$, $RuleLaw_{2002}$ & $ConCorr_{2002}$) have significant loadings (>|0.7|) on the first principal component, whereas the other five explanatory variables (UA, IND, BookTax, FinArch & GDP_{2001}) have significant loadings (>|0.7|) on the second principal component.

We observe that the first principal component primarily measures governance and Power distance, as well as, to a lesser extent, Uncertainty Avoidance (UA loading>|0.5|) and economic development (GDP_{2001} loading >|0.5|). Governance indicators increase in lockstep with economic development, indicating that more developed countries have better governance.

On the other hand, it appears as though quality governance is constrained in countries with a high degree of Power Distance and Uncertainty Avoidance, as evidenced by the fact that governance indicators have an inverse relationship with Power Distance and Uncertainty Avoidance. The relationship between governance and Power Distance is reflected in Hofstede's (1984) conclusion that Power Distance has an

apparent effect on how people develop their institutions and organizations. Correlations between governance indicators and the first principal component indicate that the first principal component is primarily a measure of governance. As a result, the first principal component is labelled as the "Governance Indicator" (GovInd).

The second principal component is a measure of a country's financial orientation, Book-Tax conformity, economic development, Uncertainty Avoidance and Individualism. Economic development, financial orientation, and Individualism all move in the same direction, whereas Uncertainty Avoidance and Book-Tax conformity move in the opposite direction.

Therefore, Uncertainty Avoidance and Book Tax Conformity may be characteristics of less economically developed countries that are bank-based and share a collectivist culture. On the other hand, developed, market-based countries are typically characterized by private initiative and individualism. In light of the correlations between explanatory variables, we refer to the second principal component as "Composite Indicator" (CompInd), as it incorporates a variety of significant country-specific factors.

The Governance and Composite Indicators are calculated by multiplying the coefficients summarized in Table 2.27's Component Score Coefficient Matrix section by the explanatory variables, as shown below:

GovInd:

$$0{,}014*UA-0{,}164*PD-0{,}216*IND+0{,}035*BookTax-0{,}161*FinArch-0{,}012*GDP_{2001}+0{,}252*GovEff_{2002}+0{,}252*RegQual_{2002}+0{,}296*RuleLaw_{2002}+0{,}269*ConCorr_{2002}$$

CompInd:

$$-0{,}237*UA+0{,}016*PD+0{,}435*IND-0{,}245*BookTax+0{,}343*FinArch+0{,}218*GDP_{2001}-0{,}124*GovEff_{2002}-0{,}110*RegQual_{2002}-0{,}160*RuleLaw_{2002}-0{,}127*ConCorr_{2002}$$

Following that, in the following regression models, we use the GovInd and CompInd principal components as independent variables:

2nd alternative approach-1st Country subset

Model 5: $Abs = a_o + a_1 GovInd + a_2 CompInd + \varepsilon_i$

Model 6: $Div = a_o + a_1 GovInd + a_2 CompInd + \varepsilon_i$

Table 2.28 outlines the regression results for Models 5 and 6. As evidenced by the VIF values of the applied principal components, the problem of multicollinearity has been eliminated. As a result, the use of PCR resulted in the formation of uncorrelated components and the elimination of the observed multicollinearity.

Additionally, we observe that country-specific factors have no effect on the degree to which national accounting standards diverge from IAS/IFRS. The Governance and Composite Indicators are not statistically significant explanatory variables for the Divergence Index, and the corresponding model (Model 6) is not statistically significant either (F value:0.766, not statistically significant at the $p<0.05$ level).

In contrast to Model 6, a number of country-specific factors appear to influence the absence of specific IAS/IFRS from national accounting standards. We notice an increase in the R^2 and Adjusted R^2 values of Model 5 when compared to the 1st alternative approach (Model 1).

Besides that, Model 5 has an F value of 5.686 which is statistically significant at the $p<0.05$ level, indicating the model's overall statistical significance. Moreover, the residuals of the model are normally distributed, uncorrelated, and homoscedastic[75].

We observe that the two principal components, GovInd and CompInd differ in terms of significance. GovInd is not a statistically significant determinant of the Absence Index, however CompInd is at the $p<0.01$ level. This leads us to conclude that the aggregate effect of culture, book-tax conformity, financial orientation, and the level of a country's economic development may be more closely related to the absence of specific IAS/IFRS items from national accounting standards than to governance quality.

Furthermore, we notice an increase in CompInd's statistical significance as compared to the ACSFE variable (i.e., used in the 1st alternative approach). Thus, the Composite Indicator may be a better explanatory factor of the Absence Index than the Aggregate Country-Specific Factor Effect.

[75] Kolmogorov-Smirnov test (p-value: 0.200); Runs Test (p-value: 1.000); and Levene's test based on median (p-value: 0.920).

Table 2.28: Principal Component Regression results on the effects of the new set of country-specific factors on the Absence & Divergence Indexes (2^{nd} alternative approach-1^{st} country subset)

Model 5: $Abs=a_o+a_1GovInd+a_2CompInd+\varepsilon_i$ (R^2:0.508, Adj.R^2: 0.419, F: 5.686, (p=0.020))				***Model 6: $Div=a_o+a_1GovInd+a_2CompInd+\varepsilon_i$ (R^2:0.122, Adj.R^2: -0.037, F: 0.766, (p=0.488))***			
	Coefficients	t-stat	VIF		Coefficients	t-stat	VIF
(Constant)	20.857	8.438		(Constant)	30.571	20.313	
	(0.000)***				(0,000)***		
GovInd	-2.612	-1.018	1	GovInd	-1.268	-0.812	1
	(0.330)				(0,434)		
CompInd	-8.247	-3.215	1	CompInd	1.459	0.934	1
	(0.008)***				(0.370)		

Notes: Principal regression coefficients of country-specific factors' effect on the Absence and Divergence Indexes. P-values are presented in parentheses.

∗∗∗ indicates statistical significance at the 1% level.

∗∗ indicates statistical significance at the 5% level.

∗ indicates statistical significance at the 10% level.

This is because the ACSFE index incorporates country-level factors such as Power Distance and governance indicators that were not identified as determining factors in Model 5's Absence Index.

CompInd is also intriguing because of the magnitude and sign of its coefficient. CompInd's coefficient size suggests that the country-specific factors it incorporates have a considerable impact on the Absence Index. By taking into account the positive and negative loadings of the explanatory variables (shown in the Rotated Component Matrix section of Table 2.27), Table 2.29 elucidates the inverse relationship between the Absence Index and the CompInd variable.

Table 2.29: Relation between the Absence Index & CompInd

	Correlation with CompInd		**CompInd coefficient sign**		**Effect on the Absence Index**
UA	-	→		→	Increasing
IND	+	→		→	Decreasing
BookTax	-	→	-	→	Increasing
Fin Arch	+	→		→	Decreasing
GDP_{2001}	+	→		→	Decreasing

As shown in Table 2.29, the negative sign of CompInd's coefficient converts the correlations between the explanatory variables and CompInd into a logical effect on the Absence Index.

The absence of specific IAS/IFRS items from national accounting standards is expected to be greater in less developed, bank-based countries with strong Uncertainty Avoidance, lower Individualism, and closer alignment between accounting and tax rules than in developed, market-based countries with higher Individualism, weaker Uncertainty Avoidance, and lower levels of Book-Tax conformity. As a result, the coefficient of the CompInd variable should be examined in respect to the variables that comprise it, as well as the direction of their in-between correlations.

In contrast to Ding et al. (2005), we find that the absence of national accounting rules on an IAS-covered subject is partially explained by cultural traits. To be more precise, both Uncertainty Avoidance and Individualism have strong relationships with the Composite Indicator, which is a statistically significant explanatory factor for the Absence Index.

Also, our findings are somewhat compatible with those of Ding et al. Ding et al. discover an inverse relationship between the Absence Index and a country's equity market importance. Furthermore, Ding et al. argue that economic development has no bearing on the absence of certain IAS/IFRS items from national accounting standards. On the other hand, our findings indicate that the level of the Absence Index is influenced by not just the importance of the equity market (i.e., the FinArch variable), but also the level of economic development.

The observed differences between our results and those of Ding et al. (2005) and Ding et al. (2007) may be explained by the fact that our analysis is conducted in a different geographical setting and also by the fact that we focus on the effect of the in-between interaction of country-specific factors on the Absence and Divergence Indexes rather than on their individual effects.

2.8.2.2. 2nd country subset

In this section, we employ the same methodology as in the preceding sections (i.e., Principal Component Regression) to determine whether the new set of country-specific factors concerning the 2nd country subset affects the new Absence and Divergence Indexes, and hence Greece's new Indexes.

We first extract the principal components from the explanatory variables using Principal Component Analysis (PCA), and then regress the extracted components against the new Absence and Divergence Indexes.

Table 2.30: Kaiser-Meyer-Olkin (KMO) and Bartlett's Test (2nd alternative approach-2nd country subset)

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.658
Bartlett's Test of Sphericity	Approx. Chi-Square	150.743
	df	45
	Sig.	.000

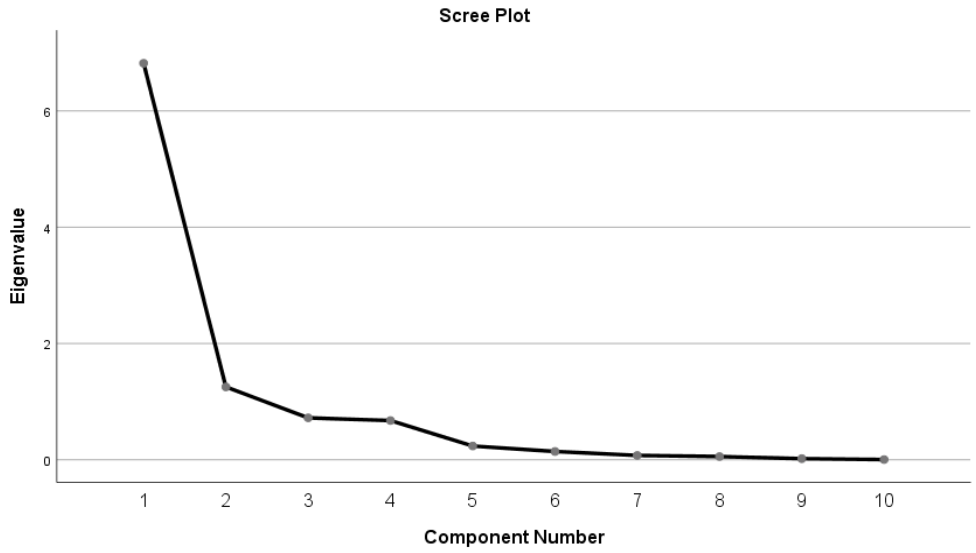
Table 2.31: Covariance Matrix
(2^{nd} alternative approach-2^{nd} country subset)

	UA	PD	IND	$GovEff_{NEW}$	$RegQual_{NEW}$	$RuleLaw_{NEW}$	$ConCorr_{NEW}$	BookTax	FinArch	GDP_{NEW}
UA	**815,36264**									
PD	403,8022	**331,2967**								
IND	-333.47253	-102.94505	**295.8022**							
$GovEff_{NEW}$	-8.13538	-4.38538	3.95308	**0.23133**						
$RegQual_{NEW}$	-8.0522	-4.80747	2.73429	0.14231	**0.12984**					
$RuleLaw_{NEW}$	-8.47549	-5.59637	2.53341	0.1743	0.13623	**0.16721**				
$ConCorr_{NEW}$	-13.95615	-8.22462	5.32308	0.30108	0.22175	0.269	**0.4623**			
BookTax	7.42912	4.37978	-3.65582	-0.08658	-0.07509	-0.09147	-0.13573	**0.10762**		
FinArch	-10.60099	-2.82813	4.78143	0.08835	0.07979	0.07706	0.15088	-0.09278	**0.2902**	
GDP_{NEW}	-5.89758	-3.14593	3.48659	0.08368	0.05892	0.0698	0.11677	-0.06462	0.047	**0.0669**

Table 2.32: Total Variance explained by the resulting principal components (2nd alternative approach-2nd country subset)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.82	68.203	68.203	6.82	68.203	68.203	4.759	47.592	47.592
2	1.253	12.528	80.731	1.253	12.528	80.731	3.314	33.139	80.731
3	0.721	7.21	87.941						
4	0.674	6.742	94.683						
5	0.236	2.364	97.048						
6	0.142	1.424	98.472						
7	0.075	0.751	99.223						
8	0.055	0.55	99.773						
9	0.019	0.192	99.965						
10	0.003	0.035	100						

Figure 2.8: Scree Test (2nd alternative approach-2nd country subset)



The Kaiser-Meyer-Olkin (KMO) test and Bartlett's tests (Table 2.30) indicate that the data from the 2nd country subset are suitable for PCA, since the KMO test surpasses the 0.50 threshold and Bartlett's test is significant at the $p<0.01$ level.

Following that, we determine whether to extract principal components from a covariance or a correlation matrix. As seen by the main diagonal of the relevant Covariance Matrix (Table 2.31), the explanatory variables exhibit a high degree of variance due to their diverse measurement scales. Thus, the principal components will be extracted from a correlation matrix.

We use the Kaiser-Guttman rule and Cattell's scree test to select principal components, as described in the preceding section. The PCA method leads in the extraction of two principal components are extracted that together account for nearly 81% of the total variance (illustrated in Table 2.32). After performing Varimax Orthogonal Rotation with Kaiser's normalization, the first principal component accounts for nearly 47% of the total variance, while the second principal component accounts for 33%.

Additionally, Cattell's scree test (Figure 2.8) demonstrates that the first two principal components were appropriately chosen for our research, as indicated by the direction of the curve following the second principal component.

The correlations (loadings) of the explanatory variables with the extracted principal components are next examined. According to the Rotated Component Matrix section of Table 2.33, the explanatory variables are evenly distributed between the two principal components in terms of correlation significance.

Table 2.33: Rotated Component Matrix/Component Score Coefficient Matrix (2nd alternative approach-2nd country subset)

Rotated Component Matrix			***Component Score Coefficient Matrix***		
	Component			Component	
	1	2		1	2
UA	-0.570	-0.758	UA	0.017	-0.243
PD	-0.714	-0.380	PD	-0.157	0.013
IND	0.185	0.865	IND	-0.201	0.424
BookTax	-0.505	-0.721	BookTax	0.031	-0.242
FinArch	0.131	0.755	FinArch	-0.187	0.380
GDP_{NEW}	0.553	0.676	GDP_{NEW}	0.002	0.203
$GovEff_{NEW}$	0.863	0.248	$GovEff_{NEW}$	0.257	-0.133
$RegQual_{NEW}$	0.893	0.316	$RegQual_{NEW}$	0.247	-0.105
$RuleLaw_{NEW}$	0.960	0.240	$RuleLaw_{NEW}$	0.297	-0.169
$ConCorr_{NEW}$	0.921	0.285	$ConCorr_{NEW}$	0.268	-0.131

Power Distance and governance indicators load significantly (>|0.7|) on the first principal component while Uncertainty Avoidance, Individualism, Book-Tax Conformity, Financial Architecture and a country's economic development indicator (GDP_{NEW}) load significantly on the second principal component.

The loadings of the country-specific factors on the two principal components are analogous to those of the 1st country subset. In terms of the first principal component, we observe that Power Distance has a negative loading, whereas governance indicators have positive loadings. In the second principal component, the variables UA and BookTax have negative loadings, while the variables IND, FinArch and GDP_{NEW} have positive loadings.

We refer to the first principal component as the New Governance Indicator ($GovInd_{NEW}$), as it is primarily concerned with assessing good governance. The second principal component is referred to as the New Composite Indicator ($CompInd_{NEW}$), as it is a composite measure of various country-specific factors.

The Component Score Coefficient Matrix section of Table 2.33 summarizes the coefficients of the independent variables used to compute the scores for $GovInd_{NEW}$ and $CompInd_{NEW}$, as follows:

$GovInd_{NEW}$:

0,017*UA-0,157*PD-0,201*IND+0,031*BookTax-0,187*FinArch-0,002* GDP_{NEW}+0,257* $GovEff_{NEW}$+0,247* $RegQual_{NEW}$+0,297* $RuleLaw_{NEW}$+0,268* $ConCorr_{NEW}$

$CompInd_{NEW}$:

-0,243*UA+0,013*PD+0,424*IND-0,242*BookTax +0,380*FinArch+0,203* GDP_{NEW}-0,133* $GovEff_{NEW}$-0,105* $RegQual_{NEW}$-0,169* $RuleLaw_{NEW}$-0,131* $ConCorr_{NEW}$

Then, using the following regression models, we regress the $GovInd_{NEW}$ and $CompInd_{NEW}$ principal components against the new Absence and Divergence Indexes:

2nd alternative approach-2nd country subset

Model 7: $Abs_{NEW} = a_o + a_1 GovInd_{NEW} + a_2 CompInd_{NEW} + \varepsilon_i$

Model 8: $Div_{NEW} = a_o + a_1 GovInd_{NEW} + a_2 CompInd_{NEW} + \varepsilon_i$

The regression results for Models 7 and 8 are shown in Table 2.34. The VIF values suggest that there is no multicollinearity between the independent variables in either model.

We observe that the country-specific factors included in our analysis do not appear to have a vital role in explaining national accounting standards' divergence from IAS/IFRS. Both $GovInd_{NEW}$ and $CompInd_{NEW}$ are not statistically significant explanatory variables for the new Divergence Index, and the model itself (Model 8) is not statistically significant (F value: 0.515, which is not statistically significant at the $p<0.05$ level). These findings corroborate the findings in the preceding sections, which examined the effect of country-specific factors on the divergence of national accounting standards from IAS/IFRS.

In contrast to the Divergence Index results, Model 7 is statistically significant (F value: 5.336, statistically significant at the 0.05 level), and its R^2 (49,2%) and Adjusted R^2 (40%) values indicate that the model fits well both in our sample and the population. Also, we find no violations of normality, independence, and homoscedasticity for the residuals of Model 7[76].

We observe that the 2nd country subset's country-specific factors are associated with the new Absence Index. This leads us to conclude that these factors contribute to the new Greek Accounting Standards' omission (absence) of specific IAS/IFRS accounting items.

Interestingly, both $GovInd_{NEW}$ and $CompInd_{NEW}$ are statistically significant at the 10% ($p<0.10$) and 5% ($p<0.05$) levels, respectively. As a result, we observe an increase in the statistical significance of the explanatory variables associated with the 2nd country subset when compared to the 1st country subset (where only the Composite Indicator is found to be statistically significant). Because the coefficients of the independent variables (i.e., the extracted components) are negative, the new Absence Index decreases as $GovInd_{NEW}$ and $CompInd_{NEW}$ increase.

[76] Kolmogorov-Smirnov test (p-value:0.119), Runs Test (p-value:0.781) and Levene's test based on median (p-value:0.256).

Table 2.34: Principal Component Regression results on the effects of the new set of country-specific factors on the Absence & Divergence Indexes (2^{nd} alternative approach-2^{nd} country subset)

Model 7: $Abs_{NEW}=a_o+a_1GovInd_{NEW}+a_2CompInd_{NEW}+\varepsilon_i$ (R^2:0.492, Adj.R^2: 0.40, F: 5.336, (p=0.024))

	Coefficients	t-stat	VIF
(Constant)	24.714	5.264	
	(0.000)***		
$GovInd_{NEW}$	-10.688	-2.193	1
	(0.051)*		
$CompInd_{NEW}$	-11.797	-2.421	1
	(0.034)**		

Model 8: $Div_{NEW}=a_o+a_1GovInd_{NEW}+a_2CompInd_{NEW}+\varepsilon_i$ (R^2:0.086, Adj.R^2: -0.081, F: 0.515, (p=0.611))

	Coefficients	t-stat	VIF
(Constant)	30.357	19.196	
	(0.000)***		
$GovInd_{NEW}$	-0.627	-0.382	1
	(0.710)		
$CompInd_{NEW}$	1.543	0.940	1
	(0.367)		

Notes: Principal regression coefficients of country-specific factors' effect on the Absence and Divergence Indexes. P-values are presented in parentheses.

∗∗∗ indicates statistical significance at the 1% level.

∗∗ indicates statistical significance at the 5% level.

∗ indicates statistical significance at the 10% level.

Unlike the 1st country subset, governance and Power Distance have an effect on the 2nd country subset's Absence Index. Given that both independent variables are principal components of a variety of country factors, their effect on the Absence Index should be interpreted in light of the country-specific factor correlations with each component.

To aid in the interpretation of the $GovInd_{NEW}$ principal component/independent variable in relation to the new Absence Index, we construct Table 2.35, which summarizes the major correlations between the explanatory variables and the component (as determined by the Rotated Component Matrix section of Table2. 33) and their effect on the Absence Index.

The negative coefficient of the $GovInd_{NEW}$ principal component converts the negative correlation between Power Distance (PD) and the new Governance Indicator into a positive effect on the new Absence Index. Similarly, the positive association between governance variables and the new Governance Indicator leads in a decreasing effect on the new Absence Index through the $GovInd_{NEW}$'s negative coefficient.

Table 2.35: Relation between the new Absence Index & $GovInd_{NEW}$

	Correlation with $GovInd_{NEW}$		**$GovInd_{NEW}$ coefficient sign**		**Effect on the new Absence Index**
PD	-	→		→	Increasing
$GovEff_{NEW}$	+	→		→	Decreasing
$RegQual_{NEW}$	+	→	-	→	Decreasing
$RuleLaw_{NEW}$	+	→		→	Decreasing
$ConCorr_{NEW}$	+	→		→	Decreasing

As a result, countries with a high Power Distance and poor governance are expected to have higher values for the new Absence Index, whereas countries with a low Power Distance and good governance are expected to have lower values. As previously stated, Hofstede (1984) established a connection between the cultural value of Power Distance and the way societies construct their institutions. With this in mind, it is

reasonable to conclude that Power Distance is mirrored in the way countries construct their governance structures.

The inverse relation between the $CompInd_{NEW}$ independent variable and the new Absence Index is interpreted similarly to $GovInd_{NEW}$'s interpretation. As illustrated in Table 2.36, the negative coefficient of the $CompInd_{NEW}$ principal component converts the correlations of the relevant variables into a consequential effect on the new Absence Index.

Thus, the negative correlations between Uncertainty Avoidance, Book-Tax Conformity and the new Composite Indicator, result in an increasing effect on the new Absence Index. On the other hand, the positive correlations between Individualism, Financial Architecture, GDP and the new Composite Indicator lead in a decreasing effect on the new Absence Index.

On that basis, bank-based countries that are characterized by higher levels of Book-Tax conformity, are less developed and their cultural systems prioritize Uncertainty Avoidance over Individualism, are expected to have less developed national accounting standards, as measured by the absence of IAS/IFRS accounting items.

Table 2.36: Relation between the new Absence Index & $CompInd_{NEW}$

	Correlation with $CompInd_{NEW}$		**$CompInd_{NEW}$ coefficient sign**		**Effect on the new Absence Index**
UA	-	→		→	Increasing
IND	+	→		→	Decreasing
BookTax	-	→	-	→	Increasing
Fin Arch	+	→		→	Decreasing
GDP_{NEW}	+	→		→	Decreasing

However, market-based, developed countries that promote Individualism and have a low propensity for Uncertainty Avoidance are expected to have more refined national accounting standards and consequently fewer absent IAS/IFRS accounting items.

Model 7's regression findings revealed many significant relationships between country-specific factors and the extent to which specific accounting rules are not

covered by national accounting standards but are covered by IAS/IFRS (i.e., the Absence Index). The quality of governance and the role of culture in the formation of governmental institutions have an impact on the accounting decisions made by countries when adopting internationally accepted accounting standards.

Additionally, the regression results from Model 7 corroborated those from Model 5 of the 1st alternative approach regarding the effect of a diverse set of country-specific characteristics on the Absence Index. Specifically, the level of economic development, the capital market or bank orientation of a country's financial system, the influence of taxation on accounting, and specific cultural norms (i.e., Uncertainty Avoidance & Individualism) all influence the level of IAS/IFRS accounting items missing from national accounting standards.

In the case of Greece, the regression results from Model 7 are critical because they provide, at the very least, some justifications for specific accounting choices incorporated in the new Greek Accounting Standards.

Up to this point, the causes of the difference between the new Greek Accounting Standards and IAS/IFRS have been merely theorized, never proven. Model 7's regression results provide plausible explanations for the absence of certain IAS/IFRS items in Greece's new accounting framework. Specifically, factors such as the state's indirect intervention in the formation of accounting standards through the close relationship between tax rules and accounting; the bank-based orientation of Greece's financial system and the resulting lower need for sophisticated accounting standards; Greece's economic development level and governance quality; and finally, Greece's unique cultural profile have all played a significant role in the formation of accounting standards.

2.9. Robustness Tests

We examine the robustness of our findings in relation to both the 1st and 2nd alternative approaches. To assess the validity of the relevant outcomes, we construct an international sample of 31 countries.

The international sample is constructed based on the availability of data at all levels (dependent, independent, and control variables) for the new sample countries. We note that data for the BookTax independent variable (i.e., the level of a country's Book-Tax conformity developed by Watrin et al., 2012) are not available for countries outside Europe, as Watrin et al.'s (2012) research is conducted at the European level. To address this shortcoming, we replace Watrin et al.'s (2012) measure of Book-Tax

conformity with Tang's (2015) measure, which covers a large number of countries on an international scale.

Tang (2015) constructs her measure[77] of Book-Tax Conformity by using the regulatory sources of book-tax differences. One of the main differences between the two measures of Book-Tax Conformity is that Watrin et al. (2012) build their measure on the basis of unconsolidated financial statements, whereas Tang (2015) develops her measure utilizing consolidated financial statements and tax statements. Also, Watrin et al. (2012) apply unsigned permanent book-tax differences to measure conformity while Tang (2015) uses both permanent and temporary differences to estimate book-tax differences.

Despite their differences, both measures capture the essence of Book-Tax Conformity, while Tang's (2015) measure also provides information on countries' level of accounting and taxation alignment on a global scale. Thus, substituting Watrin et al.'s (2012) for Tang's (2015) measure not only serves our objective of examining the robustness of our findings across a larger set of countries, but also provides fertile ground for testing the efficiency of Tang's (2015) measure.

Table 2.37: Robustness Tests' sample of countries

EUROPE	ASIA	NORTH AMERICA	SOUTH AMERICA	OCEANIA	AFRICA
Austria	Hong Kong	United States	Brazil	Australia	South Africa
Belgium	Japan	Canada	Chile	New Zealand	
Denmark	India	Mexico			
Finland	Indonesia				
France	Malaysia				
Germany	Philippines				
Greece	South Korea				
Italy	Singapore				
Netherlands	Thailand				
Spain					
Sweden					
Norway					
Switzerland					
United Kingdom					

[77] A detailed analysis of Tang's measure of Book-Tax conformity is included in her seminal 2015 paper "Does Book-Tax Conformity Deter Opportunistic Book and Tax Reporting? An International Analysis", European Accounting Review, 24:3, 441-469.

We remove Ireland and Portugal from our initial sample due to a lack of data on Tang's (2015) Book-Tax Conformity metric and add 19 countries for which data are available. Table 2.37 summarizes the final sample composition, which consists of 31 countries throughout all continents.

Following sample selection, we employ the technique of the 1st and 2nd alternative approaches to determine if the reported results in sections 2.8.1 and 2.8.2 change as a result of the sample countries' heterogeneity.

2.9.1. 1st alternative approach

The Absence and Divergence dependent variables are derived from Ding et al. (2007) and Ding et al. (2009). The remaining independent variables (Uni/Stat, Cons, FinArch, Area, and GDP) remain unchanged, with the exception of the Governance Quality (GovQual) variable[78], which is recalculated for the new sample of countries, and the Book-Tax Conformity (BookTax) variable, which is derived from Tang (2015). The following Tables detail the variable definitions for the two country subsets:

Table 2.38: Variable Names & Definitions (1st country subset)

Variable Name	*Definition*
Div_{ROB}	The Divergence Indexes for the 31 sample countries (Source: Ding et al., 2007; Ding et al., 2009)
Abs_{ROB}	The Absence Indexes for the 31 sample countries (Source: Ding et al., 2007; Ding et al., 2009)
$Uni/Stat_{ROB}$	Gray's Uniformity/Statutory Control Accounting Values (Sources: Gray, 1988; Hope et al., 2008)
$Cons_{ROB}$	Gray's Conservatism Accounting Value (Sources: Gray, 1988; Hope et al., 2008)
$BookTax_{ROB}$	Book-Tax Conformity score for the 31 sample countries (Source: Tang, 2015)
$FinArch_{ROB}$	Financial Architecture score for the 31 sample countries (Source: Demirgüç-Kunt & Levine, 2001)
$GovQual_{ROB2002}$	The first principal component of World Bank's Governance Indicators (Government Effectiveness, Regulatory Quality, Rule of Law and Control of Corruption) for the 31 sample countries in 2002 (Source: World Bank)
$Area_{ROB}$	The natural logarithm of the geographical area of the 31 sample countries (Source: www.worldatlas.com)
$GDP_{ROB2001}$	The natural logarithm of the gross domestic product per capita (in constant 2010 US dollars) of the 31 sample countries in 2001 (Source: World Bank)

[78] Calculations of the GovQual variable, used in robustness tests, are included in Appendix F of the current Chapter.

Table 2.39: Variable Names & Definitions (2nd country subset)

Variable Name	*Definition*
Div_{ROBNEW}	Greece's new Divergence Index and the Divergence Index drawn from Ding et al. (2007) and Ding et. al (2009) for the rest 30 sample countries
Abs_{ROBNEW}	Greece's new Absence Index and the Absence Index drawn from Ding et al. (2007) and Ding et. al (2009) for the rest 30 sample countries
$Uni/Stat_{ROB}$	Gray's Uniformity/Statutory Control Accounting Values (Sources: Gray,1988; Hope et al., 2008)
$Cons_{ROB}$	Gray's Conservatism Accounting Value (Sources: Gray, 1988; Hope et al., 2008)
$BookTax_{ROB}$	Book-Tax Conformity score for the 31 sample countries (Source: Tang, 2015)
$FinArch_{ROB}$	Financial Architecture score for the 31 sample countries (Source: Demirgüç-Kunt and Levine, 2001)
$GovQual_{ROBNEW}$	The first principal component of World Bank's Governance Indicators (Government Effectiveness, Regulatory Quality, Rule of Law and Control of Corruption) for Greece from 2002 to 2014 and the first principal component of World Bank's Governance Indicators (Government Effectiveness, Regulatory Quality, Rule of Law and Control of Corruption) for the rest 30 sample countries in 2002 (Source: World Bank)
$Area_{ROB}$	The natural logarithm of the geographical area of 31 sample countries (Source: www.worldatlas.com)
GDP_{ROBNEW}	The natural logarithm of Greece's gross domestic product per capita (in constant 2010 US dollars) averaged from 2002 to 2014 and the natural logarithm of the gross domestic product per capita (in constant 2010 US dollars) for the rest 30 sample countries in 2001 (Source: World Bank)

Following that, we perform Principal Component Analysis (PCA) and Principal Component Regression (PCR), as the preceding sections demonstrated that the applied independent variables are highly correlated, necessitating the resolution of probable multicollinearity issues.

2.9.1.1. 1st country subset & 2nd country subset

To facilitate comparison, the PCA results are shown in Tables 2.40 and 2.41 and the PCR results in Tables 2.42 and 2.43.

To begin, we examine the suitability of both sets of data for PCA. The Kaiser-Meyer Olkin (KMO) and Bartlett's sphericity tests (reported in Tables 2.40 & 2.41) indicate that both sets of data are suitable for PCA (KMO test >0.5 and Bartlett's test is

significant at $p<0.01$). We extract principal components from a correlation matrix due to the varying measurement scale of the explanatory variables.

PCA results in the extraction of six principal components for both sets, however only the first two components are selected for our analysis. As demonstrated by the Kaiser-Guttman rule (eigenvalues>1) and Cattell's scree test, the first two components account for the majority of the variance (approximately 76,3 %). Unlike the PCA of the 1st alternative approach concerning the main tests, which yielded a single principal component (ACSFE & $ACSFE_{NEW}$), the PCA of the new data set yields two principal components, revealing unique relationships between the independent variables.

In both sets, the first principal component is highly correlated (loadings>|0.7|) with Uniformity/Statutory Control and Conservatism, Governance Quality and economic development (GDP), whereas the second principal component is highly correlated with Book-Tax Conformity and financial orientation.

Additionally, while Uniformity/Statutory Control and Conservatism have negative loadings on the first principal component, Governance Quality and economic development load positively on the first principal component. On the other hand, Book-Tax Conformity and financial orientation load on the second principal component positively and negatively, respectively.

Due to the observed correlations between the extracted components and country-specific factors, we refer to the first principal component of the 1st and 2nd country subsets as ACCGOVED and $ACCGOVED_{NEW}$, respectively, because they are composite measures of a country's accounting values, governance quality, and economic development.

The Rotated Component Matrix section of Tables 2.40 and 2.41 summarizes the major correlations between the explanatory variables and ACCGOVED and $ACCGOVED_{NEW}$. The ACCGOVED and $ACCGOVED_{NEW}$ values increase for developed countries with superior governance and low levels of Uniformity, Statutory Control, and Conservatism in their accounting infrastructure. As a result, the value of ACCGOVED and $ACCGOVED_{NEW}$ decreases for less-developed, poorly governed countries that place a high premium on accounting system Uniformity, Statutory Control, and Conservatism.

Table 2.40: Principal Component Analysis results (Robustness tests: 1st alternative approach-1st country subset)

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.576
Bartlett's Test of Sphericity	Approx. Chi-Square	143.307
	df	15
	Sig.	0

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.006	50.102	50.102	3.006	50.102	50.102	2.982	49.706	49.706
2	1.567	26.113	76.215	1.567	26.113	76.215	1.591	26.51	76.215
3	0.832	13.87	90.086						
4	0.471	7.844	97.93						
5	0.095	1.583	99.513						
6	0.029	0.487	100						

Rotated Component Matrix

	Component	
	1	2
$Uni/Stat_{ROB}$	-0.904	0.247
$Cons_{ROB}$	-0.782	0.494
$BookTax_{ROB}$	0.007	0.853
$FinArch_{ROB}$	-0.003	-0.649
$GovQual_{ROB2002}$	0.916	0.142
$GDP_{ROB2001}$	0.845	0.341

Component Score Coefficient Matrix

	Component	
	1	2
$Uni/Stat_{ROB}$	-0.296	0.121
$Cons_{ROB}$	-0.245	0.282
$BookTax_{ROB}$	0.036	0.54
$FinArch_{ROB}$	-0.026	-0.411
$GovQual_{ROB2002}$	0.315	0.126
$GDP_{ROB2001}$	0.298	0.249

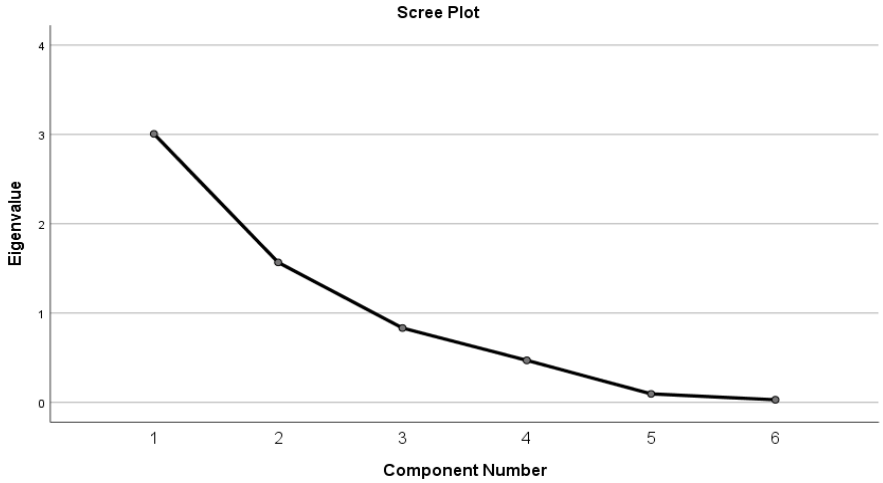


Figure 2.9: Scree Test (Robustness tests: 1st alternative approach-1st country subset)

Table 2.41: Principal Component Analysis results (Robustness tests: 1st alternative approach-2nd country subset)

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.581
Bartlett's Test of Sphericity	Approx. Chi-Square	142.533
	df	15
	Sig.	0

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.013	50.213	50.213	3.013	50.213	50.213	2.989	49.822	49.822
2	1.564	26.059	76.272	1.564	26.059	76.272	1.587	26.45	76.272
3	0.829	13.813	90.085						
4	0.467	7.784	97.869						
5	0.099	1.642	99.512						
6	0.029	0.488	100						

Rotated Component Matrix

	Component	
	1	2
$Uni/Stat_{ROB}$	-0.907	0.239
$Cons_{ROB}$	-0.787	0.487
$BookTax_{ROB}$	0.003	0.853
$FinArch_{ROB}$	-0.001	-0.652
$GovQual_{ROBNEW}$	0.920	0.135
GDP_{ROBNEW}	0.837	0.347

Component Score Coefficient Matrix

	Component	
	1	2
$Uni/Stat_{ROB}$	-0.296	0.117
$Cons_{ROB}$	-0.246	0.279
$BookTax_{ROB}$	0.034	0.542
$FinArch_{ROB}$	-0.026	-0.414
$GovQual_{ROBNEW}$	0.315	0.121
GDP_{ROBNEW}	0.295	0.253

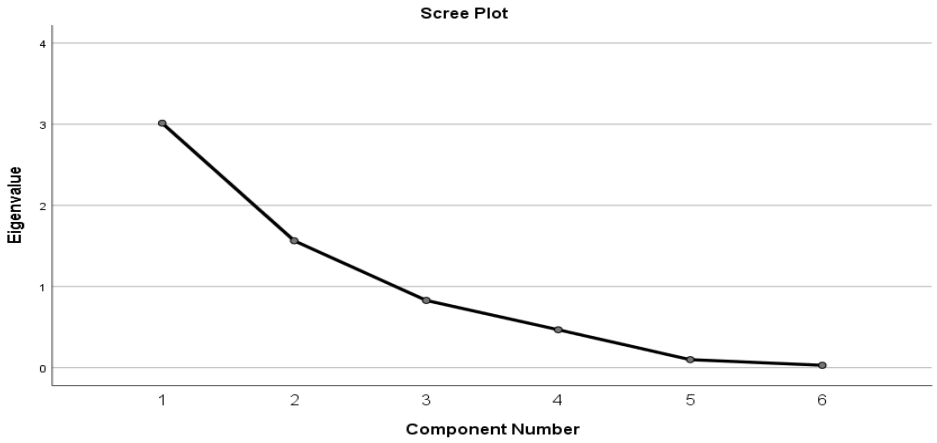


Figure 2.10: Scree Test (Robustness tests: 1st alternative approach-2nd country subset)

The second principal component of the 1st and 2nd country subsets is denoted by the terms BOOKFIN and $BOOKFIN_{NEW}$, respectively, because it represents an interaction term between a country's level of book-tax conformity and its financial orientation. Correlations between explanatory variables and BOOKFIN and $BOOKFIN_{NEW}$ are tabulated in Tables 2.40 and 2.41, respectively, under the Rotated Component Matrix section. The values of BOOKFIN and $BOOKFIN_{NEW}$ increase in bank-based countries with a high level of book-tax conformity and decrease in market-based countries with a low level of book-tax conformity.

The extracted principal components are then regressed against the Absence and Divergence Indexes for both country subsets using the following regression models:

1st alternative approach-1st Country subset (Robustness tests)

Model 9: $Abs_{ROB} = a_o + a_1 ACCGOVED + a_2 BOOKFIN + \varepsilon_i$

Model 10: $Div_{ROB} = a_o + a_1 ACCGOVED + a_2 BOOKFIN + \varepsilon_i$

1st alternative approach-2nd Country subset (Robustness tests)

Model 11: $Abs_{ROBNEW} = a_o + a_1 ACCGOVED_{NEW} + a_2 BOOKFIN_{NEW} + \varepsilon_i$

Model 12: $Div_{ROBNEW} = a_o + a_1 ACCGOVED_{NEW} + a_2 BOOKFIN_{NEW} + \varepsilon_i$

Tables 2.42 and 2.43 present the regression results for both country subsets. The residuals of all models exhibit no violations of normality, independence, or homoscedasticity[79]. In contrast to the findings of the main tests regarding the 1st alternative approach, country-specific factors appear to have a substantial role in the divergence of national accounting standards from IAS/IFRS.

Specifically, in both country subsets, the models examining the effect of the ACCGOVED and BOOKFIN explanatory variables on the Divergence Indexes show high F values that are statistically significant at the $p<0.01$ level, indicating that the relevant models are statistically significant.

[79] Kolmogorov-Smirnov's test, Runs test and Levene's test based on median have p-values >0.05.

Table 2.42: Principal Component Regression results (Robustness tests: 1st alternative approach-1st country subset)

Model 9: $Abs_{ROB}=a_o+a_1ACCGOVED+a_2BOOKFIN+\varepsilon_i$ (R^2:0.181, Adj.R^2: 0.122, F: 3.085, (p=0.062))				***Model 10 : $Div_{ROB}=a_o+a_1ACCGOVED+a_2BOOKFIN+\varepsilon_i$ (R^2:0.553, Adj.R^2: 0.521, F: 17.333, (p=0.000))***			
	Coefficients	t-stat	VIF		Coefficients	t-stat	VIF
(Constant)	19.156	9.937		(Constant)	22.581	20.800	
	(0.000)***				(0.000)***		
ACCGOVED	-2.066	-1.035	1	ACCGOVED	4.156	3.766	1
	(0.310)				(0.001)***		
BOOKFIN	4.508	2.258	1	BOOKFIN	4.995	4.526	1
	(0.032)**				(0.000)***		

Notes: Principal regression coefficients of country-specific factors' effect on the Absence and Divergence Indexes. P-values are presented in parentheses.

*** indicates statistical significance at the 1% level.

** indicates statistical significance at the 5% level.

* indicates statistical significance at the 10% level.

Table 2.43: Principal Component Regression results (Robustness tests: 1st alternative approach-2nd country subset)

Model 11: $Abs_{ROBNEW}=a_o+a_1ACCGOVED_{NEW}+a_2BOOKFIN_{NEW}+\varepsilon_i$ (R^2:0.196, Adj.R^2: 0.139, F: 3.417, (p=0.047))				***Model 12: $Div_{ROBNEW}=a_o+a_1ACCGOVED_{NEW}+a_2BOOKFIN_{NEW}+\varepsilon_i$ (R^2:0.554, Adj.R^2: 0.523, F: 17.418, (p=0.000))***			
	Coefficients	t-stat	VIF		Coefficients	t-stat	VIF
(Constant)	21.258 (0.000)***	7.315		(Constant)	22.484 (0.000)***	20.847	
$ACCGOVED_{NEW}$	-4.067 (0.179)	-1.377	1	$ACCGOVED_{NEW}$	4.222 (0.001)***	3.851	1
$BOOKFIN_{NEW}$	6.565 (0.035)**	2.222	1	$BOOKFIN_{NEW}$	4.904 (0.000)***	4.473	1

Notes: Principal regression coefficients of country-specific factors' effect on the Absence and Divergence Indexes. P-values are presented in parentheses.
*** indicates statistical significance at the 1% level.
** indicates statistical significance at the 5% level.
* indicates statistical significance at the 10% level.

Also, both sets' Divergence Index models exhibit overall significant explanatory power, as their R^2 and Adjusted R^2 values are more than satisfactory (55.3 % and 52.3%, respectively). Further, the independent variables ACCGOVED and BOOKFIN are statistically significant at the $p<0.01$ level in both sets, indicating that they have significant explanatory power for the Divergence Indexes of both sets.

This substantial change in results when compared to the 1st alternative approach of the main tests (i.e., where only EU countries are examined) is due to the inclusion of countries with characteristics that are fundamentally different from those of EU countries. The expanded sample includes some of the world's major economies and G-20 members, including the United States of America, Australia, Japan, Canada, India, Indonesia, Mexico, South Africa, and South Korea. As Ding et al. highlight, more developed and wealthy countries place a higher value on their own accounting standards and are less receptive to embrace those of other countries or organizations.

Additionally, this major shift in results is due to the fact that country-specific factors have a different influence on the international sample of countries. This effect is shown in the positive coefficient sign of ACCGOVED, $ACCGOVED_{NEW}$, BOOKFIN, and $BOOKFIN_{NEW}$, and should be compared to the correlations between the independent variables (e.g., Uni/Stat, Cons, BookTax, GovQual) and the aforementioned extracted components (shown in the Rotated Component Matrix section of Tables 2.40 and 2.41, respectively).

The effect of the extracted components on the Divergence Indexes of both sets is presented in Table 2.44. Panels A and B of Table 2.44 indicate that the impact of the extracted components (ACCGOVED - $ACCGOVED_{NEW}$ – BOOKFIN - $BOOKFIN_{NEW}$) is dependent on the dominance of several country-specific factors over others. The Divergence Index will increase in instances where economic development and governance quality outweigh Uniformity, Statutory Control, and Conservatism. Similarly, when the importance and growth of capital markets play an important role in a country's profile and there are no strong links between tax and accounting standards, the Divergence Index decreases.

Table 2.44: Relation between the Divergence Indexes & ACCGOVED - $ACCGOVED_{NEW}$ – BOOKFIN - $BOOKFIN_{NEW}$

***Panel A: Relation between the Divergence Indexes &* ACCGOVED - $ACCGOVED_{NEW}$**

	Correlation with ACCGOVED & $ACCGOVED_{NEW}$		ACCGOVED & $ACCGOVED_{NEW}$ coefficient sign		Effect on the Divergence Index
Uni/Stat	-	→	+	→	Decreasing
Cons	-	→		→	Decreasing
GovQual	+	→		→	Increasing
GDP	+	→		→	Increasing

***Panel B: Relation between the Divergence Indexes &* BOOKFIN & $BOOKFIN_{NEW}$**

	Correlation with BOOKFIN & $BOOKFIN_{NEW}$		BOOKFIN & $BOOKFIN_{NEW}$ coefficient sign		Effect on the Divergence Index
BookTax	+	→	+	→	Increasing
Fin Arch	-	→		→	Decreasing

We observe that converting the EU country sample to an international country sample has had a significant effect on the results for both country subsets' Divergence Indexes. This leads us to conclude that characteristics such as governance quality, culture, book-tax conformity, and market or bank-based orientation all have a significant impact on the accounting choices made by each country. Additionally, the combination of these elements results in globally distinct accounting options for each country. Thus, it appears the country-factors of our analysis have an effect on the divergence of national accounting standards in non-European contexts.

Moving on to the regression results for the Absence Indexes for both country subsets, we notice that the results are significantly different from the main tests. Although both models (i.e., Models 9 and 11) are statistically significant at the $p<0.10$ and $p<0.05$ levels, respectively, their explanatory power has been significantly reduced[80]. Additionally, only BOOKFIN and $BOOKFIN_{NEW}$ are statistically significant at the level in explaining the Absence Indexes in both sets, but ACCGOVED and $ACCGOVED_{NEW}$ are not.

The inclusion of countries that are global economic forces in the initial EU sample results in different outcomes and, thus, different conclusions. Contrary to the main tests' findings, the absence of IAS/IFRS items from national accounting standards is not observed in developed countries with developed capital markets, as these

[80] Model 9 Adjusted R^2:12,2% and Model 11 Adjusted R^2:13,9%.

countries would have established their own set of comprehensive and detailed accounting standards, even if they vary from IAS, as Ding et al. mention. Only the interaction of Book-Tax conformity and financial orientation (BOOKFIN & $BOOKFIN_{NEW}$ variables) appears to have an effect on the Absence Index in both sets, although this effect must be weighed against the models' total explanatory power. By and large, the robustness tests for the 1st alternative approach indicate that developed countries outside Europe are more committed to diverging from IAS/IFRS than to omitting specific IAS/IFRS items from their accounting standards, owing to their significantly different characteristics from EU countries.

Indeed, as illustrated in Tables 2.42 and 2.43, these characteristics of non-EU countries significantly contribute to the diversification of the explanatory variable effects on both the Divergence and Absence Indexes. As a result of the interaction of the country-specific factors contained in ACCGOVED, $ACCGOVED_{NEW}$, BOOKFIN, and $BOOKFIN_{NEW}$, the Divergence Index models (i.e., Models 10 & 12) have a higher statistical significance than the Absence Index models (i.e., Models 9 & 11).

Additionally, despite the fact that nearly half of the international sample consists of EU countries (14 countries including the United Kingdom), the differentiation of results between the main tests[81] and the robustness tests[82] of the 1st alternative approach demonstrates that there cannot be uniformity of conclusions regarding the effect of several country-specific factors when accounting differences are examined on an international level.

Of course, the findings of the robustness tests for the 1st alternative approach do not show that Greece's new accounting standards diverge from IAS/IFRS as a result of the country-specific factors that were used. On the contrary, Greece, as a member of the EU cluster, should be evaluated in light of the findings of the main tests of the 1st alternative approach, which indicate that the combined effect of country-specific factors influences absence rather than divergence from IAS/IFRS.

[81] Statistical significance of the Absence Index models & statistical insignificance of the Divergence Index models.

[82] High statistical significance of the Divergence Index models & lower statistical significance of the Absence Index models.

2.9.2. 2nd alternative approach

This section employs a methodology similar to that used in the 2nd alternative approach of the main tests (i.e., section 2.8.2.). Gray's Uniformity/Statutory Control and Conservatism variables are decomposed into Hofstede's original cultural values (i.e., Uncertainty Avoidance, Individualism, and Power Distance) and the aggregate Governance Quality variable is decomposed into the four World Bank governance indicators that comprise it (i.e., Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption).

Following decomposition of the relevant variables, we employ PCA to address difficulties of multicollinearity caused by high correlations between the explanatory variables. After that, we use PCR to regress the principal components generated from PCA on the Absence and Divergence Indexes for both country subsets.

Tables 2.45 and 2.46 present only the definitions of the decomposed variables for each country subset, as the remaining variables (dependent and independent) are identical to those reported in Section 2.9.1.:

Table 2.45: Decomposed Variable Names & Definitions (1st country subset)

Variable Name	*Definition*
UA_{ROB}	Hofstede's Uncertainty Avoidance score for each of the 31 sample countries (Source: Hofstede,1984)
PD_{ROB}	Hofstede's Power Distance score for each of the 31 sample countries (Source: Hofstede,1984)
IND_{ROB}	Hofstede's Individualism score for each of the 31 sample countries (Source: Hofstede,1984)
$GovEff_{ROB2002}$	The World Bank's Government Effectiveness Indicator for each of the 31 sample countries in 2002 (Source: World Bank)
$RegQual_{ROB2002}$	The World Bank's Regulatory Quality Indicator for each of the 31 sample countries in 2002 (Source: World Bank)
$RuleLaw_{ROB2002}$	The World Bank's Rule of Law Indicator for each of the 31 sample countries in 2002 (Source: World Bank)
$ConCorr_{ROB2002}$	The World Bank's Control of Corruption Indicator for each of the 31 sample countries in 2002 (Source: World Bank)

Table 2.46: Decomposed Variable Names & Definitions (2nd country subset)

Variable Name	*Definition*
UA_{ROB}	Hofstede's Uncertainty Avoidance score for each of the 31 sample countries (Source: Hofstede,1984)
PD_{ROB}	Hofstede's Power Distance score for each of the 31 sample countries (Source: Hofstede,1984)
IND_{ROB}	Hofstede's Individualism score for each of the 31 sample countries (Source: Hofstede,1984)
$GovEff_{ROBNEW}$	The average of the World Bank's Government Effectiveness Indicator for Greece from 2002 to 2014 and the World Bank's Government Effectiveness Indicator for the rest 30 sample countries in 2002 (Source: World Bank)
$RegQual_{ROBNEW}$	The average of the World Bank's Regulatory Quality Indicator for Greece from 2002 to 2014 and the World Bank's Regulatory Quality Indicator for the rest 30 sample countries in 2002 (Source: World Bank)
$RuleLaw_{ROBNEW}$	The average of the World Bank's Rule of Law Indicator for Greece from 2002 to 2014 and the World Bank's Rule of Law Indicator for the rest 30 sample countries in 2002 (Source: World Bank)
$ConCorr_{ROBNEW}$	The average of the World Bank's Control of Corruption Indicator for Greece from 2002 to 2014 and the World Bank's Control of Corruption Indicator for the rest 30 sample countries in 2002 (Source: World Bank)

The following section summarizes the PCA and PCR results for both sets.

2.9.2.1. 1st country subset & 2nd country subset

To begin, we determine whether both sets of data are suitable for PCA. The Kaiser-Meyer-Olkin (KMO) and Bartlett's tests (Tables 2.47 & 2.48) demonstrate that the necessary prerequisites have been met and that the data are suitable for PCA. According to Tables 2.47 and 2.48, PCA extracts ten principal components for each country subset, however after using the Kaiser-Guttman criteria (eigenvalues>1) and Cattell's scree test, only the two first principal components are selected.

Kaiser Varimax orthogonal rotation is used in the selected components that account for nearly 75% of the total variance of the independent variables in both sets, with the first principal component accounting for nearly 58% of the total variance and the second principal component accounting for nearly 19% of the total variance.

According to the Rotated Component Matrix section of Tables 2.47 & 2.48, seven of the explanatory variables load significantly on the first extracted component and the remaining three variables load significantly on the second principal component.

Specifically, governance indicators, economic development and Individualism all correlate positively with the first principal component, whereas Power Distance relates negatively to the relevant component. Uncertainty Avoidance and Book-Tax conformity, on the other hand, are positively associated with the second principal component, whilst financial orientation is negatively correlated with the relevant component.

Taking into account the correlations discussed above, we refer to the first principal component as the Institutional Quality Index ($IQI_{ROB2002}$ for the 1st country subset & IQI_{ROBNEW} for the 2nd country subset).

According to PwC's 2019 "*Culture shapes up institutions*" report, a country's institutional quality is significantly tied to its wealth. Also, according to PwC's relevant report, Individualism is a positive driver of institutional quality, whereas Power Distance is among the negative drivers of institutional quality.

We notice that the Institutional Quality Index incorporates numerous of the observations made in the aforementioned PwC's 2019 report about the relationship between a country's wealth, cultural values, and institutions. As a result, IQI increases in highly developed countries, which are generally defined by individualism, low power distance, and good governance. On the other hand, in collectivist countries with lower wealth and governance power, IQI decreases.

The second principal component highlights the relations between different but equally important country features. Specifically, the second principal component partially reflects Kwok and Tadesse's (2006) finding regarding the bank-based orientation of countries with high Uncertainty Avoidance.

The component's positive correlation with Uncertainty Avoidance and Book-Tax Conformity and its negative correlation with financial orientation indicate that the close alignment of tax laws and accounting standards is a characteristic of bank-based countries that have a greater need for rules that constrain uncertainty. The value of the second principal component decreases in cases of market-based countries, with lower levels of book-tax conformity and a preference for practice over stringent rules and principles.

Table 2.47: Principal Component Analysis results (Robustness tests: 2nd alternative approach-1st country subset)

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.790
Bartlett's Test of Sphericity	Approx. Chi-Square	340.447
	df	45
	Sig.	0

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.777	57.773	57.773	5.777	57.773	57.773	5.776	57.762	57.762
2	1.966	19.657	77.43	1.966	19.657	77.430	1.967	19.668	77.430
3	0.904	9.044	86.474						
4	0.477	4.769	91.243						
5	0.42	4.203	95.445						
6	0.213	2.128	97.573						
7	0.124	1.238	98.811						
8	0.073	0.732	99.543						
9	0.03	0.297	99.84						
10	0.016	0.16	100						

Rotated Component Matrix

	Component	
	1	2
UA_{ROB}	-0.144	0.850
PD_{ROB}	-0.828	-0.178
IND_{ROB}	0.726	0.083
$BookTax_{ROB}$	0.117	0.768
$FinArch_{ROB}$	-0.056	-0.748
$GDP_{ROB2001}$	0.913	0.153
$GovEff_{ROB2002}$	0.965	-0.050
$RegQual_{ROB2002}$	0.938	-0.121
$RuleLaw_{ROB2002}$	0.969	-0.009
$ConCorr_{ROB2002}$	0.972	-0.123

Component Score Coefficient Matrix

	Component	
	1	2
UA_{ROB}	-0.030	0.433
PD_{ROB}	-0.142	-0.086
IND_{ROB}	0.125	0.038
$BookTax_{ROB}$	0.016	0.390
$FinArch_{ROB}$	-0.005	-0.380
$GDP_{ROB2001}$	0.157	0.072
$GovEff_{ROB2002}$	0.167	-0.031
$RegQual_{ROB2002}$	0.163	-0.067
$RuleLaw_{ROB2002}$	0.168	-0.010
$ConCorr_{ROB2002}$	0.169	-0.068

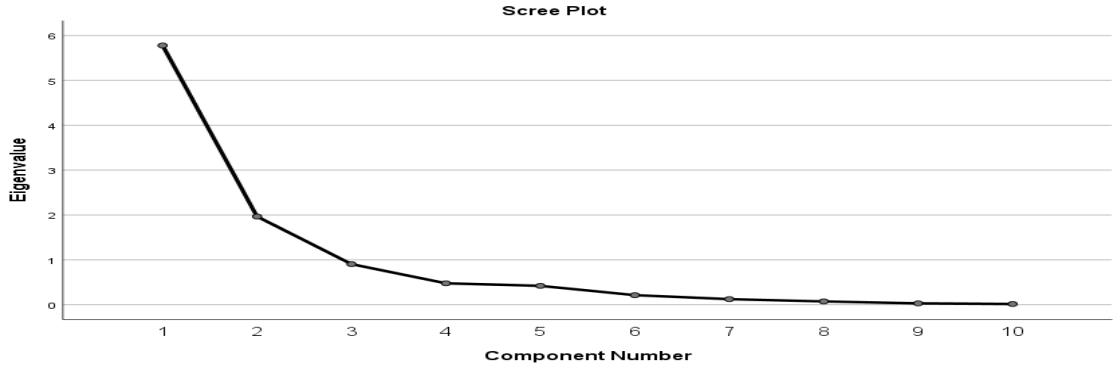


Figure 2.11: Scree Test (Robustness tests: 2nd alternative approach-1st country subset))

Table 2.48: Principal Component Analysis results (Robustness tests: 2nd alternative approach-2nd country subset)

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.799
Bartlett's Test of Sphericity	Approx. Chi-Square	339.261
	df	45
	Sig.	0

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5,772	57,716	57,716	5,772	57,716	57,716	5,771	57,711	57,711
2	1,976	19,759	77,475	1,976	19,759	77,475	1,976	19,764	77,475
3	0,901	9,011	86,486						
4	0,468	4,68	91,166						
5	0,424	4,236	95,402						
6	0,217	2,167	97,569						
7	0,126	1,256	98,825						
8	0,071	0,706	99,531						
9	0,03	0,301	99,832						
10	0,017	0,168	100						

Rotated Component Matrix

	Component	
	1	2
UA_{ROB}	-0,152	0,851
PD_{ROB}	-0,828	-0,183
IND_{ROB}	0,728	0,087
$BookTax_{ROB}$	0,118	0,765
$FinArch_{ROB}$	-0,054	-0,749
GDP_{ROBNEW}	0,908	0,160
$GovEff_{ROBNEW}$	0,964	-0,061
$RegQual_{ROBNEW}$	0,939	-0,133
$RuleLaw_{ROBNEW}$	0,968	-0,010
$ConCorr_{ROBNEW}$	0,970	-0,132

Component Score Coefficient Matrix

	Component	
	1	2
UA_{ROB}	-0,029	0,431
PD_{ROB}	-0,143	-0,090
IND_{ROB}	0,126	0,041
$BookTax_{ROB}$	0,018	0,387
$FinArch_{ROB}$	-0,007	-0,379
GDP_{ROBNEW}	0,157	0,078
$GovEff_{ROBNEW}$	0,167	-0,034
$RegQual_{ROBNEW}$	0,163	-0,071
$RuleLaw_{ROBNEW}$	0,168	-0,008
$ConCorr_{ROBNEW}$	0,169	-0,070

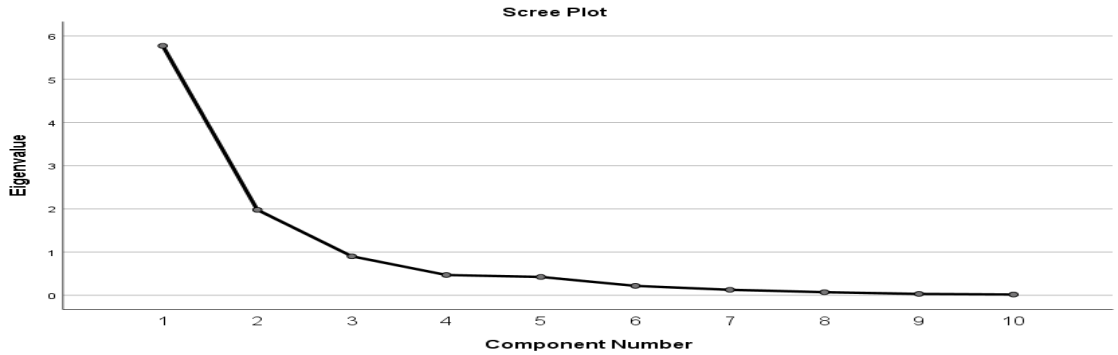


Figure 2.12: Scree Test (Robustness tests: 2nd alternative approach-2nd country subset)

For the reasons stated previously, we refer to the second principal component as Uncertainty Avoidance Diffuser ($UAD_{ROB2002}$ for the 1st country subset & UAD_{ROBNEW} for the 2nd country subset), since it shows how Uncertainty Avoidance is diffused across a country's level of book-tax conformity and financial orientation.

After labeling the extracted components, we regress the IQI and UAD variables of both sets against the Absence and Divergence Indexes, according to the following regression models:

2nd alternative approach-1st country subset (Robustness tests)

Model 13: $Abs_{ROB}=a_o+a_1IQI_{ROB2002}+a_2UAD_{ROB2002}+\varepsilon_i$

Model 14: $Div_{ROB}= a_o+a_1IQI_{ROB2002}+a_2\ UAD_{ROB2002}+\varepsilon_i$

2nd alternative approach-2nd country subset (Robustness tests)

Model 15: $Abs_{ROBNEW}= a_o+a_1IQI_{ROBNEW}+a_2UAD_{ROBNEW}+\varepsilon_i$

Model 16: $Div_{ROBNEW}= a_o+a_1IQI_{ROBNEW}+a_2UAD_{ROBNEW}+\varepsilon_i$

We can see from the regression results in Tables 2.49 and 2.50 that the Divergence Index models (Models 14 and 16) are highly significant, with large F values (≈19.6) that are statistically significant at the $p<0.01$ level. Additionally, the Divergence Index models have substantial explanatory power, as evidenced by their R^2 (≈ 58,5%) and Adjusted R^2 (≈55,5%) values.

Additionally, we see that the IQI and UAD regression variables in Models 14 and 16 are statistically significant at the $p<0.01$ level and positively associated with the Divergence Index. Thus, the Divergence Index models' regression results are nearly identical to the previous section's (2.9.1.1) Divergence Index models' regression results. This finding reinforces the view that the influence of country-specific factors differs depending on whether accounting differences are examined at a regional (e.g., EU) or international level.

The results of the Absence Index models (Models 13 and 15) are quite similar to those of the Absence Index models in the preceding section (2.9.1.1.), in that their explanatory power remains quite low (R^2 and Adj. R^2 values).

Table 2.49 : Principal Component Regression results (Robustness tests: 2nd alternative approach-1st country subset)

Model 13: $Abs_{ROB}=a_o+a_1IQI_{ROB2002}+a_2\ UAD_{ROB2002}+\varepsilon_i$ (R^2:0.142, Adj.R^2: 0.081, F: 2.324, (p=0.116))				***Model 14 : $Div_{ROB}= a_o+a_1IQI_{ROB2002}+a_2\ UAD_{ROB2002}+\varepsilon_i$ (R^2:0.586, Adj.R^2: 0.557, F: 19.842, (p=0.000))***			
	Coefficients	t-stat	VIF		Coefficients	t-stat	VIF
(Constant)	19.516	9.713		(Constant)	22.581	21.617	
	(0.000)***				(0.000)***		
$IQI_{ROB2002}$	-0.866	-0.424	1	$IQI_{ROB2002}$	4.887	4.602	1
	(0.675)				(0.000)***		
$UAD_{ROB2002}$	4.317	2.114	1	$UAD_{ROB2002}$	4.568	4.302	1
	(0.044)**				(0.000)***		

Notes: Principal regression coefficients of country-specific factors' effect on the Absence and Divergence Indexes. P-values are presented in parentheses.

*** indicates statistical significance at the 1% level.

** indicates statistical significance at the 5% level.

* indicates statistical significance at the 10% level.

Table 2.50 : Principal Component Regression results (Robustness tests: 2nd alternative approach-2nd country subset)

Model 15: $Abs_{ROBNEW}=a_o+a_1IQI_{ROBNEW}+a_2\ UAD_{ROBNEW}+\varepsilon_i$ (R^2:0.171, Adj.R^2: 0.112, F: 2.889, (p=0.072))				***Model 16: $Div_{ROBNEW}=a_o+a_1IQI_{ROBNEW}+a_2\ UAD_{ROBNEW}+\varepsilon_i$ (R^2:0.583, Adj.R^2: 0.553, F: 19.547, (p=0.000))***			
	Coefficients	t-stat	VIF		Coefficients	t-stat	VIF
(Constant)	21.258	7.203		(Constant)	22.484	21.542	
	(0.000)***				(0.000)***		
IQI_{ROBNEW}	-2.103	-0.701	1	IQI_{ROBNEW}	4.927	4.644	1
	(0.489)				(0.000)***		
UAD_{ROBNEW}	6.898	2.299	1	UAD_{ROBNEW}	4.442	4.186	1
	(0.029)**				(0.000)***		

Notes: Principal regression coefficients of country-specific factors' effect on the Absence and Divergence Indexes. P-values are presented in parentheses.

*** indicates statistical significance at the 1% level.

** indicates statistical significance at the 5% level.

* indicates statistical significance at the 10% level.

Interestingly, Model 13 is marginally statistically insignificant (F value: 2.324, not statistically significant at the lower level of $p<0.10$), whereas Model 15 is statistically significant at the $p<0.10$ level. To investigate this finding, we exclude both United Kingdom and Mexico from the sample, as their national accounting standards have zero absent IAS/IFRS items and rerun the relevant regressions for Models 13 and 15.

The regression results for the revised Model 17 (Model 13 without UK & Mexico) are reported in Table 2.51. These findings show that the model's statistical significance has slightly improved (F value:2.723, statistically significant at the $p<0.10$ level), including a marginal increase in the statistical significance of $UAD_{ROB2002}$ and UAD_{ROBNEW}, respectively.

Moreover, we observe that only the $UAD_{ROB2002}$ and UAD_{ROBNEW} principal components are statistically significant explanatory factors of the Absence Index at the $p<0.05$ level (like BOOKFIN & $BOOKFIN_{NEW}$ variables, according to the regression results of section 2.9.1.1.). This finding indicates that the absence of certain international accounting rules from national accounting standards is greater in bank-based countries with high levels of book-tax conformity rather than in market-based countries with lower levels of book-tax conformity.

Additionally, the IQI variable is not statistically significant in either country subset, indicating that institutional quality appears to have an effect on the Absence Index when more developed nations are included in the study. This conclusion is consistent with the regression results presented in Section 2.9.1.1, where ACCGOVED and $ACCGOVED_{NEW}$ were likewise statistically insignificant explanatory variables for the Absence Index.

We examine the residuals of all models for violations of normality, independence, and homoscedasticity and discover that all residuals are normally distributed, uncorrelated, and homoscedastic[83].

The relevant tests in this section denote that the absence of IAS/IFRS accounting rules from the national accounting standards is less common in developed countries than in less-developed countries or countries belonging to a homogeneous environment, such as the European Union.

[83] Kolmogorov-Smirnov test, Runs Test and Levene's test based on median have p-values >0.05.

Table 2.51: Principal Component Regression results (Robustness tests: Regression results of Models 13 & 15 after removing countries (Mexico -UK) with zero absent IAS/IFRS accounting items)

Model 17: $Abs_{ROB}= a_o+a_1IQI_{ROB2002}+a_2\ UAD_{ROB2002}+\varepsilon_i$ (R^2:0.173, Adj.R^2: 0.110, F: 2.723, (p=0.084))				***Model 18: $Abs_{ROBNEW}= a_o+a_1IQI_{ROBNEW}+a_2\ UAD_{ROBNEW}+\varepsilon_i$ (R^2:0.194, Adj.R^2: 0.132, F: 3.128, (p=0.061))***			
	Coefficients	t-stat	VIF		Coefficients	t-stat	VIF
(Constant)	20.833 (0.000)***	10.997		(Constant)	22.682 (0.000)***	7.682	
$IQI_{ROB2002}$	-1.432 (0.469)	-0.734	1	IQI_{ROBNEW}	-2.908 (0.347)	-0.957	1
$UAD_{ROB2002}$	4.224 (0.034)**	2.242	1	UAD_{ROBNEW}	6.888 (0.027)**	2.347	1

Also, the findings in this section demonstrate that the existence of distinctive characteristics in developed countries has an effect on the degree to which their national accounting standards diverge from international accounting standards. As such, we find evidence that the nature of the applied country-specific factors has a differential impact on the sample countries' accounting choices, as some of them choose not to include certain provisions of IAS/IFRS in their national accounting standards while others choose to diverge from IAS/IFRS.

2.10. Additional Tests

After performing robustness tests, we assess the sensitivity of the reported results. To begin, we substitute the Absence and Divergence Indexes with those presented in Ding et al. (2009), which are restricted to measurement accounting items. Also, we examine the effect of auditing and enforcement of accounting standards on the Absence and Divergence Indexes using a metric developed by Brown et al. (2014). Finally, we are inspired by Ding et al. and Tsakumis et al. (2007) in examining the consequences on tax evasion of the absence and divergence of national accounting standards from IAS/IFRS.

2.10.1. Substitution of the Absence & Divergence Indexes

Our first set of additional tests is focused on the EU sample (sections 2.8.1. & 2.8.2.). We replace the previously used Absence and Divergence Indexes with Ding et al.'s (2009) Absence and Divergence Indexes and explore how country-specific factors interact with the new indexes. Ding et al.'s (2009) Absence and Divergence Indexes differ in two critical issues from the Absence and Divergence Indexes employed in the main and robustness tests of our analysis (drawn from Ding et al., 2007).

First, Ding et al. (2009) decompose their original Absence Indexes (developed in their 2007 research study) into Absence measurement Indexes and Absence Disclosure Indexes in their research study. This enables us to concentrate on Ding et al.'s (2009) Absence measurement Indexes and conduct a more direct comparison to our own version of Greece's Absence Index[84]. Therefore, we use data from Ding et al. (2009) to construct the New Absence Index, which includes the specific IAS/IFRS accounting measurement items that are absent in national accounting standards for all sample countries of the main and robustness tests.

[84] Our version of Greece's Absence Index is reported in section 2.2 and shows the specific accounting measurement items of IAS/IFRS that are not included in the new Greek Accounting Standards (Law 4308/2014)

Second, in response to Nobes' (2009) concerns, Ding et al. (2009) develop a new Divergence Index. Nobes (2009) notes that Ding et al.'s (2007) Divergence Index does not differentiate between more significant and less important subjects in which national accounting standards diverge from IAS.

According to Nobes (2009), future studies should determine whether their findings are robust to a double weighting of significant divergent accounting items in comparison to less important divergent accounting items. In response to Nobe's (2009) observation, Ding et al. (2009) developed the following new Divergence Index:

New Divergence: (2 * Major divergence + Minor divergence) * 2/3

Ding et al. (2009) give double weight to major divergent national accounting items in comparison to minor divergent national accounting items. As they mention, the weighted sum of the "Major divergence" and "Minor divergence" variables is multiplied by 2/3 in order to avoid overweighting the New Divergence Index in regressions that include both the Absence and the New Divergence variables.

Consequently, we use data from Ding et al. (2009) to calculate the New Divergence Index for each of the main and robustness tests' sample countries.

The newly introduced dependent variables are defined as follows in Table 2.52:

Table 2.52: New Dependent Variables used in additional tests

Variable Name	*Definition*
NewAbs	The Absence measurement Indexes for the 14 EU sample countries (Source: Ding et al., 2009)
NewDiv	The new Divergence Indexes of the 14 EU sample countries (Source: Ding et al., 2009)
$NewAbs_{NEW}$	The new Absence Index of Greece and Ding et al.'s (2009) Absence measurement Indexes for the rest 13 EU sample countries
$NewDiv_{NEW}$	The new Divergence Index of Greece and Ding et al.'s (2009) new Divergence Indexes for the rest 13 EU sample countries

The following sections 2.10.1.1 and 2.10.1.2 detail the results of the new regression models.

2.10.1.1. Additional Tests on the 1st alternative approach

After substituting the initial Absence and Divergences Indexes for the new ones, the new regression models of the 1st alternative approach are the following:

1st alternative approach-1st country subset (Additional Tests)
Model 19: $NewAbs = a_o + a_1 ACSFE + \varepsilon_i$
Model 20: $NewDiv = a_o + a_1 ACSFE + \varepsilon_i$

1st alternative approach-2nd country subset (Additional Tests)
Model 21: $NewAbs_{NEW} = a_o + a_1 ACSFE_{NEW} + \varepsilon_i$
Model 22: $NewDiv_{NEW} = a_o + a_1 ACSFE_{NEW} + \varepsilon_i$

We find no significant changes in the statistical significance of the applicable models based on the regression results provided in Tables 2.53 and 2.54. The New Absence Index models (Models 19 and 21) continue to be statistically significant, whereas the New Divergence Index models (Models 20 and 23) remain statistically insignificant. Models 20 and 23, in particular, exhibit low F values that are not statistically significant at $p<0.05$ level.

This finding demonstrates that the applicable country-specific factors have no effect on the divergence of national accounting measurement items from IAS/IFRS when the countries under examination are members of the EU cluster.

The R^2 and Adjusted R^2 value of the New Absence Index models demonstrate a reasonable level of explanatory power. In terms of normality, independence and homogeneity of variance of the residuals, the New Absence Index models (Models 19 & 21) meet the relevant requirements[85].

We detect no changes in the direction (i.e., preservation of their positive sign) of the coefficients of the variables reflecting country-specific factors (ACSFE-$ACSFE_{NEW}$).

[85] We conclude that Model's 19 residuals are normally distributed, independent, and homoscedastic based on the Kolmogorov-Smirnov test (p-value:0.200), Runs Test (p-value:1.000) and Levene's Test based on Median (p-value:0.542). We reach to the same conclusions Model's 21 residuals (Kolmogorov-Smirnov/p-value:0.556, Runs Test/p-value:0.164, Levene's Test based on Median/p-value:0.290).

Table 2.53: Principal Component Regression results (Additional Tests: 1st alternative approach- 1st country subset)

Model 19: $NewAbs=a_o+a_1ACSFE+\varepsilon_i$ (R^2:0.469, Adj.R^2: 0.425, F: 10.806, (p=0.007))			***Model 20: $NewDiv=a_o+a_1ACSFE+\varepsilon_i$ (R^2:0.009, Adj.R^2: -0.074, F: 0.108, (p=0.748))***		
	Coefficients	t-stat		Coefficients	t-stat
(Constant)	11.714	8.207	(Constant)	35.857	16.188
	(0.000)***			(0.000)***	
ACSFE	4.824	3.257	ACSFE	0.755	0.328
	(0.007)***			(0.748)	

Notes: Principal regression coefficients of country-specific factors' effect on the New Absence and New Divergence Indexes. P-values are presented in parentheses.

∗∗∗ indicates statistical significance at the 1% level.

∗∗ indicates statistical significance at the 5% level.

∗ indicates statistical significance at the 10% level.

Table 2.54: Principal Component Regression results (Additional Tests: 1st alternative approach- 2nd country subset)

Model 21: $NewAbs_{NEW}=a_o+a_1ACSFE_{NEW}+\varepsilon_i$ (R^2:0.419, Adj.R^2: 0.371, F: 8.662, (p=0.012))			***Model 22: $NewDiv_{NEW}=a_o+a_1ACSFE_{NEW}+\varepsilon_i$ (R^2:0.012, Adj.R^2: -0.070, F: 0.151, (p=0.704))***		
	Coefficients	t-stat		Coefficients	t-stat
(Constant)	16.857	3.442	(Constant)	35.000	14.905
	(0,005)***			(0,000)***	
$ACSFE_{NEW}$	14.96	2.943	$ACSFE_{NEW}$	-0.947	
	(0,012)***			(0.704)	-0.389

Notes: Principal Component regression coefficients of country-specific factors' effect on the New Absence and New Divergence Indexes. P-values are presented in parentheses .

∗∗∗ indicates statistical significance at the 1% level.

∗∗ indicates statistical significance at the 5% level.

∗ indicates statistical significance at the 10% level.

Table 2.55: Comparison of main and additional tests' results on the 1st & 2nd country subsets (1st alternative approach)

Main Tests results (1st alternative approach-1st country subset)		**Additional Tests results (1st alternative approach-1st country subset)**		**Main Tests results (1st alternative approach-2nd country subset)**		**Additional Tests results (1st alternative approach-2nd country subset)**	
Model 1: $Abs=a_o+a_1ACSFE+\varepsilon_i$		***Model 19:*** $NewAbs=a_o+a_1ACSFE+\varepsilon_i$		***Model 3:*** $Abs_{NEW}=a_o+a_1ACSFE_{NEW}+\varepsilon_i$		***Model 21:*** $NewAbs_{NEW}=a_o+a_1ACSFE_{NEW}+\varepsilon_i$	
(R^2:0.437, Adj.R^2: 0.390)		***(R^2:0.469, Adj.R^2: 0.425)***		***(R^2:0.475, Adj.R^2: 0.431)***		***(R^2:0.419, Adj.R^2: 0.371)***	
	Coefficients		Coefficients		Coefficients		Coefficients
(Constant)	20.857 (0.000)***	(Constant)	11.714 (0.000)***	(Constant)	24.714 (0,000)***	(Constant)	16.857 (0,005)***
ACSFE	8.023 (0.010)***	ACSFE	4.824 (0.007)***	$ACSFE_{NEW}$	15.637 (0,006)***	$ACSFE_{NEW}$	14.96 (0,012)***

Notes: P-values are presented in parentheses .

∗∗∗ indicates statistical significance at the 1% level.

∗∗ indicates statistical significance at the 5% level.

∗ indicates statistical significance at the 10% level.

Interestingly, the magnitude of the regression constant term and the aforementioned coefficients lowers in comparison to their equivalents in the main tests of the 1st alternative approach (sections 2.8.1.1. and 2.8.1.2.)[86]. The aforementioned conclusion suggests that the relevant regression models (Models 19 and 21), as well as the ACSFE and ACSFENEW variables, respond to the New Absence Indexes' distinct information content, which consists entirely of absent measurement accounting items.

The findings of the additional tests can be interpreted in two ways: first, the applied country-specific factors affect the Absence Index of EU countries regardless of their information content (i.e., whether measurement and disclosure items are included or only measurement items are included); second, the regression results confirm the effect of the applied country-specific factors on the absence of specific IAS/IFRS measurement accounting items from Greece's new accounting framework.

2.10.1.2. Additional Tests on the 2nd alternative approach

We rerun the regression models of the 2nd alternative approach for both country subsets (i.e., initially reported in sections 2.8.2.1. & 2.8.2.2.), substituting the initial values of the Absence and Divergence Indexes with their newer versions, developed by Ding et al. (2009).

The 2nd alternative approach's new regression models are as follows:

2nd alternative approach-1st country subset (Additional Tests)

Model 23: $NewAbs = a_o + a_1 GovInd + a_2 CompInd + \varepsilon_i$

Model 24: $NewDiv = a_o + a_1 GovInd + a_2 CompInd + \varepsilon_i$

2nd alternative approach-2nd country subset (Additional Tests)

Model 25: $NewAbs_{NEW} = a_o + a_1 GovInd_{NEW} + a_2 CompInd_{NEW} + \varepsilon_i$

Model 26: $NewDiv_{NEW} = a_o + a_1 GovInd_{NEW} + a_2 CompInd_{NEW} + \varepsilon_i$

Table 2.56 summarizes the findings for the 1st country subset (Models 23 & 24). We detect no substantial changes in the fundamental characteristics of the new models. Model 24 is not statistically significant (F value: 0.404 not statistically significant at the $p<0.05$ level) and GovInd and CompInd are not statistically significant

[86] To facilitate the comparison of the results of the main and additional tests regarding the 1st alternative approach, we gather and present the related findings in Table 2.55.

explanatory variables for the divergence of national accounting standards from IAS/IFRS in terms of measurement issues.

On the other hand, Model 23 has an F value: 5.743 which is statistically significant at the $p<0.05$ level, indicating the statistical significance of the model. Also, Model 23 has an adjusted R^2 of 42.20%, which is quite satisfactory in terms of explanatory power. The GovInd independent variable is not statistically significant in explaining the absence of certain IAS/IFRS measurement items from national accounting standards, whereas the CompInd variable is statistically significant at the <0.05 level. Moreover, there are no issues of normality, independence and homoscedasticity regarding the residuals of Model 23[87].

Table 2.57 summarizes the findings of the regression models for the 2nd country subset (Models 25 & 26). The statistical insignificance of the $GovInd_{NEW}$ and $CompInd_{NEW}$ variables verifies that country-specific factors do not seem to have an effect on the divergence of EU countries' national accounting standards from IAS/IFRS, in terms of measurement items.

Model 25 explores the effect of the country-specific factors on the absence of IAS/IFRS measurement accounting items from national accounting standards. We observe that Model 25 is statistically significant (F value:4.747, statistically significant at the $p<0.05$ level) and does not violate normality, independence, and and homoscedasticity[88]. Also, both the $GovInd_{NEW}$ and $CompInd_{NEW}$ variables are statistically significant at the $p<0.05$ and $p<0.10$ levels, respectively.

To facilitate comparison of the regression results from the main and additional tests of the 2nd alternative approach, we construct Table 2.58, which focuses on models with the Absence Index as the dependent variable, because divergence of national accounting standards is unaffected in all cases by the country-specific factors considered in our analysis.

We observe that the models' explanatory power does not significantly alter when the Absence Index is replaced with the New Absence Index.

[87] (i.e., after the application of the Kolmogorov-Smirnov Test (p-value: 0.200), Runs Test (p-value: 0.781) and Levene's Test based on median (p-value: 0.547)).

[88] Kolmogorov-Smirnov test/p value: 0.200; Runs Test/p value: 0.781; and Levene's test based on median/p value: 0.306.

Table 2.56: Principal Component Regression results (Additional Tests: 2nd alternative approach-1st country subset)

Model 23: NewAbs=a_o+a_1GovInd+a_2CompInd+ε_i
(R^2:0.511, Adj.R^2: 0.422, F: 5.743, (p=0.020))

	Coefficients	t-stat	VIF
(Constant)	11.714 (0.000)***	8.185	
GovInd	-2.119 (0.181)	-1.427	1
CompInd	-4.566 (0.011)**	-3.074	1

Model 24 : NewDiv=a_o+a_1GovInd+a_2CompInd+ε_i
(R^2:0.068, Adj.R^2: -0.101, F: 0.404, (p=0.677))

	Coefficients	t-stat	VIF
(Constant)	35.857 (0.000)***	15.986	
GovInd	-2.011 (0.406)	-0.864	1
CompInd	0.580 (0.808)	0.249	1

Notes: Principal regression coefficients of country-specific factors' effect on the Absence and Divergence Indexes. P-values are presented in parentheses.

∗∗∗ indicates statistical significance at the 1% level.

∗∗ indicates statistical significance at the 5% level.

∗ indicates statistical significance at the 10% level.

Table 2.57: Principal Component Regression results (Additional Tests: 2nd alternative approach-2nd country subset)

Model 25: $NewAbs_{NEW}=a_o+a_1GovInd_{NEW}+a_2CompInd_{NEW}+\varepsilon_i$ ***(R^2:0.463, Adj.R^2: 0.366, F: 4.747, (p=0.033))***			
	Coefficients	t-stat	VIF
(Constant)	16.857 (0.006)***	3,428	
$GovInd_{NEW}$	-12.628 (0.031)**	-2,474	1
$CompInd_{NEW}$	-9.371 (0.093)*	-1,836	1

Model 26: $NewDiv_{NEW}=a_o+a_1GovInd_{NEW}+a_2CompInd_{NEW}+\varepsilon_i$ ***(R^2:0.023, Adj.R^2: -0.154, F: 0.132, (p=0.877))***			
	Coefficients	t-stat	VIF
(Constant)	35.000 (0.000)***	14.351	
$GovInd_{NEW}$	-0.122 (0.962)	-0.048	1
$CompInd_{NEW}$	1.296 (0.619)	0.512	1

Notes: Principal regression coefficients of country-specific factors' effect on the Absence and Divergence Indexes. P-values are presented in parentheses.

∗∗∗ indicates statistical significance at the 1% level.

∗∗ indicates statistical significance at the 5% level.

∗ indicates statistical significance at the 10% level.

Table 2.58: Comparison of main and additional tests results on the 1st & 2nd country subsets (2nd alternative approach)

Main Tests results (2nd alternative approach-1st country subset)		**Additional Tests results (2nd alternative approach-1st country subset)**		**Main Tests results (2nd alternative approach-2nd country subset)**		**Additional Tests results (2nd alternative approach-2nd country subset)**	
Model 5: $Abs=a_o+a_1GovInd+a_2CompInd+\varepsilon_i$		***Model 23: $NewAbs=a_o+a_1GovInd+a_2CompInd+\varepsilon_i$***		***Model 7: $Abs_{NEW}=a_o+a_1GovInd_{NEW}+a_2CompInd_{NEW}+\varepsilon_i$***		***Model 25: $NewAbs_{NEW}=a_o+a_1GovInd_{NEW}+a_2CompInd_{NEW}+\varepsilon_i$***	
(R^2:0.508, Adj.R^2: 0.419)		***(R^2:0.511, Adj.R^2: 0.422)***		***(R^2:0.492, Adj.R^2: 0.40)***		***(R^2:0.463, Adj.R^2: 0.366)***	
	Coefficients		Coefficients		Coefficients		Coefficients
(Constant)	20.857 (0.000)***	(Constant)	11.714 (0.000)***	(Constant)	24.714 (0.000)***	(Constant)	16.857 (0.006)***
GovInd	-2.612 (0.330)	GovInd	-2.119 (0.181)	$GovInd_{NEW}$	-10.688 (0.051)*	$GovInd_{NEW}$	-12.628 (0.031)**
CompInd	-8.247 (0.008)***	CompInd	-4.566 (0.011)**	$CompInd_{NEW}$	-11.797 (0.034)**	$CompInd_{NEW}$	-9.371 (0.093)*

Notes: P-values are presented in parentheses.

∗∗∗ indicates statistical significance at the 1% level.

∗∗ indicates statistical significance at the 5% level.

∗ indicates statistical significance at the 10% level.

The fact that the direction of the coefficients of the explanatory variables is identical for both the main and additional tests demonstrates that the effect of country-specific factors is unaffected by the Absence Index's information content[89].

Another important finding relates to the size of the coefficients of the GovInd and CompInd explanatory variables. Specifically, GovInd's and CompInd's coefficient size is reduced in the additional tests and thus, the relevant composite country-specific factors seem to respond to the dependent variable's differing information content (except for the size of the coefficient of GovInd variable in the additional tests of 2nd country subset).

Additionally, the results of the additional tests indicate that the statistical significance of the explanatory variables GovInd and CompInd remains nearly unchanged. This conclusion substantially corroborates the results of the main tests of the second alternative approach.

2.10.2. Additional Tests regarding the effect of the auditing and enforcement of accounting standards

We analyze the effect of auditing and the enforcement of accounting standards as possible determinants of the Absence and Divergence Indexes in this section. We do so by employing a composite index developed by Brown et al. (2014). Brown et al.'s (2014) index reflects country differences in two areas: the environment in which auditors operate and the activities of national enforcement bodies aimed at promoting accounting standard compliance.

Brown et al. (2014) develop three proxies for 51 countries from 2002 to 2008. Their proxies consist of the AUDIT and ENFORCE proxies, as well as the AETOTAL proxy, which is the sum of the AUDIT and ENFORCE proxies. As Preiato et al. (2015) mention, the AUDIT proxy encapsulates significant characteristics of the audit environment that are expected to influence the quality of enforcement of financial reporting standards, whereas the ENFORCE proxy is intended to reflect the amount of enforcement activity conducted by independent enforcement authorities

An interesting aspect of Brown et al.'s (2014) proxies is that they capture different aspects of legal enforcement from the Rule of Law World Bank Governance Indicator, which we employ in the current Chapter's main and robustness tests.

[89] Absence of both measurement and disclosure accounting items or absence of measurement accounting items.

According to Preiato et al. (2015), the Rule of Law proxy reflects market participants' views of their confidence in and compliance with societal laws and regulations. As a result, the Brown et al. (2014) index and the Rule of Law proxy do not overlap; on the contrary, these measures complement one another.

We use Brown et al.'s (2014) AETOTAL proxy to examine the combined effect of auditing and enforcement of accounting standards on the Absence and Divergence Indexes. Since we are primarily interested in examining the influence of AETOTAL on Greece's current Absence and Divergence Indexes[90], we focus on the 2nd country subset and rerun the regressions of the main and robustness tests[91] adding the newly-introduced AETOTAL independent variable. Therefore, the reformed regressions are the following:

Main tests: 1st alternative approach-2nd country subset with AETOTAL

Model 3A: $Abs_{NEW} = a_o + a_1 ACSFE_{NEW} + a_2 AETOTAL_{MAIN} + \varepsilon_i$

Model 4A: $Div_{NEW} = a_o + a_1 ACSFE_{NEW} + a_2 AETOTAL_{MAIN} + \varepsilon_i$

Main tests: 2nd alternative approach-2nd country subset with AETOTAL

Model 7A: $Abs_{NEW} = a_o + a_1 GovInd_{NEW} + a_2 CompInd_{NEW} + a_3 AETOTAL_{MAIN} + \varepsilon_i$

Model 8A: $Div_{NEW} = a_o + a_1 GovInd_{NEW} + a_2 CompInd_{NEW} + a_3 AETOTAL_{MAIN} + \varepsilon_i$

Robustness Tests: 1st alternative approach-2nd country subset with AETOTAL

Model 11A: $Abs_{ROBNEW} = a_o + a_1 ACCGOVED_{NEW} + a_2 BOOKFIN_{NEW} + a_3 AETOTAL_{ROB} + \varepsilon_i$

Model 12A: $Div_{ROBNEW} = a_o + a_1 ACCGOVED_{NEW} + a_2 BOOKFIN_{NEW} + a_3 AETOTAL_{ROB} + \varepsilon_i$

Robustness Tests: 2nd alternative approach-2nd country subset with AETOTAL

Model 15A: $Abs_{ROBNEW} = a_o + a_1 IQI_{ROBNEW} + a_2 UAD_{ROBNEW} + a_3 AETOTAL_{ROB} + \varepsilon_i$

Model 16A: $Div_{ROBNEW} = a_o + a_1 IQI_{ROBNEW} + a_2 UAD_{ROBNEW} + a_3 AETOTAL_{ROB} + \varepsilon_i$

[90]Greece's current Absence and Divergence Indexes are computed in section 2.2. of this Chapter and relate to measurement accounting items included in the new Greek Accounting Standards, that are either absent or divergent from IAS/IFRS.

[91] By examining the main and robustness tests, we are able to cover both the EU and the international sample of countries.

The definitions of the $AETOTAL_{NEW}$ $AETOTAL_{ROBNEW}$ independent variables are presented below:

$AETOTAL_{MAIN}$	The value of AETOTAL for the 14 EU sample countries, averaged for 2002, 2005 & 2008 (Source: Brown et al., 2014)
$AETOTAL_{ROB}$	The value of AETOTAL for the 31 sample countries, averaged for 2002, 2005 & 2008 (Source: Brown et al., 2014)

Tables 2.59, 2.60, 2.61, and 2.62 present the regression results for each model. We discover that the AETOTAL independent variable has no effect on the Absence and Divergence Indexes, as it is not a statistically significant determinant of either.

Additionally, we observe that after incorporating Brown et al.'s (2014) AETOTAL proxy, the regression results for the main and robustness tests do not substantially change in comparison to the initial results for the corresponding tests.

The Absence Index models for the main tests and Divergence Index models for the robustness tests continue to be statistically significant. Additionally, the relative significance of country-specific factors remains unchanged. The Absence Index is influenced by $ACSFE_{NEW}$, $GovInd_{NEW}$, and $CompInd_{NEW}$, whereas the Divergence Index is influenced by $ACCGOVED_{NEW}$, $BOOKFIN_{NEW}$, $IQIROB_{NEW}$, and $UADROB_{NEW}$.

The observed non-significance of AETOTAL suggests that a country's auditing environment and level of accounting enforcement appear to have no effect on national accounting choices. Nonetheless, we notice that including the AETOTAL variable increases the VIFs of the estimated regressions, implying a significant correlation between the AETOTAL variable and the extracted components (i.e., $ACSFE_{NEW}$, $GovInd_{NEW}$, $CompInd_{NEW}$, $ACCGOVED_{NEW}$, $BOOKFIN_{NEW}$, etc).

As a result, we perform two separate sets of regressions to assess the individual effect of the AETOTAL variable on the Absence and Divergence Indexes. The first set explores the individual effect of AETOTAL on the EU sample's Absence and Divergence Indexes, while the second set examines the individual effect of AETOTAL on the international sample's Absence and Divergence Indexes.

Table 2.59: MAIN TESTS/Principal Component Regression results on the effects of the AUDITENFORCE INDEX on the Absence & Divergence Indexes (1st alternative approach-2nd country subset)

Model 3^{A}: $Abs=a_o+a_1ACSFE_{NEW}+a_2AETOTAL_{MAIN}+\varepsilon_i$ (R^2:0.510, Adj.R^2: 0.421, F: 5.726, (p=0.020))				***Model 4^{A}: $Div= Abs=a_o+a_1ACSFE_{NEW}+a_2AETOTAL_{MAIN}+\varepsilon_i$ (R^2:0.139, Adj.R^2: -0.17, F: 0.889, (p=0.439))***			
	Coefficients	t-stat	VIF		Coefficients	t-stat	VIF
(Constant)	42.991	2.032		(Constant)	21.904	3.112	
	(0.067)**				(0.010)***		
$ACSFE_{NEW}$	13.965	2.714	1.156	$ACSFE_{NEW}$	-0.045	-0.026	1.156
	(0.020)**				(0.979)		
$AETOTAL_{MAIN}$	-0.562	-0.885	1.156	$AETOTAL_{MAIN}$	0.260	1.230	1.156
	(0.395)				(0.244)		

Notes: : Principal regression coefficients of the AETOTAL variable and country-specific factors' effect on the Absence and Divergence Indexes. P-values are presented in parentheses.

∗∗∗ indicates statistical significance at the 1% level.

∗∗ indicates statistical significance at the 5% level.

∗ indicates statistical significance at the 10% level.

Table 2.60: MAIN TESTS/Principal Component Regression results on the effects of the AUDITENFORCE INDEX on the Absence & New Divergence Indexes (2nd alternative approach-2nd country subset)

Model 7^{A}: $Abs_{NEW}=a_o+a_1GovInd_{NEW}+a_2CompInd_{NEW}+a3AETOTAL_{MAIN}+\varepsilon_i$ (R^2:0.554, Adj.R^2: 0.420, F: 4.132, (p=0.038))				***Model 8^{A}: $Div_{NEW}= a_o+a_1GovInd_{NEW}+a_2CompInd_{NEW}+a3AETOTAL_{MAIN}+\varepsilon_i$ (R^2:0.145, Adj.R^2: -0.112, F: 0.563, (p=0.651))***			
	Coefficients	t-stat	VIF		Coefficients	t-stat	VIF
(Constant)	54.062	2.119		(Constant)	23.122	2.609	
	(0.06)**				(0.026)**		
$GovInd_{NEW}$	-11.987	-2.436	1.054	$GovInd_{NEW}$	-0.306	-0.179	1.054
	(0.035)**				(0.861)		
$CompInd_{NEW}$	-7.283	-1.183	1.648	$CompInd_{NEW}$	0.430	0.201	1.648
	(0.264)*				(0.844)		
$AETOTAL_{MAIN}$	-0.903	-1.169	1.702	$AETOTAL_{MAIN}$	0.26	0.830	1.702
	(0.269)				(0.426)		

Notes: : Principal regression coefficients of the AETOTAL variable and country-specific factors' effect on the Absence and Divergence Indexes. P-values are presented in parentheses.

∗∗∗ indicates statistical significance at the 1% level.

∗∗ indicates statistical significance at the 5% level.

∗ indicates statistical significance at the 10% level.

Table 2.61: ROBUSTNESS TESTS/Principal Component Regression results on the effects of the AUDITENFORCE INDEX on the Absence & Divergence Indexes (1st alternative approach-2nd country subset)

Model 11^{A}: Abs_{ROBNEW}=ao+a1$ACCGOVED_{NEW}$+a2$BOOKFIN_{NEW}$ +a3$AETOTAL_{ROB}$+ε_i (R^2:0.196, Adj.R^2: 0.107, F:2.198, (p=0.111))				***Model 12^{A}: Div_{ROBNEW}= ao+a1$ACCGOVED_{NEW}$+a2$BOOKFIN_{NEW}$ +a3$AETOTAL_{ROB}$+ε_i (R^2:0.575, Adj.R^2: 0.528, F: 12.169, (p=0.000))***			
	Coefficients	t-stat	VIF		Coefficients	t-stat	VIF
(Constant)	20.416	1.56		(Constant)	17.217	3.629	
	(0.130)				(0.026)**		
$ACCGOVED_{NEW}$	-4.293	-0.944	2.287	$ACCGOVED_{NEW}$	2.812	1.705	2.287
	(0.354)**				(0.861)		
$BOOKFIN_{NEW}$	6.611	2.141	1.054	$BOOKFIN_{NEW}$	5.193	4.638	1.054
	(0.041)*				(0.844)		
$AETOTAL_{ROB}$	0.028	0.066	2.341	$AETOTAL_{ROB}$	0.173	1.140	2.341
	(0.948)				(0.426)		

Notes: Principal regression coefficients of the AETOTAL variable and country-specific factors' effect on the Absence and Divergence Indexes. P-values are presented in parentheses.

∗∗∗ indicates statistical significance at the 1% level.

∗∗ indicates statistical significance at the 5% level.

∗ indicates statistical significance at the 10% level.

Table 2.62: ROBUSTNESS TESTS/Principal Component Regression results on the effects of the AUDITENFORCE INDEX on the Absence & Divergence Indexes (2nd alternative approach-2nd country subset)

Model 15^A: $Abs_{ROBNEW}=ao+a1IQI_{ROBNEW}+a2\ UAD_{ROBNEW}+a3AETOTAL_{ROB}+\varepsilon_i$ (R^2:0.182, Adj.R^2: 0.091, F: 1.998, (p=0.138))				***Model 16^A: $Div_{ROBNEW}=ao+a1IQI_{ROBNEW}+a2\ UAD_{ROBNEW}+a3\ AETOTAL_{ROB}+\varepsilon_i$ (R^2:0.592, Adj.R^2: 0.547, F: 13.073, (p=0.000))***			
	Coefficients	t-stat	VIF		Coefficients	t-stat	VIF
(Constant)	28.218	2.324		(Constant)	19.183	4.490	
	(0.028)**				(0.000)***		
IQI_{ROBNEW}	-0.397	-0.095	1.904	IQI_{ROBNEW}	4.118	2.795	1.904
	(0.925)				(0.009)***		
UAD_{ROBNEW}	6.470	2.074	1.057	UAD_{ROBNEW}	4.644	4.230	1.057
	(0.048)**				(0.000)***		
$AETOTAL_{ROB}$	-0.228	-0.591	1.961	$AETOTAL_{ROB}$	0.108	0.797	1.961
	(0.559)				(0.432)		

Notes: Principal regression coefficients of the AETOTAL variable and country-specific factors' effect on the Absence and Divergence Indexes. P-values are presented in parentheses.

∗∗∗ indicates statistical significance at the 1% level.

∗∗ indicates statistical significance at the 5% level.

∗ indicates statistical significance at the 10% level.

The two sets of regression models are as follows:

EU sample: Effect of AETOTAL on the Absence & Divergence Indexes

Model 27: $Abs_{NEW} = a_o + a_1 AETOTAL_{MAIN} + \varepsilon_i$

Model 28: $Div_{NEW} = a_o + a_1 AETOTAL_{MAIN} + \varepsilon_i$

International sample: Effect of AETOTAL on the Absence & Divergence Indexes

Model 29: $Abs_{ROBNEW} = a_o + a_1 AETOTAL_{ROB} + \varepsilon_i$

Model 30: $Div_{ROBNEW} = a_o + a_1 AETOTAL_{ROB} + \varepsilon_i$

Tables 2.63 and 2.64 present the regression results for Models 27-30. According to Table 2.63, AETOTAL is not a statistically significant explanatory factor for the EU sample's Absence and Divergence Indexes.

On the other hand, while AETOTAL may not be a statistically significant explanatory factor for the international sample's Absence Index, it appears to have an effect on the international sample's Divergence Index (Table 2.64, Model 30).

The statistical significance of the AETOTAL variable in relation to the international sample's Divergence Index[92] suggests that auditing and enforcement of accounting standards may have a significant influence on the shaping of accounting, but only in countries where auditing and enforcement bodies are active participants in the standard-setting process, such as the United States.

Given that the US is included in the international sample, the fact that AETOTAL is a statistically significant determinant of the international sample's Divergence Index confirms Palmon et al. (2011), who emphasize the Securities and Exchange Commission's (SEC) role in the US accounting standard setting process, despite having delegated this responsibility to FASB.

The AETOTAL variable's insignificance in relation to the EU sample's Absence and Divergence Indexes reflects the fact that in the EU context, auditing and accounting standards enforcement organizations are not delegated the responsibility of drafting accounting standards.

[92] We examine the validity of the Divergence Index model for the international sample (Model 30), in terms of the residuals' normality, independence and homogeneity of variance and find no violations of the relevant conditions (Kolmogorov-Smirnov test/p-value: 0.381; Runs Test/p-value: 0.275; and Levene's test based on median/p-value: 0.060)

Table 2.63: Regression results on the effects of AETOTAL on the Absence & Divergence Indexes (EU Sample)

Model 27: $Abs_{NEW}=a_o+a_1AETOTAL_{MAIN}+\varepsilon_i$ (R^2:0.182, Adj.R^2: 0.114, F: 2.671, (p=0.128))				***Model 28: $Div_{NEW}=a_o+a_1AETOTAL_{MAIN}+\varepsilon_i$ (R^2:0.139, Adj.R^2: 0.067, F: 1.939, (p=0.189))***			
	Coefficients	t-stat	VIF		Coefficients	t-stat	VIF
(Constant)	63.557 (0.023)**	2.600		(Constant)	21.838 (0.005)***	3.470	
$AETOTAL_{MAIN}$	-1.195 (0.128)	-1.634	1.000	$AETOTAL_{MAIN}$	0.262 (0.189)	1.392	1.000

Notes: Regression results on the effects of AETOTAL on the Absence and Divergence Indexes. P-values are presented in parentheses.

∗∗∗ indicates statistical significance at the 1% level.

∗∗ indicates statistical significance at the 5% level.

∗ indicates statistical significance at the 10% level.

Table 2.64: Regression results on the effects of AETOTAL on the Absence & Divergence Indexes (International Sample)

Model 29: $Abs_{ROBNEW}=a_o+a_1AETOTAL_{ROB}+\varepsilon_i$ (R^2:0.050, Adj.R^2: 0.017, F: 1.154, (p=0.228))				***Model 30: $Div_{ROBNEW}=a_o+a_1AETOTAL_{ROB}+\varepsilon_i$ (R^2:0.135, Adj.R^2: 0.106, F: 4.541, (p=0.042))***			
	Coefficients	t-stat	VIF		Coefficients	t-stat	VIF
(Constant)	32013	3.451		(Constant)	13.629	3.090	
	(0.002)***				(0.004)***		
$AETOTAL_{ROB}$	-0.352	-1.230	1.000	$AETOTAL_{ROB}$	0.290	2.191	1.000
	(0.228)				(0.042)**		

Notes: Regression results on the effects of AETOTAL on the Absence and Divergence Indexes. P-values are presented in parentheses.

∗∗∗ indicates statistical significance at the 1% level.

∗∗ indicates statistical significance at the 5% level.

∗ indicates statistical significance at the 10% level.

In general, the regression results indicate that auditing and enforcement of accounting standards have no effect on national accounting decisions in countries where auditing and enforcement bodies are not involved in the standard-setting procedure.

On the contrary, in countries whose auditing and enforcement authorities are responsible for developing accounting standards, the auditing and enforcement factor influences national accounting policies.

2.10.3. Additional Tests regarding the effect of the Absence and Divergence Indexes on tax evasion

The current section examines the impact on tax evasion of the absence and divergence of national accounting standards from IAS/IFRS. We are motivated to develop the relevant tests in this section by Ding et al. and Tsakumis et al. (2007).

Apart from studying the effect of country factors on the Absence and Divergence Indexes, Ding et al. examine the effect of these indexes on earnings management, using an aggregate earnings management measure developed by Leuz et al. (2003). We conduct a similar investigation, but rather than focusing on earnings management, we examine the influence of the Absence and Divergence Indices on tax evasion. Our choice of tax evasion proxy is motivated by Tsakumis et al. (2007). Tsakumis et al. (2007), in particular, examine the effect of Hofstede's cultural variables on tax evasion using a tax evasion measure developed by Schneider (2004).

Schneider's (2004) metric, as reported by Tsakumis et al. (2007), measures the shadow economy[93] in 145 developing, transitional, and developed countries as a percentage of official GDP from 2000 to 2002. Tsakumis et al. (2007) state that the higher a country's score on Schneider's (2004) metric, the larger its shadow economy (as a percentage of GDP) and, subsequently, the greater its tax evasion.

We obtain data for our tax evasion proxy (labeled AVERAGE TAX EVASION SCORE-ATES) from Medina and Schneider (2018), who provide shadow economy data for 158 countries worldwide from 1991 to 2015.

We evaluate the influence of Greece's new Absence and Divergence Indexes (i.e., those that correspond to the new Greek Accounting Standards) on the country's level of tax evasion. For that reason, we reorder the regressions of the main and robustness

[93] According to Tsakumis et al. (2007, p. 140), Schneider's (2004) measure of shadow economy reflects "*estimates of all market-based legal production of goods and services that are deliberately concealed from public authorities*".

tests[94] that were applied to the 2nd country subset and develop the following regression models:

Effects of the Absence & Divergence Indexes and country-specific factors on Tax Evasion (Main tests: 1st alternative approach-2nd country subset)

Model 3^{AA}: $ATES_{NEW} = a_o + a_1 ACSFE_{NEW} + a_2 Abs_{NEW} + \varepsilon_i$

Model 4^{AA}: $ATES_{NEW} = a_o + a_1 ACSFE_{NEW} + a_2 Div_{NEW} + \varepsilon_i$

Effects of the Absence & Divergence Indexes and country-specific factors on Tax Evasion (Main tests: 2nd alternative approach-2nd country subset)

Model 7^{AA}: $ATES_{NEW} = a_o + a_1 GovInd_{NEW} + a_2 CompInd_{NEW} + a_3 Abs_{NEW} + \varepsilon_i$

Model 8^{AA}: $ATES_{NEW} = a_o + a_1 GovInd_{NEW} + a_2 CompInd_{NEW} + a_3 Div_{NEW} + \varepsilon_i$

Effects of the Absence & Divergence Indexes and country-specific factors on Tax Evasion (Robustness Tests: 1st alternative approach-2nd country subset)

Model 11^{AA}: $ATES_{ROBNEW} = a_o + a_1 ACCGOVED_{NEW} + a_2 BOOKFIN_{NEW} + a_3 Abs_{ROBNEW} + \varepsilon_i$

Model 12^{AA}: $ATES_{ROBNEW} = a_o + a_1 ACCGOVED_{NEW} + a_2 BOOKFIN_{NEW} + a_3 Div_{ROBNEW} + \varepsilon_i$

Effects of the Absence & Divergence Indexes and country-specific factors on Tax Evasion (Robustness Tests: 2nd alternative approach-2nd country subset)

Model 15^{AA}: $ATES_{ROBNEW} = a_o + a_1 IQI_{ROBNEW} + a_2 UAD_{ROBNEW} + a_3 Abs_{ROBNEW} + \varepsilon_i$

Model 16^{AA}: $ATES_{ROBNEW} = a_o + a_1 IQI_{ROBNEW} + a_2 UAD_{ROBNEW} + a_3 Div_{ROBNEW} + \varepsilon_i$

The dependent variables $ATES_{NEW}$ and $ATES_{ROBNEW}$ are defined as follows:

$ATES_{NEW}$	The estimate of the 14 EU sample countries' shadow economy averaged from 2002 to 2015 (Source: Medina and Schneider, 2018)
$ATES_{ROBNEW}$	The estimate of the 31 international sample countries' shadow economy averaged from 2002 to 2015 (Source: Medina and Schneider, 2018)

[94] The main tests concentrate on the sample of EU countries while robustness tests focus on the international sample of countries.

Tables 2.65-2.68 present the regression results for models 3^{AA}-16^{AA}. The Absence and Divergence Indexes appear to have no effect on the estimated amount of tax evasion in any of the regression models, whether for the EU or international sample.

However, we note that all regression models are statistically significant at the $p<0.01$ level and have a high degree of explanatory power, as indicated by the R^2 and Adjusted R^2 values for all models. This result demonstrates not only the validity of the developed models, but also the strength of the extracted components, the majority of which are statistically significant and appear to affect a country's degree of tax evasion.

Thus, while the absence or divergence of national accounting standards from IAS/IFRS may not appear to be significant determinants of a country's tax evasion level of tax evasion, the combined effect of a country's distinctive characteristics does.

Following that, we evaluate the Absence and Divergence Indexes' individual effect on the estimated level of tax evasion by regressing them on the $ATES_{NEW}$ and $ATES_{ROBNEW}$ variables. We do so because the observed increase in the VIFs (Tables 2.65-2.68) may reflect large correlations between the Absence and Divergence Indexes and country-specific factor variables, limiting our ability to make inferences about the Absence and Divergence Indexes' effect on tax evasion.

Consequently, we construct a new set of regression models to assess the individual effect of the Absence and Divergence Indexes of the EU and international samples on tax evasion. The two sets of regression models are as follows:

EU sample: Effect of the Absence & Divergence Indexes on Tax Evasion

Model 31: $ATES_{NEW} = a_o + a_1\ Abs_{NEW} + \varepsilon_i$

Model 32: $ATES_{NEW} = a_o + a_1\ Div_{NEW} + \varepsilon_i$

International sample: Effect of the Absence & Divergence Indexes on Tax Evasion

Model 33: $ATES_{ROBNEW} = a_o + a_1\ Abs_{ROBNEW} + \varepsilon_i$

Model 34: $ATES_{ROBNEW} = a_o + a_1\ Div_{ROBNEW} + \varepsilon_i$

Table 2.65: Regression results on the effects of the Absence & Divergence Indexes and country-specific factors on Tax Evasion (Main Tests: 1st alternative approach-2nd country subset)

Model 3^{AA}: $ATES_{NEW}=a_o+a_1ACSFE_{NEW}+a_2Abs_{NEW}+\varepsilon_i$ (R^2:0.647, Adj.R^2: 0.583, F: 10.100, (p=0.003))				***Model 4^{AA}: $ATES_{NEW}=a_o+a_1ACSFE_{NEW}+a_2Div_{NEW}+\varepsilon_i$ (R^2:0.656, Adj.R^2: 0.593, F: 10.468, (p=0.003))***			
	Coefficients	t-stat	VIF		Coefficients	t-stat	VIF
(Constant)	14.475 (0.000)***	7.508		(Constant)	20.253 (0.005)***	3.468	
$ACSFE_{NEW}$	4.144 (0.018)**	2.781	1.905	$ACSFE_{NEW}$	4.674 (0.001)***	4.336	1.021
Abs_{NEW}	0.042 (0.535)	0.640	1.905	Div_{NEW}	-0.156 (0.427)	-0.824	1.021

Notes: Principal regression coefficients of the Absence and Divergence Indexes' and country-specific factors' effect on Tax Evasion. P-values are presented in parentheses. P-values are presented in parentheses.

∗∗∗ indicates statistical significance at the 1% level.

∗∗ indicates statistical significance at the 5% level.

∗ indicates statistical significance at the 10% level.

Table 2.66: Regression results on the effects of the Absence & Divergence Indexes and country-specific factors on Tax Evasion (Main Tests:2nd alternative approach-2nd country subset)

Model 7^{AA}: $ATES_{NEW}=a_o+a_1GovInd_{NEW}+a_2CompInd_{NEW}+a_3Abs_{NEW}+\varepsilon_i$

(R^2:0.739, Adj.R^2: 0.661, F: 9.456, (p=0.003))

	Coefficients	t-stat	VIF
(Constant)	14.769	8.395	
	(0.000)***		
$GovInd_{NEW}$	-4.110	-3.522	1.437
	(0.006)***		
$CompInd_{NEW}$	-2.289	-1.900	1.533
	(0.087)*		
Abs_{NEW}	0.030	0.500	1.970
	(0.628)		

Model 8^{AA}: $ATES_{NEW}=ao+a_1GovInd_{NEW}+a_2CompInd_{NEW}+a_3Div_{NEW}+\varepsilon i$

(R^2:0.786, Adj.R^2: 0.722, F: 12.256, (p=0.001))

	Coefficients	t-stat	VIF
(Constant)	23.278	4.666	
	(0.001)***		
$GovInd_{NEW}$	-4.592	-5.175	1.013
	(0.001)***		
$CompInd_{NEW}$	-2.250	-2.456	1.080
	(0.034)**		
Div_{NEW}	-0.256	-1.579	1.094
	(0.145)		

Notes: Principal regression coefficients of the Absence and Divergence Indexes' and country-specific factors' effect on Tax Evasion. P-values are presented in parentheses. P-values are presented in parentheses.

∗∗∗ indicates statistical significance at the 1% level.

∗∗ indicates statistical significance at the 5% level.

∗ indicates statistical significance at the 10% level.

Table 2.67: Regression results on the effects of the Absence & Divergence Indexes and country-specific factors on Tax Evasion (Robustness Tests:1st alternative approach-2nd country subset)

Model 11^{AA}: $ATES_{ROBNEW}=ao+a_1ACCGOVED_{NEW}+a_2BOOKFIN_{NEW}+a_3Abs_{ROBNEW}+\varepsilon_i$ (R^2:0.657, Adj.R^2: 0.619, F:17.225, (p=0.000))			
	Coefficients	t-stat	VIF
(Constant)	16.591 (0.000)***	8.803	
$ACCGOVED_{NEW}$	-7.555 (0.000)***	-6.511	1.068
$BOOKFIN_{NEW}$	-1.784 (0.155)	-1.465	1.176
Abs_{ROBNEW}	0.079 (0.281)	1.099	1.244

Model 12^{AA}: $ATES_{ROBNEW}=ao+a_1ACCGOVED_{NEW}+a_2BOOKFIN_{NEW}+a_3Div_{ROBNEW}+\varepsilon_i$ (R^2:0.642, Adj.R^2:0.602, F: 16.108, (p=0.000))			
	Coefficients	t-stat	VIF
(Constant)	18.624 (0.000)***	4.058	
$ACCGOVED_{NEW}$	-7.810 (0.000)***	-5.502	1.530
$BOOKFIN_{NEW}$	-1.188 (0.436)	-0.791	1.715
Div_{ROBNEW}	-0.016 (0.937)	-0.080	2.244

Notes: Principal regression coefficients of the Absence and Divergence Indexes' and country-specific factors' effect on Tax Evasion. P-values are presented in parentheses. P-values are presented in parentheses.

∗∗∗ indicates statistical significance at the 1% level.

∗∗ indicates statistical significance at the 5% level.

∗ indicates statistical significance at the 10% level.

Table 2.68: Regression results on the effects of the Absence & Divergence Indexes and country-specific factors on Tax Evasion (Robustness Tests:2nd alternative approach-2nd country subset)

Model 15^{AA}: $ATES_{ROBNEW}=ao+a_1IQI_{ROBNEW}+a_2UAD_{ROBNEW}+a_3Abs_{ROBNEW}+\varepsilon_i$ ***(R^2:0.663, Adj.R^2: 0.625, F: 17.695, (p=0.000))***				***Model 16^{AA}:*** $ATES_{ROBNEW}=ao+a_1IQI_{ROBNEW}+a_2UAD_{ROBNEW}+a_3Div_{ROBNEW}+\varepsilon_i$ ***(R^2:0.642, Adj.R^2:0.602, F: 16.127, (p=0.000))***			
	Coefficients	t-stat	VIF		Coefficients	t-stat	VIF
(Constant)	16.257 (0.000)***	8.790		(Constant)	19.927 (0.000)***	4.212	
IQI_{ROBNEW}	-7.762 (0.000)***	-6.913	1.018	IQI_{ROBNEW}	-7.598 (0.000)***	-4.978	1.770
UAD_{ROBNEW}	-0.301 (0.806)	-0.248	1.189	UAD_{ROBNEW}	0.679 (0.646)	0.464	1.626
Abs_{ROBNEW}	0.095 (0.188)	1.350	1.206	Div_{ROBNEW}	-0.074 (0.721)	-0.361	2.396

Notes: Principal regression coefficients of the Absence and Divergence Indexes' and country-specific factors' effect on Tax Evasion. P-values are presented in parentheses. P-values are presented in parentheses.

∗∗∗ indicates statistical significance at the 1% level.

∗∗ indicates statistical significance at the 5% level.

∗ indicates statistical significance at the 10% level.

The regression results for Models 31-32 and 33-34 are presented in Tables 2.69 and 2.70, respectively. With respect to the EU sample, we see that the Absence Index model (Model 31) is statistically significant (F value: 7.982, statistically significant at the $p<0.05$ level) and has a high explanatory power (R^2:0.399, Adj.R^2:0.349)[95]. Also, the Absence Index is a statistically significant determining factor of the Average Tax Evasion Score. This finding implies that the absence of IAS/IFRS rules from national standards contributed to the observed level of tax evasion at the EU level. Thus, the more the EU sample countries' national accounting standards depart from international accounting standards, the more the way is paved for companies to tax evade.

On the other hand, the Divergence Index model (Model 32) of the EU sample is not statistically significant and has no explanatory power at all.

Additionally, because the Divergence Index is not a statistically significant explanatory variable of the ATES dependent variable, it exerts no influence on the EU sample countries' estimated level of tax evasion.

When the international sample of countries is examined, we observe a reversal of the results. Specifically, we notice that the Divergence Index model (Model 34) is statistically significant (F value:7.868, significant at the $p<0.01$ level) and has a satisfactory explanatory power (R^2:0.213, Adj.R^2:0.186)[96].

Furthermore, the Divergence Index is statistically significant ($p<0.01$) and negatively related with the Average Tax Evasion Score of the countries included in the international sample. Contrarily, the Absence Index model (Model 33) is not statistically significant. Thus, the absence of IAS/IFRS accounting items from national accounting standards has no effect on the international sample countries' level of tax evasion.

The negative sign of the Divergence Index coefficient for the international sample implies that the non-EU countries' individual accounting choices, while diverging from IAS/IFRS, had an inverse effect on their estimated level of tax evasion.

[95]Based on Kolmogorov-Smirnov's test/p-value: 0.380, Runs test/p-value: 1.000, and Levene's test based on Median/p-value: 0.534, we conclude that the residuals of Model 31 are normally distributed, independent, and homoscedastic.

[96] The residuals of Model 34 are normally distributed, independent and marginally heteroscedastic (Kolmogorov-Smirnov test/p-value:0.285, Runs test/p-value:0.995, Levene's test based on median/p-value:0.014).

Table 2.69: Regression results on the effects of the Absence & Divergence Indexes on Tax Evasion (EU Sample)

Model 31: $ATES_{NEW}=a_o+a_1Abs_{NEW}+\varepsilon_i$
(R^2:0.399, Adj.R^2: 0.349, F: 7.982, (p=0.015))

	Coefficients	t-stat	VIF
(Constant)	11.362	5.792	
	(0.000)***		
Abs_{NEW}	0.168	2.825	1.000
	(0.015)**		

Model 32: $ATES_{NEW}=a_o+a_1Div_{NEW}+\varepsilon_i$
(R^2:0.067, Adj.R^2: -0.011, F: 0.862, (p=0.372))

	Coefficients	t-stat	VIF
(Constant)	23.835	2.616	
	(0.023)**		
Div_{NEW}	-0.274	-0.928	1.000
	(0.372)		

Notes: Regression coefficients of the Absence and Divergence Indexes' effect on Tax Evasion. P-values are presented in parentheses. P-values are presented in parentheses.

∗∗∗ indicates statistical significance at the 1% level.

∗∗ indicates statistical significance at the 5% level.

∗ indicates statistical significance at the 10% level.

Table 2.70: Regression results on the effects of the Absence & Divergence Indexes on Tax Evasion (International sample)

Model 33: $ATES_{ROBNEW}=a_o+a_1Abs_{ROBNEW}+\varepsilon_i$
(R^2:0.061, Adj.R^2: 0.029, F: 1.896, (p=0.179))

	Coefficients	t-stat	VIF
(Constant)	15.261	5.436	
	(0.000)***		
Abs_{ROBNEW}	0.142	1.377	1.000
	(0.179)		

Model 34: $ATES_{ROBNEW}=a_o+a_1Div_{ROBNEW}+\varepsilon_i$
(R^2:0.213, Adj.R^2: 0.186, F: 7.868, (p=0.009))

	Coefficients	t-stat	VIF
(Constant)	30.173	6.646	
	(0.000)***		
Div_{ROBNEW}	-0.529	-2.805	1.000
	(0.009)***		

Notes: Regression coefficients of the Absence and Divergence Indexes' effect on Tax Evasion. P-values are presented in parentheses. P-values are presented in parentheses.

∗∗∗ indicates statistical significance at the 1% level.

∗∗ indicates statistical significance at the 5% level.

∗ indicates statistical significance at the 10% level.

Accordingly, accounting choices made in particular crucial areas may prove to be effective in reducing the extent of tax evasion, despite differing from international accounting standards.

We observe from the regression results for Models 31 - 34 that there is no definite pattern regarding the Absence and Divergence Indexes' effect on tax evasion. Due to the absence of certain IAS/IFRS accounting rules, the estimated amount of tax evasion in EU member states has increased. Nonetheless, certain non-EU countries' decision to depart from IAS/IFRS in key accounting sectors limited their level of tax evasion. Therefore, a country's decision to diverge from IAS/IFRS may be driven by its strategy for combating tax evasion.

In general, national accounting standard setters should proceed cautiously when eliminating IAS/IFRS provisions from their national standards without considering the implications for tax evasion. The idea that enhanced book-tax conformity will result in increased tax revenues (by removing specific IAS/IFRS rules that are incompatible with tax regulations) may actually result in the opposite. After all, non-convergence with IAS/IFRS (either absence or divergence) may be justified and viewed as a worthwhile compromise if it results in reduced tax evasion.

2.11.Conclusions, Limitations & Suggestions for future research

The current Chapter focuses on the effect of country-specific factors on the observed deviation of Greek Accounting Standards (Law 4308/2014) from the IAS/IFRS accounting framework discussed in Chapter 1.

We are motivated by Ding et al.'s research which examines the factors influencing the absence and divergence of national accounting standards from IAS. Ding et al. classify national accounting standards' deviation from IAS into two categories: the absence of specific IAS accounting items from national accounting standards and national accounting standards' divergence from IAS. The segmentation of deviation from IAS into absence and divergence is particularly useful, as the findings of Chapter 1 reveal that the newly established Greek Accounting Standards deviate from IAS/IFRS due to the absence of specific items rather than divergence.

For several reasons, the research presented in this Chapter is not directly comparable to those of Ding et al. Unlike Ding et al., we split our sample into an EU and an international part; Additionally, we use completely different country-specific factors than Ding et al., with the exception of Hofstede's cultural values and economic development; and finally, we examine the aggregate effect of country-specific factors

on the absence and divergence of national accounting standards from IAS, whereas Ding et al. examine their individual effect.

We choose the 14 EU countries included in Ding et al.'s research because we believe that the EU cluster of countries provides a homogeneous environment conducive to conclusion-making. The EU country sample is subdivided into two subsets. The 1st country subset contains the Absence and Divergence Index values for the 14 EU sample nations in 2001, as calculated by Ding et al. The 2nd country subset contains identical data to the first country subset, with the exception of Greece's Absence and Divergence Indexes, which correspond to the absent and divergent measurement accounting items of the new Greek Accounting Standards from IAS/IFRS.

By doing so, we can evaluate whether country-specific factors have had an impact on the level of Greece's current Absence and Divergence Indexes. Additionally, our research is dynamic in that it compares the influence of country-specific factors in the 1st country subset to the effect of country-specific factors in the 2nd country subset.

Given that, as Papadaki (2005) points out, national accounting standards are the product of the interplay of cultural, historical, economic, and institutional forces, we introduce variables to reflect numerous significant country-specific factors.

We are inspired by Gray (1988) and Hope et al. (2008) and incorporate into our research the cultural accounting values of Uniformity, Statutory Control, and Conservatism, which are based on Hofstede's (1984) cultural values. Additionally, we construct the Governance Quality variable by using Principal Component Analysis (PCA) on four World Bank Governance Indicators (Government Effectiveness, Rule of Law, Regulatory Quality and Control of Corruption). Also, we address two additional critical country characteristics: the degree of Book-Tax Conformity and financial orientation.

Unlike prior studies that used a binary variable with a value of one for high book-tax conformity and zero for low book-tax conformity, we are innovative in that we use Watrin et al.'s (2012) Book-Tax conformity measure to reflect the alignment of accounting and tax laws in EU member states. To reflect a country's financial orientation, we apply Demirgüç-Kunt and Levine's (2001) measure, which classifies countries into bank- or market-based. Finally, we control for economic development and geographical area, as indicators of a country's overall financial strength.

Because of the observed multicollinearity regarding Gray's accounting values (Uniformity/Statutory Control and Conservatism), we perform Principal Component

Analysis (PCA) to extract uncorrelated principal components. The extracted components are then regressed against the Absence and Divergence Indexes for both country subsets using Principal Component Regression (PCR). This approach enables us to correct for the high correlations between independent variables and to examine the aggregate effect of country-specific factors on a country's deviation from IAS/IFRS, rather than their individual effect.

We split our main tests into two distinct approaches. The 1st alternative approach employs PCA and PCR to extract principal components (i.e., aggregate country-factors) while retaining Gray's cultural accounting values. The 2nd alternative approach uses the same process as the first but breaks down Gray's accounting values into Hofstede's original cultural values.

Another distinction between the two alternative approaches is that in the second alternative approach, the Governance Quality variable is decomposed into the four specific World Bank Governance Indicators that comprise it. As a result, we can investigate the effect of a broader set of country factors on the Absence and Divergence Indexes.

Both approaches' relevant findings reveal that the aggregate effect of our research's country-specific factors seems to have an impact on the absence of certain IAS accounting items from national accounting standards in the EU sample. On the other hand, the aggregate effect of country-specific factors has no impact on the divergence between the EU sample countries' national accounting standards and IAS/IFRS.

We test the robustness of our main findings and expand the initial EU sample to include other non-EU countries, culminating in an international sample of countries. Due to the unavailability of data for the included non-EU countries, we replace Watrin et al.'s (2012) Book-Tax Conformity measure with Tang's (2015) Book-Tax Conformity proxy. Following that, we repeat the methodology used in the main tests and run the same set of regressions on the new sample of countries.

We discover that when the countries under study are geographically dispersed and belong to heterogeneous environments, country-specific factors behave significantly differently. Specifically, we discover that, unlike the main tests, the aggregate effect of country-specific factors does have an influence on the divergence of non-EU developed countries' national accounting standards from IAS/IFRS. This finding is explained by the fact that developed countries are more likely than developing countries to develop high-quality national accounting standards that diverge from the

IAS/IFRS framework, owing to their distinct cultural characteristics, developed economies, and capital markets.

Additionally, the separation of the research sample into two distinct groups (EU sample and international sample) enables us to make valuable conclusions on the degree to which Greece's newly introduced accounting framework deviates from IAS/IFRS in terms of measurement accounting items. The observed absence of specific IAS/IFRS accounting measurement items in the new Greek Accounting Standards is impacted by the combined effect of the country-specific factors addressed in our research.

Greece's bank-based orientation, high book-tax conformity environment, and distinctive cultural characteristics infused in accounting, combined with its low governance quality and economic development, contribute to the omission of specific IAS/IFRS accounting measurement items from the new Greek Accounting Standards. On the other hand, none of the aforementioned factors appear to have an effect on the divergence between Greek Accounting Standards and IAS/IFRS in terms of specific accounting measurement items.

The present study's findings practically confirm prior research on the effect of country-specific factors on the development of accounting in Greece. For example, the effect of culture and Book-Tax Conformity on the absence of specific IAS/IFRS measurement accounting items from Greek Accounting Standards (e.g., Greece's Absence Index of the 2nd country subset) confirms Ballas et al.'s (2010) relevant remarks that Greece's distinct cultural characteristics and high book-tax conformity not only create barriers but also cast doubts on the country's potential general adoption of IFRS.

Additionally, the effect of Greece's low governance quality on the country's Absence Index verifies Ramanna and Sletten's (2009) finding that the lower a country's governance quality, the less receptive it will be to international standards. Finally, Greece's bank-based orientation influence on Greece's Absence Index, verifies Schultz and Lopez's (2001) observation that bank-based countries have less of a need for more detailed accounting systems.

The current study is innovative in another way: it makes use of variables that effectively and practically represent country-specific factors. For instance, whereas Watrin et al. (2012) and Tang (2015) construct their measures differently, they both refer to the same thing: Book-Tax Conformity Indexes. Demirgüç-Kunt and Levine

(2001) similarly create a metric for evaluating a country's financial direction. The use of empirical metrics to capture country-specific characteristics adds credibility to and strengthens the findings of the current study.

Apart from the main and robustness tests, we carry out additional tests to assess the sensitivity of the reported results. We replace the original values of the Absence and Divergence Indexes, which include both measurement and disclosure accounting items, with the Absence and Divergence Indexes developed by Ding et al. (2009), which contain only absent and divergent measurement accounting items. Thus, the Absence and Divergence Indexes for all sample countries are identical to Greece's newly estimated Absence and Divergence Indexes in Section 2.2 of this Chapter. The reported findings corroborate the results of the main and robustness tests.

Moreover, we examine the effect of auditing and enforcement of accounting standards on the Absence and Divergence Indexes using Brown et al.'s (2014) AETOTAL proxy. We discover that the auditing and accounting enforcement environment has an effect on accounting standards only in countries where auditing and enforcement organizations exercise authoritative power over the accounting standard-setting process.

The final set of additional tests examines the Absence and Divergence Indexes' effect on tax evasion in the sample countries applying Medina and Schneider's (2018) proxy. We discover that the absence of specific IAS/IFRS accounting items exacerbates tax evasion in EU member states, whereas divergence between national accounting standards and IAS/IFRS mitigates tax evasion in developed non-EU countries.

Naturally, the research study presented in this Chapter is not without limitations. The present research has a limitation in that it uses a small EU and international sample due to data unavailability, which prevents us from examining a larger set of sample countries.

Also, the present research reveals statistical connections between the Absence and Divergence Indexes and the independent variables, not causal relationships[97]. Nonetheless, this constraint is alleviated by the application of realistically defined country-specific variables. Furthermore, despite the exploration and the use of

[97] Ding et al. (2007) also made a similar comment, regarding their relevant research.

interactions among a broad selection of explanatory variables, concerns about possible endogeneity bias due to potentially omitted variables cannot be neglected.

Nobes (2009, 2018) harshly criticizes Ding et al.'s data and methodology, which strongly influenced the research for the current Chapter. Nobes (2018) emphasizes explicitly that the data utilized by Ding et al. (i.e., GAAP 2001 survey) are not only unsuitable for cross-country comparisons but are also not intended to be additive. Additionally, Nobes (2009) asserts that there should be no distinction between absence and divergence of rules, as they both represent a single dimension.

While we acknowledge that the data on the Absence and Divergence Indexes for the sample countries, other than Greece, may be outdated, this is justified by the absence of data on the Absence and Divergence Indexes for EU countries following the adoption of the new EU Accounting Directive. Additionally, several of the independent variables (e.g., Book-Tax Conformity and GDP) are not derived from the same time period as the dependent variables. As a result of the foregoing, the evidence presented in this study is preliminary and exploratory.

Additionally, the Absence and Divergence Indexes are not perfect indicators of the differences between national and international accounting standards, since they can both produce the same results in certain instances and the opposite result in others, as Nobes (2009) concludes.

Another aspect of the current study that has garnered much criticism is its use of Hofstede's cultural values as a proxy for global cultural differences, as well as Gray's framework of cultural accounting values. For example, Baskerville (2003) asserts that accounting researchers' reliance on Hofstede's dimensions creates more problems than it resolves. In addition, Papadaki (2005, p. 354) emphasizes that "*the main theoretical argument against the adoption of Hofstede's cultural dimensions model for the analysis of policy issues is its lack of normative perspective*".

Gray's framework has also come under criticism from researchers such as Baydoun and Willett (1995) and Heidhues and Patel (2011), who contend that Gray's accounting values are not based on financial statement aspects and so do not contribute to a better understanding of accounting systems.

Given the ambiguities with which culture can be quantified, as Nobes (2018) notes, another limitation of this study is the use of quantitative measurements that may not accurately depict the effect of culture on a country's accounting standards, which

according to Baydoun and Willett (1995), is not constant or always in the same direction.

However, the limitations of this study bring up numerous intriguing avenues for further research. Future researchers could examine differences across all EU member states by developing Absence and Divergence Indexes following national implementation of the new EU Accounting Directive. Additionally, the same research might be conducted on a global scale by developing up-to-date Absence and Divergence Indexes and conducting an in-depth examination of worldwide accounting differences.

Moreover, future research might follow Nobes' (2008) suggestion and investigate how differences in accounting regulations are represented in accounting practice. Also, the effect of country-specific factors other than those examined in this study could be used to acquire a better understanding of the national and international drivers of accounting development.

The current study contributes to existing body of research in a variety of ways. First of all, it demonstrates the effect of country-specific factors on the formulation of accounting at the national, EU, and international levels. Second, it illustrates that country-specific characteristics should be addressed aggregately rather than individually. Thirdly, it emphasizes the significance of employing practical and realistic measures for describing country-specific factors. Fourth, it underscores how conclusions can be drawn more easily when countries under consideration represent homogeneous rather than heterogeneous environments.

In general, we concur with Ding et al.'s (2009) assessment of the necessity of exploring accounting differences at the regulatory level. Ding et al.'s (2009) recommendation becomes more relevant with the adoption of the new EU Accounting Directive, as research on accounting variations at the EU level will increase our understanding of the underlying factors that motivate the actions of national EU accounting standard-setters.

SOURCES

1. Abdi, H. & Williams, L.J. (2010) “Principal component analysis”, WIREs Comp Stat, 2: 433-459.

2. Ali, Ashiq & Hwang, Leo-Seok (2000) “Country-specific factors related to financial reporting and the value relevance of accounting data”, Journal of Accounting Research, vol. 38(1), pp. 1-21.

3. Alin, Aylin (2010) “Multicollinearity”, WIREs Comp Stat, 2: 370-374.

4. Alon, Anna & Dwyer, Peggy D. (2014) “Early Adoption of IFRS as a Strategic Response to Transnational and Local Influences”, The International Journal of Accounting, vol. 49(3), pp. 348-370.

5. Aisbitt, Sally (2001) “Measurement of harmony of financial reporting within and between countries: the case of the Nordic countries”, European Accounting Review, 10:1, 51-72.

6. Anastasiou, Dimitrios, Bragoudakis, Zacharias & Malandrakis, Ioannis (2019) “Non-performing loans, governance indicators and systemic liquidity risk: evidence from Greece”, Working Papers 260, Bank of Greece, https://www.bankofgreece.gr/Publications/Paper2019260.pdf.

7. Artigue, Heidi & Smith, Gary (2019) “The principal problem with principal components regression”, Cogent Mathematics & Statistics, 6:1, 1622190

8. Ball, Ray, Kothari, S. P. & Robin, Ashok (2000) “The effect of international institutional factors on properties of accounting earnings”, Journal of Accounting and Economics, Elsevier, vol. 29(1), pp. 1-51.

9. Ball, Ray, Robin, Ashok & Wu, Joanna Shuang (2003) “Incentives versus standards: properties of accounting income in four East Asian countries”, Journal of Accounting and Economics, vol. 36(1-3), pp. 235-270.

10. Ballas, Apostolos A. (1994) “Accounting in Greece”, European Accounting Review, 3:1, 107-121.

11. Ballas, Apostolos A., Hevas, Dimosthenis & Neal, David (1998) “The State of Accounting and the State of the State”, Journal of Management and Governance 2, no3, pp. 267-285.

12. Ballas, Apostolos A., Skoutela, Despina & Tzovas, Christos A. (2010) “The relevance of IFRS to an emerging market: evidence from Greece”, Managerial Finance, vol. 36(11), pp. 931-948.

13. Bartlett, Maurice S. (1950) “Tests of Significance in Factor Analysis”, British Journal of Psychology, Statistical Section 3: 77-85.
14. Bartlett, Maurice S. (1951) “A Further Note on Tests of Significance in Factor Analysis”, British Journal of Psychology, Statistical Section 4: 1-2.
15. Baskerville, Rachel F. (2003) “Hofstede never studied culture”, Accounting, Organizations and Society, vol. 28 (1), pp.1-14.
16. Baydoun, N. & Willett, R. (1995) “Cultural Relevance of Western Accounting Systems to Developing Countries”, Abacus, 31: 67-92.
17. Beneish, Messod Daniel, Miller, Brian P. & Yohn, Teri Lombardi (2012) “The Impact of Financial Reporting on Equity versus Debt Markets: Macroeconomic Evidence from Mandatory IFRS Adoption”, https://ssrn.com/abstract=1403451.
18. Berger, Allen N. & Udell, Gregory F. (2006) “A more complete conceptual framework for SME finance”, Journal of Banking & Finance, Elsevier, vol. 30 (11), pp. 2945-2966.
19. Boolaky, P. K. & Soobaroyen, T. (2017) “Adoption of International Standards on Auditing (ISA): Do Institutional Factors Matter?”, International Journal of Auditing, vol 21(1), pp. 59– 81.
20. Brown, Philip, Preiato, John & Tarca, Ann (2014) “Measuring Country Differences in Enforcement of Accounting Standards: An Audit and Enforcement Proxy”, Journal of Business Finance & Accounting, vol. 41(1-2), pp.1-52.
21. Budaev, S.V. (2010) “Using Principal Components and Factor Analysis in Animal Behaviour Research: Caveats and Guidelines”, Ethology, 116: 472-480.
22. Burgstahler, David C., Hail, Luzi & Leuz, Christian (2006) “The Importance of Reporting Incentives: Earnings Management in European Private and Public Firms”, The Accounting Review, 81 (5): 983–1016.
23. Cattell, Raymond B. (1966) “The Scree Test For The Number Of Factors”, Multivariate Behavioral Research, 1:2, 245-276.
24. Chan, Swee Lean & Park, Moonseo (2005) “Project cost estimation using principal component regression”, Construction Management and Economics, vol. 23(3), pp. 295-304.
25. Charron N., Lapuente V. & Rothstein B. (2010) “Measuring the Quality of Government and Subnational Variation”, Report for the European Commission Directorate-General Regional Policy, Directorate Regional Policy,

https://ec.europa.eu/regional_policy/sources/docgener/studies/pdf/2010_government_1.pdf.

26. Charron, Nicholas & Lapuente, Victor (2010) “Does democracy produce quality of government?”, European Journal of Political Research, 49: 443-470.

27. Charron, Nicholas, Dijkstra, Lewis & Lapuente, Victor (2014) “Regional Governance Matters: Quality of Government within European Union Member States”, Regional Studies, 48:1, 68-90

28. Chen, Gikuang Jeff (2012) “A simple way to deal with multicollinearity”, Journal of Applied Statistics, 39:9, 1893-1909.

29. Christensen, Hans B., Hael, Luzi & Leuz, Christian (2011) “Capital-Market Effects of Securities Regulation: Hysteresis, Implementation, and Enforcement”, NBER Working Papers 16737, National Bureau of Economic Research, http://www.nber.org/papers/w16737.

30. Craig, Russell & Diga, Joselito (1999) “Framework for describing national financial accounting systems: towards an archetype”, Asian Review of Accounting, vol. 7, no. 1: 65-95.

31. Damak-Ayadi, Salma, Sassi, Nesrine and Bahri, Moujib (2020) “Cross-country determinants of IFRS for SMEs adoption”, Journal of Financial Reporting and Accounting, Vol. 18 No. 1, pp. 147-168.

32. Daske, Holger, Hail, Luzi, Leuz, Christian & Verdi, Rodrigo (2008) “Mandatory IFRS Reporting around the World: Early Evidence on the Economic Consequences”, Journal of Accounting Research, vol. 46(5), pp. 1085-1142.

33. Demirgüç-Kunt, Asli & Levine, Ross (1999) “Bank-Based and Market-Based Financial Systems: Cross-Country Comparisons” http://documents1.worldbank.org/curated/en/259341468739463577/126526322_20041117172106/additional/multi-page.pdf.

34. Demirgüç-Kunt, Asli & Levine, Ross (2001) “Bank-Based and Market-Based Financial Systems: Cross-Country Comparisons in Financial Structure & Economic Growth: A Cross-Country Comparison of Banks, Markets, and Development”, MIT Press, Cambridge, MA (2001), pp. 81-140.

35. De la Torre, Augusto, Soledad Martinez Peria, Maria & Schmukler, Sergio L. (2008) “Bank involvement with SMEs: Beyond relationship lending”, Policy Research Working Paper Series 4649, The World Bank, http://documents1.worldbank.org/curated/en/222841468045046107/pdf/wps4649.pd

36. Dien, Joseph, Beal, Daniel J. & Berg, Patrick (2005) “Optimizing principal components analysis of event-related potentials: Matrix type, factor loading weighting, extraction, and rotations”, Clinical Neurophysiology, Volume 116, Issue 8, pp. 1808-1825.

37. Dimitropoulos, Panagiotis E., Asteriou, Dimitrios, Kousenidis, Dimitrios & Leventis, Stergios (2013), “The impact of IFRS on accounting quality: Evidence from Greece”, Advances in accounting, vol. 29(1), pp.108-123.

38. Ding, Yuan, Jeanjean, Thomas & Stolowy, Hervé (2005) “Why do national GAAP differ from IAS? The role of culture”, The International Journal of Accounting, vol. 40(4), pp. 325-350.

39. Ding, Yuan, Jeanjean, Thomas & Stolowy, Hervé (2005a) “Reply to discussion of “Why do national GAAP differ from IAS? The role of culture”, The International Journal of Accounting, vol. 40(4), pp. 359-362.

40. Ding, Yuan, Hope, Ole-Kristian Hope, Jeanjean, Thomas & Stolowy, Hervé, (2007) “Differences between domestic accounting standards and IAS: Measurement, determinants and implications”, Journal of Accounting and Public Policy, Volume 26, Issue 1, pp.1-38.

41. Ding, Yuan, Jeanjean, Thomas & Stolowy, Hervé (2009) “Observations on measuring the differences between domestic accounting standards and IAS: A reply”, Journal of Accounting and Public Policy, vol. 28(2), pp. 154-161.

42. Eberhartinger, Eva L. E. (1999) “The Impact of Tax Rules on Financial Reporting in Germany, France, and the UK”, The International Journal of Accounting, vol. 34(1), pp. 93-119.

43. Fontes, A., Rodrigues, L.L. & Craig, R. (2005) “Measuring convergence of National Accounting Standards with International Financial Reporting Standards”, Accounting Forum, Volume 29, Issue 4.

44. Ford, J.K., MacCallum, R.C. & Tait, M. (1986) “The Application of Exploratory Factor Analysis in Applied Psychology: A Critical Review and Analysis”, Personnel Psychology, 39: 291-314.

45. Forina, M., Armanino, C., Lanteri, S. & Leardi, R. (1988) “Methods of varimax rotation in factor analysis with applications in clinical and food chemistry”, J. Chemometrics, 3: 115-125.

46. Francis, Jere R., Khurana, Inder K., Martin, Xiumin & Pereira, Raynolde (2008) “The Role of Firm-Specific Incentives and Country Factors in Explaining Voluntary

IAS Adoptions: Evidence from Private Firms", European Accounting Review, 17:2, 331-360.
47. "GAAP Convergence 2002: A survey National Efforts to Promote and Achieve Convergence with International Financial Reporting Standards", https://www.iasplus.com/en/news/2003/February/news813.
48. Globerman, Steven & Shapiro, Dandiel (2003) "Governance infrastructure and US foreign direct investment", Journal of International Business Studies 34, 19–39.
49. Goldberg, L. R., & Velicer, W. F. (2006) "Principles of exploratory factor analysis", In S. Strack (Ed.), Differentiating normal and abnormal personality: Second edition. New York, NY: Springer, pp. 209-237.
50. Graham, M.H. (2003) "Confronting multicollinearity in ecological multiple regression", Ecology, 84: 2809-2815.
51. Gray, S.J. (1988) "Towards a Theory of Cultural Influence on the Development of Accounting Systems Internationally", Abacus, 24: 1-15.
52. Guenther, David A. & Hussein, Mohamed E. A. (1995) "Accounting standards and national tax laws: The IASC and the ban on LIFO", Journal of Accounting and Public Policy, Elsevier, vol. 14(2), pp. 115-141.
53. Guenther, David A. & Young, Danqing (2000) "The association between financial accounting measures and real economic activity: a multinational study", Journal of Accounting and Economics, vol. 29(1), pp. 53-72.
54. Gunst, R.F. & Webster, J.T. (1975) "Regression analysis and problems of multicollinearity", Communications in Statistics - Theory and Methods, 4:3, 277-292.
55. Guttman, Louis (1954), "Some necessary conditions for common-factor analysis", Psychometrika, vol. 19(2), pages 149-161.
56. Hadi, Ali S. & Ling, Robert F. (1998) "Some Cautionary Notes on the Use of Principal Components Regression", The American Statistician, 52:1, 15-19
57. Hail, Luzi & Leuz, Christian (2006) "International Differences in the Cost of Equity Capital: Do Legal Institutions and Securities Regulation Matter?", Journal of Accounting Research, vol. 44(3), pp. 485-531.
58. Heidhues, Eva & Patel, Chris (2011) "A critique of Gray's framework on accounting values using Germany as a case study", Critical Perspectives on Accounting, vol. 22(3), pp. 273-287.

59. Hill, R. Carter, Fomby, Thomas B. & Johnson, S. R. (1977) “Component selection norms for principal components regression”, Communications in Statistics - Theory and Methods, 6:4, 309-334.
60. Hofstede, Geert (1984) “Cultural dimensions in management and planning”, Asian Pacific Journal of Management 1, pp. 81–99.
61. Hope, O.-K. (2003) “Firm-level Disclosures and the Relative Roles of Culture and Legal Origin”, Journal of International Financial Management & Accounting, 14: 218-248.
62. Hope, Ole-Kristian, Kang, Tony, Thomas, Wayne & Yoo, Yong Keun (2008) “Culture and auditor choice: A test of the secrecy hypothesis”, Journal of Accounting and Public Policy, vol. 27(5), pp. 357-373.
63. Hotelling, H. (1957) “The relations of the newer multivariate statistical methods to factor analysis”, British Journal of Statistical Psychology, 10, 69–79.
64. Houqe, Muhammad Nurul, Monem, Reza M. & Van Zijl, Tony (2012) “Government Quality, Auditor Choice and Adoption of IFRS: A Cross Country Analysis”, Advances in Accounting: Incorporating Advances in International Accounting, 28 (2): 307-316.
65. Howard, Matt C. (2016) “A Review of Exploratory Factor Analysis Decisions and Overview of Current Practices: What We Are Doing and How Can We Improve?”, International Journal of Human-Computer Interaction, 32:1, 51-62.
66. Hubbard, Raymond & Allen, Stuart J. (1987) “An empirical comparison of alternative methods for principal component extraction”, Journal of Business Research, vol. 15(2), pp. 173-190.
67. Hung, Mingyi (2000) “Accounting standards and value relevance of financial statements: An international analysis”, Journal of Accounting and Economics, Elsevier, vol. 30(3), pp. 401-420.
68. Jaafar, Aziz & McLeay, Stuart (2007) “Country Effects and Sector Effects on the Harmonization of Accounting Policy Choice”, Abacus, Accounting Foundation, University of Sydney, vol. 43(2), pp. 156-189.
69. Jackson, D.A. (1993) “Stopping Rules in Principal Components Analysis: A Comparison of Heuristical and Statistical Approaches”, Ecology, 74: 2204-2214
70. Jeffers, J. N. R. (1967) “Two Case Studies in the Application of Principal Component Analysis”, Journal of the Royal Statistical Society Series C, Royal Statistical Society, vol. 16(3), pp. 225-236.

71. Jaggi, Bikki & Low, Pek Yee (2000) “Impact of Culture, Market Forces, and Legal System on Financial Disclosures”, The International Journal of Accounting, vol. 35(4), pp. 495-519.
72. Jolliffe, I.T. (1982) “A Note on the Use of Principal Components in Regression”, Journal of the Royal Statistical Society: Series C (Applied Statistics), 31: 300-303.
73. Jolliffe, I.T. (1990) “Principal Component Analysis: A Beginner’s Guide - I. Introduction and application”, Weather, 45: 375-382.
74. Jolliffe, I.T. (1993) “Principal component analysis: A beginner’s guide - II. Pitfalls, myths and extensions”, Weather, 48: 246-253.
75. Jolliffe, I.T. (2002) “Rotation and interpretation of principal components”, Principal Component Analysis, I.T. Jolliffe, ed., New York, Springer New York. 269–298.
76. Jolliffe I.T. & Cadima J. (2016) “Principal component analysis: a review and recent developments”, Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences, 374 (2065), p. 20150202.
77. Kaiser, Henry (1958) “The varimax criterion for analytic rotation in factor analysis”, Psychometrika, vol. 23(3), pp. 187-200.
78. Kaiser, H.F. (1960) “The application of electronic computers to factor analysis”, Educational and Psychological Measurement, 20, 141-51.
79. Kaiser, H.F. (1961) “A note on Guttman’s lower bound for the number of common factors”, British Journal of Statistical Psychology, 14: 1-2.
80. Kaiser, Henry (1970) “A second generation little jiffy”, Psychometrika, vol. 35(4), pp. 401-415.
81. Kaiser, Henry (1974) “An index of factorial simplicity”, Psychometrika, vol. 39(1), pp. 31-36.
82. Karampinis, Nikolaos I. & Hevas, Dimosthenis L. (2011) “Mandating IFRS in an Unfavorable Environment: The Greek Experience”, The International Journal of Accounting, vol. 46(3), pp. 304-332.
83. Karampinis, Nikolaos I. & Hevas, Dimosthenis L. (2013) “Effects of IFRS Adoption on Tax-induced Incentives for Financial Earnings Management: Evidence from Greece”, The International Journal of Accounting, vol. 48(2), pp. 218-247.
84. Kaufman, J.D. & Dunlap, W.P. (2000) “Determining the number of factors to retain: Q windows-based FORTRAN-IMSL program for parallel analysis”, Behavior Research Methods, Instruments, & Computers 32, 389–395.

85. Kaufmann, Daniel, Kraay, Aart & Zoido-Lobatón, Pablo (1999a) “Aggregating governance indicators”, Policy Research Working Paper Series 2195, The World Bank, https://info.worldbank.org/governance/wgi/pdf/govind.pdf.
86. Kaufmann, Daniel, Kraay, Aart & Zoido-Lobatón, Pablo, (1999b) “Governance Matters”, Policy Research Working Paper Series 2196, The World Bank, https://web.worldbank.org/archive/website00818/WEB/PDF/GOVMAT-4.PDF.
87. Kaufmann, Daniel, Kraay, Aart & Zoido-Lobaton, Pablo (2002) “Governance matters II - updated indicators for 2000-01”, Policy Research Working Paper Series 2772, The World Bank, http://documents1.worldbank.org/curated/en/613411468765868451/130530322_20041117161111/additional/multi0page.pdf.
88. Kaufmann, Daniel, Kraay, Aart & Mastruzzi, Massimo (2007) “Governance Matters VI: Aggregate and Individual Governance Indicators, 1996-2006”, Policy Research Working Paper Series 4280, The World Bank, http://documents1.worldbank.org/curated/en/887981468315334023/pdf/wps4280.pd
89. Kaufmann, Daniel, Kraay, Aart & Mastruzzi, Massimo (2008) “Governance matters VII: aggregate and individual governance indicators 1996-2007”, Policy Research Working Paper Series 4654, The World Bank, http://documents1.worldbank.org/curated/fr/810501468338351727/pdf/wps4654.pdf
90. Kaufmann, Daniel, Kraay, Aart & Mastruzzi, Massimo (2009) “Governance matters VIII: aggregate and individual governance indicators 1996-2008”, Policy Research Working Paper Series 4978, The World Bank, http://documents1.worldbank.org/curated/ar/598851468149673121/pdf/WPS4978.pdf
91. Kaufmann, Daniel, Kraay, Aart & Mastruzzi, Massimo (2010) “The Worldwide Governance Indicators: Methodology and Analytical Issues”, Policy Research Working Paper 5430, The World Bank, https://openknowledge.worldbank.org/bitstream/handle/10986/3913/WPS5430.pdf.
92. Kaufmann, Daniel, Kraay, Aart & Mastruzzi, Massimo (2011) “The Worldwide Governance Indicators: Methodology and Analytical Issues”, Hague Journal on the Rule of Law, 3(2), 220-246.
93. Kaya, Devrimi & Koch, Maximilian (2015) “Countries’ adoption of the International Financial Reporting Standard for Small and Medium-sized Entities (IFRS for SMEs) - early empirical evidence”, Accounting and Business Research, vol. 45(1), pp. 93-120.

94. Kendall, M.G. (1957) "A course in multivariate analysis", Charles Griffin & Co, London

95. Kieffer, K. M. (1998) "Orthogonal versus oblique rotation: A review of the literature regarding the pros and cons", Paper presented at the Annual Meeting of the Mid-South Educational Research Association, New Orleans, LA, November 1998, www. https://eric.ed.gov/?id=ED427031.

96. Koumanakos, Evangelos, Siriopoulos, Costas & Georgopoulos, Antonios (2005) "Firm acquisitions and earnings management: evidence from Greece", Managerial Auditing Journal 20, no. 7, pp.663-678.

97. Kwok, C. & Tadesse, S. (2006) "National culture and financial systems", Journal of International Business Studies 37, 227–247.

98. Lafi, S.Q, & Kaneene, J.B (1992) "An explanation of the use of principal-components analysis to detect and correct for multicollinearity", Preventive Veterinary Medicine, Volume 13, Issue 4, pp. 261-275.

99. Lamb, Margaret, Nobes, Christopher & Roberts, Alan (1998) "International Variations in the Connections Between Tax and Financial Reporting", Accounting and Business Research, 28:3, 173-188.

100. La Porta, Rafael, Lopez-de-Silanes, Florencio, Shleifer, Andrei & Vishny, Robert (1999) "The Quality of Government", Journal of Law, Economics, and Organization, vol. 15(1), pp. 222-279.

101. Leuz, C., Nanda, D., Wysocki, P.D. (2003) "Earnings management and investor protection: An international comparison", Journal of Financial Economics 69, 505–527.

102. Li, Shaomin, Park, Seung Ho & Li, Shuhe (2003) "The Great Leap Forward: The Transition from Relation-Based Governance to Rule-Based Governance", Organizational Dynamics, Vol. 33, No. 1, pp. 63-78.

103. Li, Shaomin & Filer, Larry (2007) "The effects of the governance environment on the choice of investment mode and the strategic implications", Journal of World Business, Elsevier, vol. 42(1), pp. 80-98.

104. Liu, R.X., Kuang, J., Gong, Q. & Hou, X.L. (2003) "Principal component regression analysis with SPSS", Computer Methods and Programs in Biomedicine, Volume 71, Issue 2, pp. 141-147.

105. Manning, Nick & Mukherjee, Ranjana & Gokcekus, Omer (2000) "Public officials and their institutional environment - an analytical model for assessing the

impact of institutional change on public sector performance", Policy Research Working Paper Series 2427, The World Bank, http://documents1.worldbank.org/curated/en/140311468761962095/pdf/multipage.pdf
106. Mansfield, E. R., Webster, J. T. & Gunst, & R. F. (1977) "An Analytic Variable Selection Technique for Principal Component Regression", Journal of the Royal Statistical Society Series C, Royal Statistical Society, vol. 26(1), pp. 34-40.
107. Mason, Robert L. & Gunst, Richard F. (1985) "Selecting principal components in regression", Statistics & Probability Letters, Elsevier, vol. 3(6), pages 299-301.
108. Massy, William F. (1965) "Principal Components Regression in Exploratory Statistical Research", Journal of the American Statistical Association, 60:309, 234-256.
109. Medina, Leandro & Schneider, Friedrich (2018) "Shadow Economies Around the World: What Did We Learn Over the Last 20 Years?", IMF Working Papers 2018/017, International Monetary Fund.
110. Mitsopoulos, Michael S. & Pelagidis, Theodore (2009) "Vikings in Greece: Kleptocratic Interest Groups in a Closed, Rent-Seeking Economy", Cato Journal, Vol. 29, No. 3, pp. 399-416.
111. Morck, Randall, Yeung, Bernard & Yu, Wayne (2000) "The information content of stock markets: why do emerging markets have synchronous stock price movements?", Journal of Financial Economics, Volume 58, Issues 1–2, pp. 215-260,
112. Næs, T. & Martens, H. (1988) "Principal component regression in NIR analysis: Viewpoints, background details and selection of components", J. Chemometrics, 2: 155-167.
113. Nobes, C. (1998) "Towards a General Model of the Reasons for International Differences in Financial Reporting", Abacus, 34: 162-187.
114. Nobes, Christopher W. (2009) "Observations on measuring the differences between domestic accounting standards and IAS", Journal of Accounting and Public Policy, vol. 28(2), pp. 148-153.
115. Nobes, Christopher (2018) "Lessons from misclassification in international accounting", The British Accounting Review, vol. 50(3), pp. 239-254.
116. OECD & The Joint Research Centre of the European Commission (2008), *"*Handbook on constructing composite indicators: methodology and user guide*"*, (https://www.oecd.org/els/soc/handbookonconstructingcompositeindicatorsmethodologyanduserguide.htm).

117. OECD Government at a Glance 2019 Report, Country Fact Sheet: Greece, https://www.oecd.org/gov/gov-at-a-glance-2019-greece.pdf.
118. Palmon, Dan, Peytcheva, Marietta & Yezegel, Ari (2011) "The Accounting Standards Setting Process in the U.S.: Examination of the SEC–FASB Relationship", Group Decision and Negotiation, Springer, vol. 20(2), pp. 165-183.
119. Papadaki, Afroditi (2005) "Discussion of "Why do national GAAP differ from IAS? The role of culture", The International Journal of Accounting, vol. 40(4), pp. 351-358.
120. Pelagidis, Theodore (2010) "The Greek paradox of falling competitiveness and weak institutions in a high GDP growth rate context (1995-2008)", Hellenic Observatory papers on Greece and Southeast Europe (GreeSE paper no. 38). The Hellenic Observatory, London School of Economics and Political Science, http://eprints.lse.ac.uk/29098/.
121. Perera, M.H.B. (1989) "Accounting in Developing Countries: A Case for Localized Uniformity", The British Accounting Review, 21(2): 141-158.
122. Perera, Hector, Cummings, Lorne & Chua, Frances (2012) "Cultural relativity of accounting professionalism: Evidence from New Zealand and Samoa", Advances in Accounting, Volume 28, Issue 1, pp. 138-146.
123. Peres-Neto, Pedro R., Jackson, Donald A. & Somers, Keith M. (2005) "How many principal components? stopping rules for determining the number of non-trivial axes revisited", Computational Statistics & Data Analysis, vol. 49(4), pp. 974-997.
124. Pipidi-Mungiu, Alina (2019) "Building Good Governance in Greece, a European Missed Opportunity?", European Research Centre for Anti-Corruption and State-Building, Hertie School of Governance, ERCAS Working Paper No. 54, www.againstcorruption.eu.
125. Preiato, John, Brown, Philip & Tarca, Ann (2015) "A Comparison of Between-Country Measures of Legal Setting and Enforcement of Accounting Standards", Journal of Business Finance & Accounting, vol. 42(1-2), pp. 1-50.
126. PwC (2019) "Culture shapes up institutions", https://www.pwc.com/gr/en/publications/greek-thought-leadership/Culture-shapes-up-institutions/Culture%20shapes%20up%20institutions.pdf.
127. Rajan, Raghuram G. & Zingales, Luigi (2003) "Banks and Markets: The Changing Character of European Finance", NBER Working Papers 9595, National Bureau of Economic Research, http://www.nber.org/papers/w9595.

128. Ramanna, Karthik & Sletten, Ewa (2009) “Why do Countries Adopt International Financial Reporting Standards?”, Harvard Business School Accounting & Management Unit Working Paper No. 09-102, https://ssrn.com/abstract=1460763.
129. Rapanos, Vassilis T. & Kaplanoglou, Georgia (2014) “Governance, Growth and the Recent Economic Crisis: The Case of Greece and Cyprus”, Cyprus Economic Policy Review, vol. 8 (1), pp. 3-34.
130. Robinson, C., & Venieris, G. (1996), “Economics, culture, and accounting standards: a case study of Greece and Canada”, Canadian Journal of Administrative Sciences 13(2), 119-131.
131. Rodríguez-Pose, Andrés & Di Cataldo, Marco (2015) “Quality of government and innovative performance in the regions of Europe”, Journal of Economic Geography, vol. 15(4), pp. 673-706.
132. Rodríguez-Pose, Andrés & Garcilazo, Enrique (2013) “Quality of Government and the Returns of Investment: Examining the Impact of Cohesion Expenditure in European Regions”, OECD Regional Development Working Papers 2013/12, http://www.oecd.org/gov/regional/workingpapers.
133. Rodríguez-Pose, Andrés & Garcilazo, Enrique (2015) “Quality of Government and the Returns of Investment: Examining the Impact of Cohesion Expenditure in European Regions”, Regional Studies, 49:8, pp. 1274-1290.
134. Rothstein, Bo & Teorell, Jan (2008) “What Is Quality of Government? A Theory of Impartial Government Institutions”, Governance, 21: 165-190.
135. Rothstein, Bo & Teorell, Jan (2012) “Defining and measuring quality of government” in Holmberg, S., & Rothstein, B. (Eds.), “Good government: The relevance of political science”, 2012, Cheltenham, UK: Edward Elgar Publishing.
136. Salter, Stephen B., Kang, Tony, Gotti, Giorgio & Doupnik, Timothy S. (2013) “The Role of Social Values, Accounting Values and Institutions in Determining Accounting Conservatism”, Management International Review, Springer, vol. 53(4), pp. 607-632.
137. Schmukler, Sergio & Vesperoni, Esteban (2000) “Globalization and firms’ financing choices - evidence from emerging economies”, Policy Research Working Paper Series 2323, The World Bank.
138. Schneider, F. (2004) “The Size of the Shadow Economies of 145 countries all over the world: First results over the period 1999–2003”, IZA Discussion Paper No. 1431, https://ftp.iza.org/dp1431.pdf.

139. Sellami, Y.M. & Gafsi, Y. (2018) “What drives developing and transitional countries to adopt the IFRS for SMEs? An institutional perspective”, Journal of Corporate Accounting and Finance, Vol. 29 No. 2, pp. 34-56.
140. Sellhorn, T. & Tomaszewski, S.G (2006) “Implications for the IAS Regulation for Research into the International Differences in Accounting Systems”, Accounting in Europe, 3:1, 187-217.
141. Shmueli, Galit (2010) “To Explain or to Predict?”, Statistical Science, Vol. 25, No. 3, pp. 289-310.
142. Sun, J. (1995) “A correlation principal component regression analysis of NIR data”, J. Chemometrics, 9: 21-29.
143. Sutter, J.M., Kalivas, J.H. & Lang, P.M. (1992) “Which principal components to utilize for principal component regression”, J. Chemometrics, 6: 217-225.
144. Schultz, Joseph Jr. & Lopez, Thomas J. (2001) “The impact of national influence on accounting estimates: Implications for international accounting standard-setters”, The International Journal of Accounting, vol. 36(3), pp. 271-290.
145. Tadesse, Solomon (2002) “Financial Architecture and Economic Performance: International Evidence”, Journal of Financial Intermediation, vol. 11(4), pp. 429-454.
146. Tang, Tanya Y.H. (2015) “Does Book-Tax Conformity Deter Opportunistic Book and Tax Reporting? An International Analysis”, European Accounting Review, 24:3, 441-469.
147. Tsakumis, George T. (2007) “The Influence of Culture on Accountants’ Application of Financial Reporting Rules”, Abacus, Vol. 43, No. 1, pp:27-48.
148. Tsakumis, George T., Curatola, Anthony P. & Porcano, Thomas M. (2007) “The relation between national cultural dimensions and tax evasion”, Journal of International Accounting, Auditing and Taxation, Volume 16, Issue 2, pp. 131-147.
149. Tsalavoutas, Ioannis (2017) “The Role and Current Status of IFRS in the Completion of National Rules – Evidence from Greece”, Accounting in Europe, 14:1-2, 102-112.
150. Tzovas, Christos (2006) “Factors influencing a firm’s accounting policy decisions when tax accounting and financial accounting coincide”, Managerial Auditing Journal, Vol. 21, No 4, PP. 372-386.
151. Velicer, Wayne (1976) “Determining the number of components from the matrix of partial correlations”, Psychometrika, vol. 41(3), pp. 321-327.

152. Vigneau, E., Devaux, M.F., Qannari, E.M. & Robert, P. (1997) “Principal component regression, ridge regression and ridge principal component regression in spectroscopy calibration”, J. Chemometrics, 11: 239-249.
153. Xie, Yu-Long & Kalivas, John H. (1997) “Local prediction models by principal component regression”, Analytica Chimica Acta, Volume 348, Issues 1–3, pp. 29-38.
154. Watrin, Christoph, Ebert, Nadine & Thomsen, Martin (2012) “One-Book Versus Two-Book System: Learnings from Europe”, https://ssrn.com/abstract=2111517.
155. Williams, Andrew & Siddique, Abu (2008) “The use (and abuse) of governance indicators in economics: a review”, Economics of Governance, vol. 9(2), pp. 131-175.
156. Wold, Svante, Esbensen, Kim & Geladi, Paul (1987) “Principal component analysis”, Chemometrics and Intelligent Laboratory Systems, Volume 2, Issues 1–3, pp. 37-52.
157. www.worldatlas.com.
158.Worldwide Governance Indicators, (https://info.worldbank.org/governance/wgi/).
159.www.worldbank.org, GDP per capita (constant 2010 US $), (https://databank.worldbank.org/source/sustainable-development-goals-(sdgs)/Series/NY.GDP.PCAP.KD).
160. Yeomans, K.A. & Golder, P.A. (1982) “The Guttman-Kaiser Criterion as a Predictor of the Number of Common Factors”, Journal of the Royal Statistical Society: Series D (The Statistician), 31: 221-229.
161. Zeghal, Daniel & Mhedhbi, Karim (2006) “An analysis of the factors affecting the adoption of international accounting standards by developing countries”, The International Journal of Accounting, vol. 41(4), pp. 373-386.
162. Zwick, William R. & Velicer, Wayne F. (1982) “Factors Influencing Four Rules For Determining The Number Of Components To Retain”, Multivariate Behavioral Research, 17:2, 253-269.

APPENDIX E: Principal Component Extraction regarding World Governance Indicators

Due to the high degree of correlation between the World Bank Governance Indicators and the difficulty of including all of them into a single equation, as noted by Globerman and Shapiro (2003), we apply Principal Component Analysis (PCA) to overcome multicollinearity issues.

As mentioned in section 2.4, data on the four Governance Indicators (Government Effectiveness, Regulatory Quality, Rule of Law & Control of Corruption), are sourced from the World Bank.

We distinguish three cases in which PCA is applied:

i. PCA of the four Governance Indicators for the 14 EU sample countries in 2002, (Section 2.5.-1st alternative approach/1st country subset).
ii. PCA of the four Governance Indicators for the 13 EU sample countries in 2002, excluding Greece (Section 2.5.-1st alternative approach/2nd country subset).
iii. PCA of Greece's four governance indicators over 2002 to 2014, (Section 2.5.-2nd alternative approach/2nd country subset).

In all three instances, we apply the same methodology, as follows:

Prior to performing PCA, we use the Kaiser-Meyer-Olkin (KMO) and Bartlett's tests to ensure that the relevant data are appropriate for PCA. The KMO test is greater than .50 in all cases, and the Bartlett's test is significant at the $p<0.01$ level, indicating that the relevant data are suitable for PCA.

Because the Governance Indicators are measured at different scales, we extract principal components from a correlation matrix due to them being unaffected by linear changes in measurement units, as Jolliffe and Cadima (2016) state. The Kaiser-Guttman rule and Cattell's scree test are used to determine the number of principal components to extract. In each of the three cases, PCA leads in the extraction of four principal components.

We find that only the first principal component has an eigenvalue greater than one by applying the Kaiser-Guttman rule (eigenvalues>1). Additionally, we observe that the first principal component accounts for the majority of total variance in each of the three cases (91.625 %, 89.019 %, and 89.372 %, respectively), whereas the remaining three components have eigenvalues less than one and account for a minor portion of total variance collectively (8.375%, 10.981% and 10.628%, respectively).

Case 1: PCA of the four Governance Indicators for the 14 EU sample countries (2002)

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.832
Bartlett's Test of Sphericity	Approx. Chi-Square	67.3
	df	6
	Sig.	0

Total Variance Explained

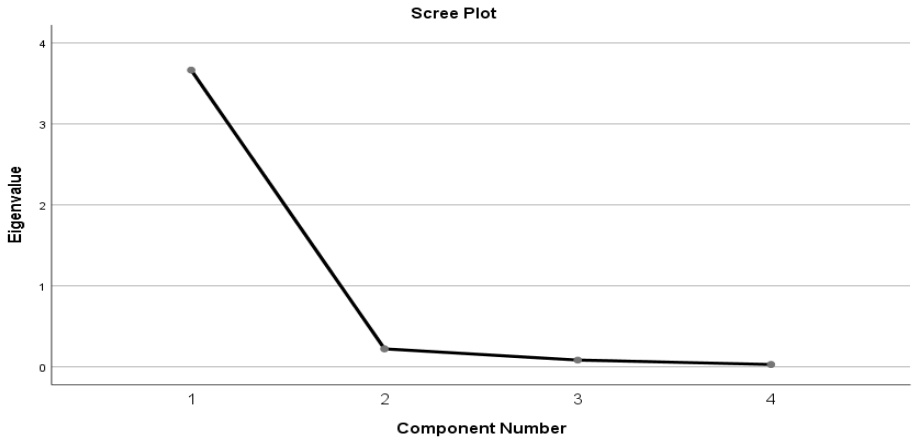
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.665	91.625	91.625	3.665	91.625	91.625
2	0.222	5.546	97.17			
3	0.084	2.093	99.264			
4	0.029	0.736	100			

Component Matrix

	Component
	1
Government Effectiveness	0.932
Regulatory Quality	0.932
Rule of Law	0.981
Control of Corruption	0.982

Component Score Coefficient Matrix

	Component
	1
Government Effectiveness	0.254
Regulatory Quality	0.254
Rule of Law	0.268
Control of Corruption	0.268



Case 2: PCA of the four Governance Indicators for the 13 EU sample countries (2002)

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.824
Bartlett's Test of Sphericity	Approx. Chi-Square	52.558
	df	6
	Sig.	0

Total Variance Explained

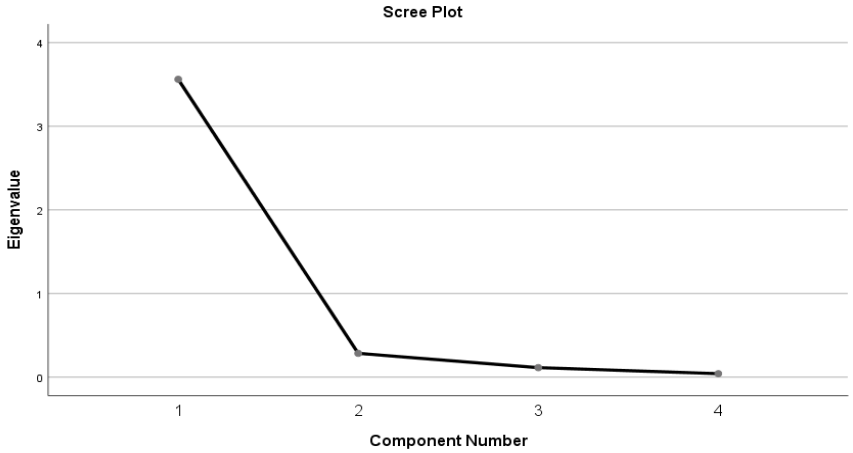
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3,561	89.019	89.019	3.561	89.019	89.019
2	0,284	7.107	96.126			
3	0,113	2.835	98.96			
4	0,042	1.04	100			

Component Matrix

	Component
	1
Government Effectiveness	0.905
Regulatory Quality	0.918
Rule of Law	0.973
Control of Corruption	0.976

Component Score Coefficient Matrix

	Component
	1
Government Effectiveness	0.254
Regulatory Quality	0.258
Rule of Law	0.273
Control of Corruption	0.274



Case 3: PCA of the four Governance Indicators for Greece (2002-2014)

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.83
Bartlett's Test of Sphericity	Approx. Chi-Square	48.187
	df	6
	Sig.	0

Total Variance Explained

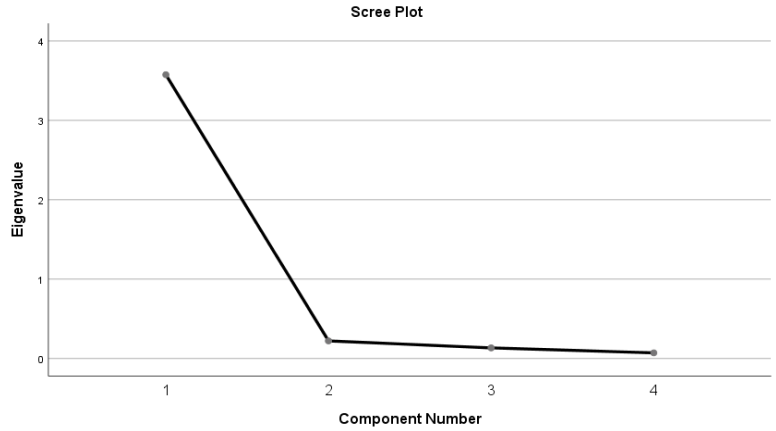
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.575	89.372	89.372	3.575	89.372	89.372
2	0.221	5.531	94.903			
3	0.133	3.331	98.234			
4	0.071	1.766	100			

Component Matrix

	Component
	1
Government Effectiveness	0.937
Regulatory Quality	0.945
Rule of Law	0.932
Control of Corruption	0.968

Component Score Coefficient Matrix

	Component
	1
Government Effectiveness	0.262
Regulatory Quality	0.264
Rule of Law	0.261
Control of Corruption	0.271



Cattell's scree test indicates that the first principal component selection is the optimal solution, as seen by the change in the slope of the straight line following the second principal component. In all three cases, the Component Matrix reveals that the four Governance Indicators have exceptionally high loadings (correlations) on the extracted component. The Governance Indicators, in particular, have loadings more than |0.7|, indicating that the extracted component is a more than adequate measure of governance quality.

Finally, the Component Score Coefficient Matrix displays the Governance Indicators' coefficients that are utilized to determine the value of the first principal component in each case:

Case 1: First Principal Component value = 0.254* Government Effectiveness+0.254* Regulatory Quality+0.268* Rule of Law+0.268* Control of Corruption

Case 2: First Principal Component value = 0.254* Government Effectiveness+0.258* Regulatory Quality+0.273* Rule of Law+0.274* Control of Corruption

Case 3: First Principal Component value = 0.262* Government Effectiveness+0.264* Regulatory Quality+0.261* Rule of Law+0.271* Control of Corruption

APPENDIX F: Principal Component Extraction regarding World Governance Indicators (Robustness Tests)

We follow the same methodology as outlined in Appendix E in applying PCA to deal with multicollinearity regarding the World Bank Governance Indicators.

We obtain the necessary data for the four Governance Indicators (Government Effectiveness, Regulatory Quality, Rule of Law & Control of Corruption) from the World Bank, regarding the new sample of countries, as well.

We apply PCA in the following cases:

i. PCA of the four Governance Indicators for the 31 EU sample countries in 2002 (Section 2.9.1.1.-1st alternative approach/1st country subset).

ii. PCA of the four Governance Indicators for the 30 EU sample countries in 2002, excluding Greece (Section 2.9.1.1-1st alternative approach/2nd country subset).

We do not use PCA to compute Greece's Governance Quality Index for the years 2002–2014, as the relevant index has already been calculated in Appendix E.

To evaluate whether the data are suited for PCA, the Kaiser-Meyer-Olkin (KMO) test and Bartlett's sphericity test are utilized. The relevant test values (KMO >.50 and Bartlett's test significant at the $p<0.01$ level) suggest that the data are suitable for PCA.

Because the Governance Indicators are measured on a different scale, the principal components are extracted using a correlation matrix. According to the Kaiser-Guttman rule (eigenvalues>1) and Cattell's scree test, only the first principal component of the four extracted principal components is suitable for our analysis. In both cases, the first principal component accounts for nearly most of the total variance (96.071% and 96.201% respectively).

In both cases, the Component Matrix section demonstrates that the four Governance Indicators are highly correlated with the extracted component (i.e., significant loadings>|0.7|). This result implies that the extracted component is an adequate index of the four Governance Indicators.

Case 4: PCA of the four Governance Indicators for the 31 EU sample countries (2002)

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0,844
Bartlett's Test of Sphericity	Approx. Chi-Square	219,58
	df	6
	Sig.	0

Total Variance Explained

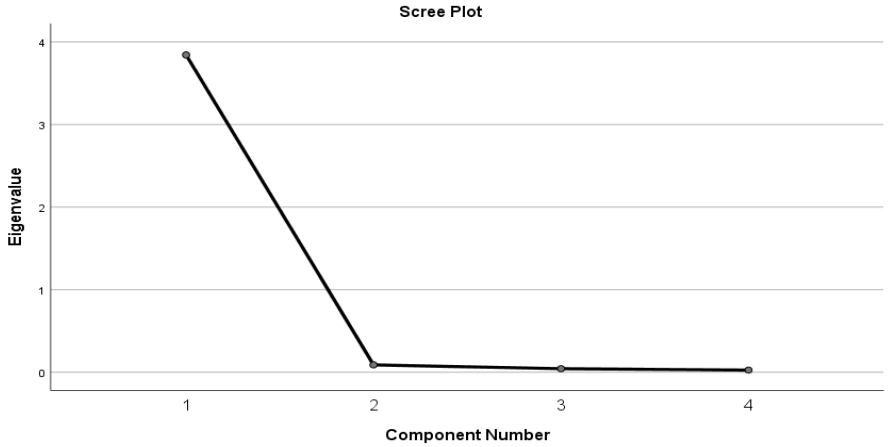
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3,843	96,071	96,071	3,843	96,071	96,071
2	0,089	2,215	98,287			
3	0,043	1,071	99,357			
4	0,026	0,643	100			

Component Matrix

	Component
	1
Government Effectiveness	0,982
Regulatory Quality	0,972
Rule of Law	0,978
Control of Corruption	0,989

Component Score Coefficient Matrix

	Component
	1
Government Effectiveness	0,256
Regulatory Quality	0,253
Rule of Law	0,254
Control of Corruption	0,257



Case 5: PCA of the four Governance Indicators for the 30 EU sample countries (2002), excluding Greece

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0,824
Bartlett's Test of Sphericity	Approx. Chi-Square	216,996
	df	6
	Sig.	0

Total Variance Explained

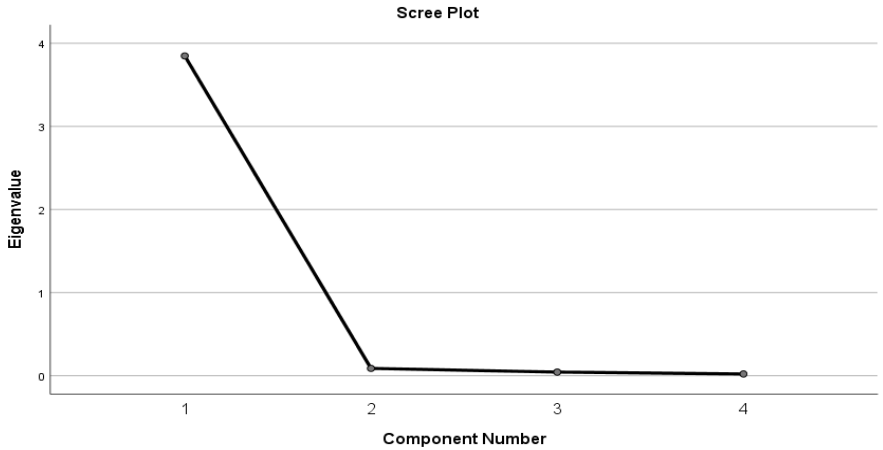
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3,848	96,201	96,201	3,848	96,201	96,201
2	0,088	2,19	98,391			
3	0,043	1,082	99,473			
4	0,021	0,527	100			

Component Matrix

	Component
	1
Government Effectiveness	0,982
Regulatory Quality	0,973
Rule of Law	0,977
Control of Corruption	0,99

Component Score Coefficient Matrix

	Component
	1
Government Effectiveness	0,255
Regulatory Quality	0,253
Rule of Law	0,254
Control of Corruption	0,257



The Governance Indicators coefficients used to compute the value of the first principal component are derived from each case's Component Score Coefficient Matrix section. Thus, in each case, the first principal component is calculated as follows:

Case 4: First Principal Component value = 0.256* Government Effectiveness+0.253* Regulatory Quality+0.254* Rule of Law+0.257* Control of Corruption

Case 5: First Principal Component value = 0.255* Government Effectiveness+0.253* Regulatory Quality+0.254* Rule of Law+0.257* Control of Corruption

CHAPTER 3: Exploring financial misstatements and tax aggressiveness of Greek SMEs after the adoption of Greek Accounting Standards

3.1. Introduction

After reviewing Greece's new accounting framework theoretically (i.e., by examining its level of alignment with IAS/IFRS and the causes for observed deviations from IAS/IFRS), this Chapter assesses the operational impacts of the new Greek Accounting Standards' adoption.

While the literature on earnings management and tax aggressiveness of publicly traded companies is extensive, these themes have received scant attention when it comes to Small and Medium-sized private companies. In light of this gap in the research, we examine whether Greek Small and Medium-sized companies engaged in tax-induced financial misstatement practices between 2016 and 2018. We concentrate on this time period since it covers the first three years of implementation of the new Greek Accounting Standards following their legislative enactment in 2015.

Our research builds on Jansen et al.'s (2012)[98] earnings management diagnostic (i.e., the inverse relationship between the Asset Turnover Ratio and Profit Margin Ratio). Additionally, we employ a variety of indicators for tax aggressiveness, including Book-Tax Differences (BTDs) and three different versions of Effective Tax Rates (ETRs). We calculate the book effective tax rate in its classic form (current income tax expense divided by financial pre-tax income), as well as two alternative versions in which the denominator is changed to net sales (as proposed by Buijink et al., 2002) or cash flow from operations (as introduced by Gupta and Newberry, 1997).

We construct our sample utilizing prior earnings management and tax-related research and run OLS regressions with clustered standard errors by year and firm to explore the relationship between Jansen et al.'s measure and tax-related variables. Unlike other studies, which focus exclusively on the tax aggressiveness of profitable companies, we examine tax-induced financial misstatements by loss-making firms. Our results suggest that Jansen et al.'s metric is related to the applied tax proxies and may be effective in signaling tax aggressiveness, particularly among Greek loss SMEs.

Moreover, we conduct several additional tests to assess the sensitivity of our primary findings. First, we modify our main regressions by adding several control variables

[98] Hereafter, 'Jansen et al.' refers to Jansen et al. (2012), unless noted otherwise.

(Leverage, Property, Plant and Equipment, Intangibles, and Inventory). Furthermore, we employ a different version of Book-Tax Differences (i.e., Tax-Effect Book-Tax Differences) following Tang and Firth (2011). Also, we substitute Jansen et al.'s metric with Hafzalla et al.'s (2011)[99] percent accruals measure and assess whether this new measure is related to the applied tax variables and effective in capturing tax-induced financial misstatements.

The results of sensitivity tests reveal some intriguing findings. Initially, Jansen et al.'s metric is an effective tool for detecting potential tax-motivated financial misstatements for both profitable and loss-making Greek SMEs; further to, Jansen et al.'s diagnostic has a weak relationship with Tax-Effect BTDs; and finally, Hafzalla et al.'s percent accruals may be a valid alternative measure when exploring tax-motivated financial misstatements.

3.2. Greece: A brief overview of the institutional, tax, accounting and auditing environment

Following the start of Greece's severe debt crisis in 2010, several structural reforms were implemented, including reforms to the tax legislation, the accounting regulatory environment, and the auditing profession.

Prior to discussing these reforms, it's worth emphasizing that the Greek economy is primarily dependent on small and medium-sized private businesses. According to the European Commission's Small Business Act Fact Sheets 2015-2019, Greek small and medium-sized enterprises (SMEs) account for 99 % of all Greek companies, with Micro (Very Small) enterprises accounting for the lion's share (97% of the whole business population). While the vast majority of business entities in Greece are micro enterprises that generate the most employment, small and medium-sized enterprises generate the most value added between 2015 and 2019[100].

In terms of tax legislation reforms, a new Income Tax Code (Law 4172/2013) and a new Tax Procedures Code (Law 4174/2013) took effect on 01.01.2014, bringing significant changes, especially in the areas of tax avoidance and tax evasion. The new Tax Procedures Code, in particular, established a General Anti-Avoidance Rule, while also enacting Targeted Anti-Avoidance Rules (e.g., Thin Capitalization Rules, Controlling Foreign Companies). Another significant structural reform in the area of tax administration occurred in 2017 with the establishment of the Independent Authority for Public Revenue (Law 4389/2016). The Independent Authority for Public Revenue (IAPR) is a new public

[99] Hereafter, 'Hafzalla et al.' refers to Hafzalla et al. (2011), unless noted otherwise.
[100] According to Appendix G, Table 1.

revenue agency that functions independently of the government on operational, administrative, and financial matters.

Greece's accounting framework was reformed with the enactment of Law 4308/2014 "Greek Accounting Standards", which implemented the European Parliament's and Council's new Accounting Directive 2013/34/EU of 26 June 2013 into Greek law. The new Accounting Law made significant modifications, such as classifying entities as Very Small (Micro), Small, Medium, or Large, and establishing easier accounting methods and reporting requirements for Micro entities.

Perhaps the most revolutionary change brought about by the new Greek Accounting Standards was the incorporation of the terminology and several measurement principles and recognition criteria contained in International Financial Reporting Standards. For example, a significant resemblance to IFRS is the requirement for companies to record both the tax base and the carrying amounts of assets and liabilities in their accounting system, resulting in the emergence of temporary differences upon tax base and carrying amount differentiation.

While Greek Accounting Standards do not require the reporting of deferred tax in financial statements, the influence of IFRS on Greece's new accounting framework is evident. In general, this new accounting regime mostly affects Small and Medium-sized businesses, as Micro businesses operate under simpler accounting regulations, whereas Large corporations are likely to be publicly traded and required to apply IFRS.

Another significant structural reform in Greece occurred in the area of independent statutory audits. In particular, Greek legislation (Law 4336/2015) was amended in 2015 to conform to article 34 of the new European Accounting Directive (2013/34/EU). According to Law 4336/2015, effective January 1, 2016, the financial statements of public-interest companies, medium-sized and large entities, and groups are subject to audits by statutory auditors or audit firms. Additionally, small businesses may choose to have their financial statements audited by statutory auditors or audit firms (very small entities are excluded of obligatory statutory audits).

Greece has not been transformed into an earthly paradise as a result of the structural reforms detailed above and the country's successful exit from the European Stability Mechanism bailout program in 2018. According to the European Commission's 2019 and 2020 Country Reports, Greece's overall business environment does not appear to be

conducive to investment, owing in part to high corporate tax rates[101], complicated access to funding, insufficient governance mechanism, and also burdensome regulations.

Greece is also performing poorly in terms of unreported economic activity and tax evasion. Taking into account that the shadow economy encompasses all economic activities that would be taxable if they were reported to tax authorities (Schneider and Enste, 2000), Greece's shadow economy (Kelmanson et al., 2019 IMF Working Paper) and VAT Gap (2019 European Commission's VAT Gap Report) are unusually large in comparison to other EU countries.

What can be deduced is that in Greece, a new reality coexists with chronic pathogenies. New accounting rules that bear a strong resemblance to a widely praised and widely criticized accounting framework (i.e., IFRS) coexist with newly implemented tax avoidance rules and a high level of informal/shadow economy, creating an idiosyncratic operating environment for Small and Medium-sized businesses.

3.3. Prior literature on earnings management and tax aggressiveness of private firms and SMEs

Prior literature on earnings management in private companies and SMEs has been sparse. The issue of whether private enterprises are more adept at managing their earnings than public entities has preoccupied various researchers. Certain studies (e.g., Kim and Yi, 2006; Hope et al., 2013) conclude that public firms manage their earnings to a greater extent than private firms, whereas others (e.g., Burgstahler et al., 2006) conclude that private firms manage their earnings far more than public firms. Also, there are studies that yield contradicting results (e.g., Vander Bauwhede et al., 2003; Arnedo et al., 2007).

Earnings management in private enterprises has been studied from a variety of angles. Coppens and Peek (2005), for example, indicate that private firms operating in countries with a high degree of conformity between book and tax income do not manage their earnings in order to avoid reporting small losses.

Additionally, prior research has examined the effect of various factors on earnings management, including socioemotional wealth (Stockmans et al., 2010), outside directors (Stockmans et al., 2013), financial distress (Campa & Camacho-Miñano., 2015), audit quality (VanTendeloo and Vanstraelen, 2008; Huguet and Candia, 2016), and whether a private company is family-owned (Kvaal et al., 2012; Borralho et al., 2020).

[101] The corporate tax rate of 29%, which was one of the highest among EU countries for the period 2015-2018, is reduced to 24% from 2019 and henceforth.

The majority of research on tax aggressiveness and tax avoidance by private companies and SMEs is conducted in the Europe (Germany, Portugal, Slovenia, Spain)[102] and other national contexts (e.g., UK, China, Russia, Israel)[103], while the vast majority of relevant studies in the United States focus on publicly traded companies. Various studies analyze whether private firms engage in income-decreasing earnings management[104], with concluding findings that differ by country and degree of book-tax conformity (i.e., the level of alignment of accounting rules and tax law).

Tax incentives created by tax rate reductions (Watrin et al., 2012; Lin et al., 2014; Sundvik, 2016; Sundvik, 2017a) or the imposition of new taxes (Marques et al., 2011) play a significant role in the financial reporting practices of private firms in settings where book-tax conformity is high, since these tax reforms resulted in income-decreasing earnings management (Marques et al., 2011; Watrin et al., 2012; Lin et al., 2014; Sundvik, 2016; Sundvik, 2017a).

According to Goncharov and Zimmerman (2005), while tax reforms that lower a country's book-tax conformity level have a greater impact on the reporting behavior of public firms than on private firms, private firms manage taxes to a larger degree than public firms due to the lower incentives associated with financial reporting quality.

Kosi and Valentincic (2013) examine the effect of a tax incentive created by tax law changes (i.e., the elimination of tax-deductible asset write-offs), concluding that enterprises used asset write-offs to obtain tax benefits. Moreover, Chen et al. (2013) underline the significance of tax incentives, noting that even in a moderately aligned book-tax setting, such as Israel, private firms' tax conduct is independent to their financial reporting behavior.

Sánchez-Ballesta and Yagüe (2021) conducted an extremely interesting study on SMEs' earnings management and tax avoidance by SMEs. We consider Sánchez-Ballesta and Yagüe's (2021) research to be significant since it examines both upward and downward earnings management strategies for Spanish SMEs in terms of tax aggressiveness. Their findings imply that when SMEs are not required to report higher earnings, they may engage in tax-induced income-decreasing earnings management in order to lower taxes paid.

[102] Watrin et al., 2012 (Germany); Marques et al., 2011 (Portugal); Kosi and Valentincic, 2013 (Slovenia); Sánchez-Ballesta and Yagüe 2021 (Spain).
[103] Van Tendeloo, 2007 (UK); Chen et al., 2010 (China); Lin et al., 2014 (China); Goncharov and Zimmerman, 2005 (Russia); Chen et al., 2013 (Israel).
[104] Goncharov and Zimmerman, 2005; Van Tendeloo, 2007; Marques et al., 2011; Watrin et al., 2012; Lin et al., 2014; Sundvik, 2016; Sundvik, 2017a; Sundvik, 2017b.

Additionally, Sánchez-Ballesta & Yagüe (2021) argue that when SMEs have substantial incentives to manage their earnings upward, financial reporting incentives outweigh tax aggressiveness.

In terms of investigating financial misstatements in the Greek environment, related studies are few and nearly non-existent for SMEs. Accounting research in Greece has primarily focused on fraud prediction (Spathis, 2002; Spathis et al., 2002; Kirkos et al., 2007; Repousis, 2016) or on the examination of publicly traded corporations' earnings management from a tax, auditing, corporate governance, and IFRS viewpoint[105].

The number of prior studies on tax aggressiveness/tax avoidance in Greece comes up short in comparison to the magnitude of Greece's shadow economy. Artavanis et al.'s (2015) novel approach focuses on estimating tax evasion on an individual level and is based on bank credit extended to individuals.

Kapoutsou et al. (2015) examine the effect of taxation on earnings management and discover a positive and significant correlation between discretionary accruals and Total Tax Expense, Current Tax Expense, and Deferred Tax Expense for a sample of 146 Greek publicly traded companies from 2005 to 2008. Chytis et al. (2019) investigate tax avoidance in a small sample of Greek publicly traded companies from 2011 to 2015 in relation to corporate governance and external auditing, using the Cash Effective Tax Rate (CETR), and conclude that CETR is positively and negatively correlated with company size and return on capital employed, respectively.

This considerable national and international literature gap concerning financial misstatements and tax avoidance/tax aggressiveness practices of SMEs is rather incomprehensible to us, given that SMEs account for the lion's share of the overall population of companies on a national and global scale. We believe that additional research should be conducted on the tax minimizing tactics of SMEs, particularly in countries with large tax gaps, such as Greece. That so, valuable insights into the accounting practices and tax avoidance strategies used by SMEs could be gained.

3.4.Research Objective

Although it has been more than thirty years since former SEC Chairman Arthur Levitt delivered his 1998 inspirational speech titled "The Numbers Game," his remarks remain

[105] Cohen et al., 2007; Koumanakos et al., 2005 & 2008; Bekiris and Doukakis, 2011; Karampinis and Hevas, 2013; Dimitropoulos et al., 2013; Ferentinou and Anagnostopoulou, 2014; Tsipouridou and Spathis, 2012 & 2014; Iatridis and Dimitras, 2013; Dimitras et al., 2015.

pertinent. Levitt's reference to the gray area between legality and fraud is reflected in researchers' various conceptions of earnings management.

Rather than listing several attempts to define earnings management (e.g., Schipper, 1989; Healy and Wahlen, 1999; Fields et al., 2001; Callao and Jarne, 2010), we take the approach advocated by Dechow et al. (1996) and Rosner (2003) in defining earnings management. Both Dechow et al. (1996) and Rosner (2003) assume that the term earnings management refers to practices that are typically disclosed within the boundaries of GAAP reporting. Thus, for the purposes of our research, the term "earnings management" refers to fully communicated legal accounting choices that adhere to GAAP.

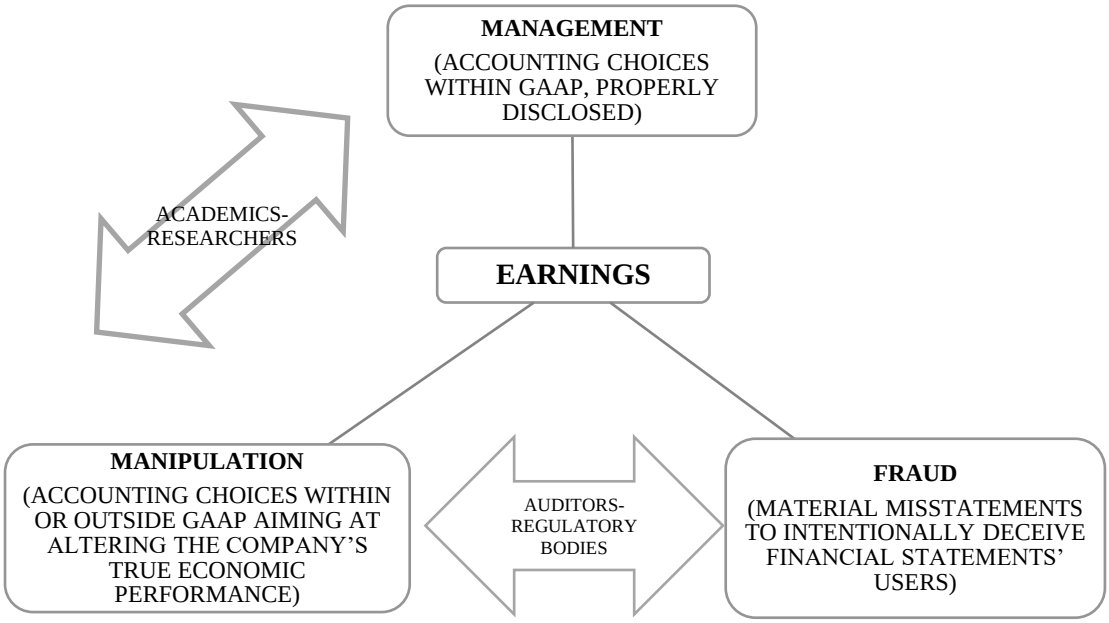
However, as Dechow and Skinner (2000) conclude, within-GAAP accounting decisions that conceal a company's true economic performance and may result in enforcement actions by competent regulatory bodies (e.g., the SEC) may fall within the earnings management definition. As a result, accounting choices made within the bounds of GAAP that result in the misrepresentation (either prettification or deterioration) of the company's genuine economic performance fall under the earnings manipulation definition in this study.

According to the International Standard on Auditing (ISA) 240, "fraudulent financial reporting" is characterized by three primary causes: intent, materiality, and financial statement user deception. Thus, material misstatements in financial statements made with the intent of misleading financial statement users fall under the concept of fraudulent financial reporting. ISA 240 sets forth a variety of indicative instances of fraudulent financial reporting, including the material decrease of earnings in order to minimize tax liability as an illustrative case of fraudulent financial reporting.

In light of the ISA's 240 definition of fraudulent financial reporting, it is reasonable to conclude that earnings manipulation, as defined above, is a form of fraudulent financial reporting. The distinguishing feature of earnings manipulation and fraudulent financial reporting, according to Dechow et al. (2011), is that the latter is inferred by regulatory agencies (e.g., SEC). This argument is supported further by the fact that, pursuant to ISA 240, an auditor may suspect or uncover fraudulent activity but makes no legal determinations regarding whether fraud happened.

By combining all of the foregoing, we can depict the distinctions between earnings, management, earnings manipulation, and fraud as seen in Figure 3.1:

Figure 3.1: Differences between earnings management, earnings manipulation & fraud



As such, in accordance with Dechow et al. (2011) and ISA 240, we concentrate on the detection of possible financial misstatements caused by earnings manipulation within and outside GAAP boundaries, on behalf of Greek Small and Medium sized entities.

The sobering reality that Greece has one of the largest (if not the largest) shadow economies in the EU (reaching nearly 30% of GDP between 2000 and 2016) and one of the largest VAT gaps among EU Member States[106], provides fertile ground for expanding our research into Greek SMEs' tax avoidance/tax aggressiveness tactics.

Both Feige (1990) and Slemrod and Weber (2012) consider tax evasion as a component of a country's shadow economy. While tax evasion is commonly understood, tax avoidance and tax aggressiveness are not. For example, whereas Hanlon and Heitzman (2010) assert that there is no widely accepted definition of tax avoidance and tax aggressiveness, Slemrod (2004) argues that tax avoidance refers to lawful acts aimed at reducing tax obligations, whereas tax aggressiveness entails actions that may fall outside the scope of applicable tax legislation.

However, in Greece's legal setting, anti-avoidance rules are incorporated into the Tax Procedures Code (Law 4174/2013), and Greek tax authorities may reject any artificial scheme aimed at avoiding taxes. Regardless of the many legal considerations and perspectives on whether tax avoidance is lawful or not, tax avoidance (& tax evasion) is an

[106] An average of 31% for the period 2013-2017 according to 2019 European Commission's VAT Gap Report.

act of aggression, and corporate tax avoidance has historically manifested itself through aggressive accounting practices. Recognizing fictitious transactions or transactions devoid of economic reality with the intent of transferring earnings to tax havens are illustrative of aggressive accounting with a clear tax motive.

Beneish (2001) refers to a lack of agreement on the definition of earnings management. By concentrating on accounting choices that may be associated with or result in tax aggressiveness/tax avoidance, we circumvent the earnings management definition issue. We see these accounting choices as blatant financial misstatements, as they result in tax-motivated illicit financial flows (tax evasion-tax avoidance-aggressive tax planning).

As a result of Greece's overall economic environment (e.g., the size of the shadow economy, recent changes to the accounting and tax framework, and the number of SMEs), and the scarcity of relevant research both nationally and internationally, our research objective is to investigate accounting relations indicative of tax-induced financial misstatements by Greek SMEs.

3.5. Description of the metrics used

Numerous eminent researchers (e.g., McNichols and Wilson, 1988; Bernard and Skinner, 1996; Guay et al., 1996; Young, 1999; Beneish, 2001; Gerakos, 2012; Ball, 2013) have highlighted the serious problems that arise when accruals are decomposed into a normal non-discretionary component and a discretionary component that reflects earnings management practices. According to Jackson (2018), notwithstanding their limitations as reliable indicators of earnings management, discretionary accruals models are frequently used in research studies. This can be demonstrated further by reviewing various private companies' earnings management studies, which frequently employ discretionary accruals models[107].

We approach earnings management differently than prior studies by applying a diagnostic developed by Jansen et al., who employ the DuPont analysis to investigate earnings management from a perspective other than the often utilized discretionary accruals models. Jansen et al. believe that, in general, the inverse relationship between Asset Turnover Ratio (ATO) and Profit Margin (PM) may indicate earnings management. They argue that in cases of upward earnings management, PM would increase in response to an increase in operating income, resulting in a decrease in ATO (i.e., due to an increase in net operating

[107] e.g., Vander Bauwhede et al., 2003; Kim and Yi, 2006; Arnedo et al., 2007; Stockmans et al., 2010 & 2013; Kvaal et al., 2012; Hope et al., 2013; Huguet and Candia, 2015; Campa & Camacho-Miñano, 2015; Borralho et al., 2020.

assets), whereas in cases of downward earnings management, PM would decrease, resulting in an increase in ATO.

Jansen et al. (2012, pp. 225, 228, 229) build their metric using the following variables:

$$\Delta PM_t = (\text{operating income}_t)/(\text{sales}_t) - (\text{operating income}_{t-1})/(\text{sales}_{t-1})$$

$$\Delta ATO_t = (\text{sales}_t/\text{net operating assets}_t) - (\text{sales}_{t-1}/\text{net operating assets}_{t-1})$$

where,

Operating income$_t$ = sales$_t$ – (cost of goods sold + selling, general and administrative expenses + depreciation and amortization expense$_t$);

Net operating assets$_t$ =Net operating assets$_{t-1}$ + (ΔWorking capital$_t$ -Depreciation expense$_t$)-ΔLong-term net operating assets$_t$

= Net operating asset $_{t-1}$ + (Operating income$_t$ - Cash from operations$_t$) +ΔLong-term net operating assets$_t$

Jansen et al. (2012, p. 228) construct two indicator variables based on the variables reported previously that illustrate our proposed diagnostic for financial misstatements as follows:

$$\rightarrow EM\_UP_t = 1 \text{ if } \Delta PM_t > 0, \Delta ATO_t < 0, \text{ and } EM\_DN_{t-1} \neq 1, \text{ and zero otherwise}$$

$$\rightarrow EM\_DN_t = 1 \text{ if } \Delta PM_t < 0, \Delta ATO_t > 0, \text{ and } EM\_UP_{t-1} \neq 1, \text{ and zero otherwise}$$

The reason Jansen et al. include the condition that $EM\_DN_{t-1} \neq 1$ and $EM\_UP_{t-1} \neq 1$ in the definitions of EM_UP_t (upwards earnings management) and EM_DN_t (downwards earnings management) respectively, is to weed out situations in which the diagnostic would likely signal earnings management reversal rather than earnings management.

We modify Jansen et al.'s diagnostic by removing the requirement that $EM\_DN_{t-1} \neq 1$ and $EM\_UP_{t-1} \neq 1$. This is because we are focusing on the period 2016-2018, immediately following the implementation of the new Greek Accounting Standards, and calculating EM_DN_{t-1} and EM_UP_{t-1} for the period 2015 would require accounting data from the former accounting framework.

While we acknowledge that the variables EM_DN and EM_UP for the period 2016 in our research could represent a reversal of the previous period's upward or downward earnings management, we believe that the uniformity of our data is more important. As a result, our modified Jansen et al. diagnostic is as follows:

$$\rightarrow EM\_UP_t = 1 \text{ if } \Delta PM_t > 0, \Delta ATO_t < 0, \text{ and zero otherwise}$$
$$\rightarrow EM\_DN_t = 1 \text{ if } \Delta PM_t < 0, \Delta ATO_t > 0, \text{ and zero otherwise}$$

Jansen et al. estimate that their diagnostic is successful at detecting earnings management when specific conditions and prerequisites are met. These conditions include a steady growth in the company's investment and the management of earnings through expenses rather than cash flows. As a result, Jansen et al.'s metric may be ineffective in detecting earnings management via cash-flows which, according to Roychowdhury (2006), is performed by manipulating real activities and deviating from standard operational norms.

Apart from failing to detect cash-flow earnings management (Type II error), Jansen et al. concede that their metric is not ideal and point out additional potential shortcomings, such as the possibility of mistakenly reporting earnings management (Type I error) when the inverse relationship between PM and ATO originates from unanticipated growth rather than earnings management.

We expect that the limitation of Jansen et al.'s diagnostic to capture earnings management through cash flows and especially real earnings management (REM), will not be applicable to Greek SMEs. REM is a strategy of boosting earnings that leads in greater tax liabilities for companies as taxable income increases (Zang, 2012; Kałdoński and Jewartowski, 2019). As a result, we do not anticipate Greek SMEs engaging in REM to enhance their book income, as this would result in increased taxes.

Despite its limitations, we consider that Jansen et al.'s diagnostic is intriguing not just because it is simple to compute and requires less data, but also because it is meant to identify earnings manipulation through expenses, a typical earnings manipulation tactic used by Greek companies.

With the foregoing in mind, we aim to investigate Greek SMEs' tax aggressiveness in relation to financial misstatements. To do so, we follow Badertscher et al.'s (2013) recommendation and employ a variety of tax aggressiveness measures, as each captures a different facet of corporate tax planning.

Our first measure of tax aggressiveness is Book-Tax differences (BTDs). Tang and Firth (2011) define BTDs as the difference between a company's pre-tax income (book income) as disclosed in its financial statements and its taxable income as declared to the tax authorities. Additionally, BTDs can be permanent or temporary. Permanent differences, according to Sundvik (2017a), result from items that are included in either book or tax income but never both, whereas temporary differences result from income and expense

timing differences. Thus, as Lennox et al. (2013) note, BTDs reflect the income effects generated by temporary and permanent differences.

When it comes to determining the causes of BTDs, several researchers have identified aggressive financial and tax reporting (Hanlon and Heitzman, 2010), as well as earnings management and tax planning (Phillips et al, 2003; Chen et al., 2010), as critical determinants.

According to Hanlon and Heitzman (2010, p. 135), Total Book-Tax Differences are calculated, as follows:

$$Total\ BTDs = Pre\text{-}Tax\ Book\ Income - Taxable\ Income - (NOL_t - NOL_{t+1})$$

where,

$$Taxable\ Income = Income\ Tax\ Expense / Statutory\ Tax\ Rate$$

$$NOL = Net\ Operating\ loss\ carryforward$$

Our second measure of tax aggressiveness is the Effective Tax Rate (ETR), a metric that has been widely used in various research studies[108] and in a variety of different formats (e.g., GAAP ETR, Cash ETR, Long-Run Cash ETR).

Total ETRs are commonly calculated as the ratio of total income tax expense to pre-tax book revenue and indicate a company's capacity to lower its current tax burden relative to pre-tax book income (Frank et al., 2009; Lanis and Richardson, 2012). ETR reflects both aggressive tax planning and tax avoidance strategies aimed at minimizing total tax expense (Chen et al., 2010; Lennox et al., 2013). Adhikari et al. (2005) establish a solid foundation for our study's use of ETRs by noting that in order to investigate tax-induced earnings management, it is necessary to examine the relationship between earnings management and effective tax rates.

As is the case with the majority of researchers (e.g., Buijink et al., 2002), we calculate ETRs using financial statement data in the absence of access to tax return data. We utilize current income tax expense rather than total income tax expense in line with Karampinis and Hevas (2013) for two reasons: While the new Greek Accounting Standards allow for the recognition of deferred tax, we do not expect Greek SMEs to use it due to its inherent complexity; secondly, data on deferred tax expense were unavailable for our research. As a

[108] e.g., Gupta and Newberry, 1997; Buijink et al., 2002; Rego, 2003; Philips et al., 2003; Dyreng et al., 2008; Chen et al., 2010; Lanis and Richardson, 2011 & 2012; Blaylock et al., 2012; Lennox et al., 2013; Lisowsky et al., 2013.

result, the numerator of all ETR variants used in our study is Current Income Tax Expense (CITE).

We use the classical version of ETR with pre-tax book income as the denominator. We also apply Buijink et al.'s (2002) and Gupta and Newberry's (1997) versions of ETR, respectively, using net sales and Cash Flow from Operations (CFO) as denominators, to mitigate the effect of differences in accounting method choices inherent in pre-tax income. Thus, the following ETRs are used in our research:

$$ETR_1 = Current\ Income\ Tax\ Expense/pre\text{-}tax\ income$$

$$ETR_2 = Current\ Income\ Tax\ Expense/net\ sales$$

$$ETR_3 = Current\ Income\ Tax\ Expense/Cash\ Flow\ from\ Operations$$

In general, BTDs compare total pretax financial income to estimated taxable income, and the variants of ETR that we use reflect a range of aspects. As previously stated, ETR_1 reflects tax planning that results in permanent and temporary differences between book and taxable income (Ayers et al., 2009; Chen et al., 2012), ETR_3 reflects cash payments apportioned to tax expenditure (Karampinis and Hevas, 2013), and ETR_2 reflects the amount of tax outlays per monetary unit of sales revenues.

Our proxies for tax aggressiveness have well-documented drawbacks described in the preceding literature (e.g., Shackelford and Shevlin, 2001; Plesko, 2003; Dyreng et al., 2008; Hanlon and Heitzman, 2010). We are referring specifically to a weakness in our tax aggressiveness proxies identified by Hanlon and Heitzman (2010) that is critical to our research. Hanlon and Heitzman (2010) contend, in particular, that both BTDs and ETRs do not capture the type of tax avoidance that is most prevalent among private enterprises, which entails both accounting and taxable income lowering (i.e., conforming tax avoidance). Hanlon and Heitzman (2010) further state that BTDs and ETRs are only applicable to one type of tax avoidance, namely non-conforming tax avoidance[109].

Due to data restrictions, we were unable to derive a measure of conforming tax avoidance that captures both book and taxable income reductions (e.g., Badertscher et al., 2019). As with Lennox et al. (2013), we want to perform in-depth research with a strong theoretical foundation on the relationship between financial misstatements and tax aggressive behavior. We accomplish this by utilizing both ETRs and BTDs.

[109] Hanlon and Heitzman (2010) define non-conforming tax avoidance as transactions that are treated differently for accounting and tax purposes.

3.6. Sample Selection

According to Greek company law (Laws 2190/1920, 3190/1955, 4072/2012, and 4308/2014), the primary criterion for registering and publishing annual financial statements at the General Commercial Registry (G.E.M.I.) is the legal form of the company, regardless of its financial reporting framework (IFRS-GAS) or size (Micro, Small, Medium, and Large).

Thus, public limited companies (S.A./A.E.), limited liability companies (L.L.C./E.P.E.), private limited companies (P.C./I.K.E.), and partnerships (O.E./E.E.) with all direct or indirect partners having limited liability are required to publish annual financial statements at the General Commercial Registry. On the other hand, sole proprietorships and partnerships with no limited liability for all direct or indirect partners are not required to publish annual financial statements at the General Commercial Registry.

Despite the fact that Greek companies are required to publish their annual financial statements in accordance with certain criteria, relevant financial statement data is only publicly accessible via GEMI's website with knowledge of the company's tax identification number or GEMI registration number. Thus, in order to obtain financial statement data for Greek SMEs, we first retrieve a subset of data from GEMI (i.e., company name, GEMI registration number, Tax Identification Number, and company size being Small or Medium) for a total population of 17.153 companies that are required to publish their annual financial statements in GEMI due to their legal entity type. Our observation period runs from 2016 to 2018, when all businesses incurred the same tax rate (29 %).

Following that, we construct our sample using a four-stage procedure. After obtaining data from GEMI, we get data for the complete population of businesses in terms of Total Assets, Operating Revenues, and reporting framework from ICAP, the largest provider of business financial information in Greece. We acquired data for our reference period (2016-2018) from ICAP, as well as for fiscal year 2015, just for the purpose of lagging.

We evaluate the following factors in the first stage of the sample selection process while constructing our sample:

(a) We omit companies who do not have sufficient data on Total Assets, Operating Revenues, or their reporting framework.

(b) Additionally, we omit companies that switched from IFRS to local GAAP or vice versa between 2015 and 2018.

(c) The reporting period for all enterprises in our sample ends on December 31. We omit companies with financial periods beginning on 01.07 and ending on 30.06 in order to

maintain firm-years as comparable as possible.

(d) Also, we identified several companies that prepared financial statements in accordance with the prior reporting framework and excluded them from our sample.

(e) Moreover, we exclude companies involved in mergers and acquisitions, bankruptcy restructurings (Xie, 2001; Sundvik, 2016), or discontinued operations (Jansen et al., 2012).

This enables us to reach a sample of 11.843 companies. We remove companies in the second stage of the sample selection process for the following reasons:

(a) Because our focus is on unlisted, small, and medium - sized companies that do not prepare financial statements in accordance with IFRS, we exclude enterprises that do.

(a) Additionally, financial companies are excluded due to the difficulty in separating operating from financial activities (Jansen et al., 2012). We also exclude insurance businesses and holding corporations due to their unique financial reporting requirements.

(c) Additionally, we eliminate state-controlled businesses from our sample because they are not anticipated to manipulate their earnings in order to pay fewer taxes.

Following the completion of the second stage of the sample selection procedure, our sample contains 10.911 companies. We continue to refine our sample by removing companies that match the following criteria, as established in the preceding literature:

(a) We follow Jansen et al. and exclude companies with negative operating assets in years t-1 or t, because the Asset Turnover Ratio for negative net operating assets is ambiguous.

(b) Additionally, we exclude companies with ETRs greater than one (Gupta and Newberry, 1997; Derashid and Zhang, 2003; Adhikari et al., 2005 & 2006).

(c) Finally, we eliminate companies with missing values, which make it impossible to calculate the dependent and independent variables.

We build a sample of 1325 firms using the aforementioned criteria. The inclusion or exclusion of loss observations is a critical topic in tax aggressiveness/tax avoidance research studies. According to De Simone et al. (2019), researchers must choose between omitting loss observations, which reduces the universal applicability of findings, and incorporating them, which reduces the power of relevant tests.

Despite the fact that many research studies (e.g., Rego, 2003; Derashid and Zhang, 2003; De Simone et al., 2019; Schwab et al., 2020) exclude loss observations (i.e., negative pretax income, negative tax expense, negative cash flow), we split our final sample into the following two subsamples to gain a better understanding of the effects of loss firms' inclusion:

- An unbalanced panel of 1325 firms that includes firms with negative pretax income, negative tax expense, and negative cash flow in addition to profitable firms (labeled the "loss sample").
- An unbalanced panel of 235 companies consisting solely of those with positive pretax income, positive tax expense and positive cash flow (labeled "non-loss sample").

Also, we follow Stickney and McGee (1982) in generating the "non-loss" sample by include enterprises with effective tax rates (ETRs) between 0 and 1, as ETRs larger than or equal to 1 are difficult to interpret (Stickney and McGee, 1982). Stickney and McGee's (1982) criterion is not utilized to the "loss" sample since we are interested in evaluating this sample's unique characteristics. Finally, rather than following Chan et al. (2010) and excluding observations with negative or zero book-tax differences, we follow Chen et al. (2013) and do not eliminate companies with negative or zero book-tax differences from either of our subsamples to avoid further observation loss.

3.7. Research design

According to researchers, private firms prioritize tax savings (Koji and Valentincic, 2013). Given that tax planning is primarily concerned with managing earnings downward in order to avoid paying current taxes, tax incentives will almost certainly have a stronger impact on private firms than on public corporations (Van Tendeloo, 2007; Watrin et al., 2012).

Using multivariate analysis, we examine whether tax incentives encourage Greek SMEs to manage their earnings downward. Following Petersen (2009), we employ OLS regressions with clustered standard errors from a two-dimensional clustering viewpoint, accounting for both the firm and time effects.

Numerous eminent statisticians have emphasized the importance of two-way clustering. As Thompson (2011) and Gow et al. (2019 remark, clustering by firm and year results in more accurate conclusions, but not controlling for clustering can result in underestimated standard errors, as Miller et al. mention (2009).

We conduct two types of tests per subsample ("non-loss" sample/"loss" sample), which vary according to whether or not firm-year observations with negative or zero pretax income, income tax expense, and cash flow from operations are included or excluded.

We follow De Simone et al. (2019) and compute all proxies on an annual basis rather than on a long-run basis; hence, all proxies are calculated annually. Finally, while we list all of our variables below, complete descriptions of each variable are available in Appendix H.

3.7.1. Tests regarding the "non-loss" sample

Using Jansen et al.'s diagnostic, we examine the relationship between tax aggressiveness and downward earnings management. As mentioned previously, we perform OLS regressions with clustered standard errors by year and firm, following Petersen (2009), with BTDs, ETR_1, ETR_2, and ETR_3 as our dependent variables.

Our independent variable is Jansen et al.'s downward earnings management EM_DN variable, as described in Section 3.5. Owing to the unavailability of data, we define operating income as Earnings before Interest and Taxes (EBIT) and compute Net Operating Assets in the manner described by Hirshleifer et al. (2004). Minority Interest, Preferred Stock, and Common Equity are all deemed to be zero if a corporation does not report pertinent information. As a result, Jansen et al.'s individual variables are as follows:

$$Profit\ Margin = EBIT/Sales$$

$$Operating\ Assets_t = Total\ Assets_t - Cash\ and\ Short\text{-}Term\ Investment_t$$

$$Operating\ Liabilities_t = Total\ Assets_t - Short\text{-}Term\ Debt_t - Long\text{-}Term\ Debt_t - Minority\ Interest_t - Preferred\ Stock_t - Common\ Equity_t$$

$$Net\ Operating\ Assets_t = Operating\ Assets_t - Operating\ Liabilities_t$$

We calculate Total Book-Tax Differences (BTDs) from Hanlon and Heitzman (2010), excluding the change in Net Operating Loss carryforward (NOL) due to data unavailability. Additionally, we define Pre-Tax Income as Earnings before Taxes (EBT). Therefore, BTDs are calculated, as follows:

$$BTDs = Pre\text{-}Tax\ Book\ Income - Taxable\ Income,$$

where,

$$Pre\text{-}Tax\ Book\ Income = Earnings\ before\ Taxes$$

$$Taxable\ Income = Current\ Income\ Tax\ Expense / Statutory\ Tax\ Rate$$

Due to the fact that Greek SMEs are not required to file a Cash Flow Statement, we estimate Cash Flow from Operations using the indirect balance sheet approach in order to calculate Gupta and Newberry's (1997) ETR version utilizing Cash Flow from Operations as the denominator. We begin by calculating Total Accruals in the manner described by Dechow et al. (1995):

$$TA_t = (\Delta CA_t - \Delta CL_t - \Delta Cash_t + \Delta STD_t - Dep_t)$$

where,

ΔCA= Change in Current assets

ΔCL=Change in Current liabilities

ΔCash=Change in Cash and cash equivalents

ΔSTD=Change in debt included in current liabilities

Dep=Depreciation and amortization expense

We follow Xie (2001) and treat the balance-sheet estimated total accruals measurement error identified by Hribar and Collins (2002), by eliminating entities associated with mergers and acquisitions, as discussed in Section 3.6.

Cash Flow from Operations (CFO) is estimated by subtracting Total Accruals from Net Income before extraordinary items and discontinued operations. We define Net Income before extraordinary items and discontinued operations as Earnings after Taxes (EAT). As a result, CFO is calculated in the following manner:

Cash Flow from operations= Earnings After Taxes (EAT)-Total Accruals

Additionally, despite the fact that GEMI provided data on firm size (small/medium), we choose to control for company size (coded: ln(sz)), which is defined as the logarithm of the book value of total assets, in line with prior literature (e.g., Rego, 2003; VanDerBauwhede et al., 2003; Kim and Yi, 2006; Van Tendeloo and Vanstraelen, 2008).

Given the importance placed on auditors in earnings management studies (e.g., Van Tendeloo and Vanstraelen, 2008) as well as tax-aggressiveness studies (e.g., Klassen et al., 2016), we include a dichotomous variable (coded AUDIT) to indicate whether financial statements are being audited (AUDIT equals 1) or not (AUDIT equals 0). We make no distinction between Big4 and non-Big4 auditing firms since we are primarily concerned in the complete view of auditing on our tax and earnings management proxies.

Two interaction terms, EM_DN*AUDIT and EM_DN*ln (sz), are also included in our regressions to examine if external auditors assist their clients in tax avoidance by manipulating earnings downward, as well as whether company size influences earnings manipulation to avoid taxes.

Except for BTDs, we do not scale our key variables (ETRs, EM_DN) by lagged total assets. Each variable is winsorized at the 1st and 99th percentiles of its distribution. The following are our OLS regressions:

$$BTDs = \gamma_0 + \gamma_1 EM\_DN + \gamma_2 AUDIT + \gamma_3 ln\ (sz) + \gamma_4 EM\_DN*AUDIT + \gamma_5 EM\_DN*ln\ (sz) + \varepsilon\ (1)$$

$$ETR_1 = \gamma_0 + \gamma_1 EM\_DN + \gamma_2 AUDIT + \gamma_3 ln\ (sz) + \gamma_4 EM\_DN*AUDIT + \gamma_5 EM\_DN*ln\ (sz) + \varepsilon\ (2)$$

$$ETR_2 = \gamma_0 + \gamma_1 EM\_DN + \gamma_2 AUDIT + \gamma_3 ln\ (sz) + \gamma_4 EM\_DN*AUDIT + \gamma_5 EM\_DN*ln\ (sz) + \varepsilon\ (3)$$

$$ETR_3 = \gamma_0 + \gamma_1 EM\_DN + \gamma_2 AUDIT + \gamma_3 ln\ (sz) + \gamma_4 EM\_DN*AUDIT + \gamma_5 EM\_DN*ln\ (sz) + \varepsilon\ (4)$$

3.7.2. Tests regarding the "loss" sample

In this part, we analyze the effect of including loss observations (negative pretax income, negative tax expense, and negative cash flow) in our research variables. In doing so, we follow Rego (2003) and modify the preceding section's regressions by include several loss dummy variables. To be more precise, we include a BOOKLOSS dummy variable when pre-tax income is negative or zero, a TAXLOSS dummy variable when current income tax expense is negative or zero, and a CFOLOSS dummy variable when cash flow from operations is negative or zero.

Interactions between EM_DN and the newly introduced loss dummy variables are also included. We specifically include EM_DN*BOOKLOSS, EM_DN*TAXLOSS, and EM_DN*CFOLOSS in regressions (5) – (8) to examine the relationship between Jansen et al.'s proxy and tax aggressiveness for companies reporting losses. As a consequence, our OLS regressions are as follows:

$$BTDs = \gamma_0 + \gamma_1 EM\_DN + \gamma_2 BOOKLOSS + \gamma_3 TAXLOSS + \gamma_4 CFOLOSS + \gamma_5 EM\_DN*BOOKLOSS + \gamma_6 EM\_DN*TAXLOSS + \gamma_7 EM\_DN*CFOLOSS + \gamma_8 AUDIT + \gamma_9 ln\ (sz) + \gamma_{10} EM\_DN*AUDIT + \gamma_{11} EM\_DN*ln\ (sz) + \varepsilon\ (5)$$

$$ETR_1 = \gamma_0+\gamma_1 EM\_DN+\gamma_2 BOOKLOSS +\gamma_3 TAXLOSS +\gamma_4 CFOLOSS +\gamma_5 EM\_DN*BOOKLOSS+ \gamma_6 EM\_DN*TAXLOSS +\gamma_7 EM\_DN*CFOLOSS+\gamma_8 AUDIT +\gamma_9 ln(sz) + \gamma_{10} EM\_DN*AUDIT + \gamma_{11} EM\_DN*ln(sz) + \varepsilon \quad (6)$$

$$ETR_2 = \gamma_0+\gamma_1 EM\_DN+\gamma_2 BOOKLOSS +\gamma_3 TAXLOSS +\gamma_4 CFOLOSS +\gamma_5 EM\_DN*BOOKLOSS+ \gamma_6 EM\_DN*TAXLOSS +\gamma_7 EM\_DN*CFOLOSS+\gamma_8 AUDIT +\gamma_9 ln(sz) + \gamma_{10} EM\_DN*AUDIT + \gamma_{11} EM\_DN*ln(sz) + \varepsilon \quad (7)$$

$$ETR_3 = \gamma_0+\gamma_1 EM\_DN+\gamma_2 BOOKLOSS +\gamma_3 TAXLOSS +\gamma_4 CFOLOSS +\gamma_5 EM\_DN*BOOKLOSS+ \gamma_6 EM\_DN*TAXLOSS +\gamma_7 EM\_DN*CFOLOSS+\gamma_8 AUDIT +\gamma_9 ln(sz) + \gamma_{10} EM\_DN*AUDIT + \gamma_{11} EM\_DN*ln(sz) + \varepsilon \quad (8)$$

3.8. EMPIRICAL FINDINGS

3.8.1. Descriptive Statistics & Correlations ("non-loss" sample)

Table 3.1 summarizes the descriptive statistics for the variables used in the "non-loss" sample's regression equations (1)-(4). The mean of the AUDIT variable (0.534) suggests that more than half of the companies in the "non-loss" sample have their financial statements audited, whereas about 4 out of 10 sample companies may have manipulated their earnings downward, as indicated by the mean EM_DN variable (0.348).

Another intriguing observation concerns the AUDIT dummy variable's interactions with EM_DN. To be more precise, the mean EM_DN*AUDIT interaction indicates that nearly 17% of audited "non-loss" sample companies may have managed their earnings downward.

When we look at the ETRs, we see that the mean ETR_1 is higher than the statutory tax rate (29 % for the period 2016-2018). The fact that ETR_1 exceeds the statutory tax rate may indicate that Greek SMEs participate in income-decreasing earnings management through efficient utilization of tax facilities (i.e., Book-Tax Differences), as Van Tendeloo (2007) points out.

The mean ETR_3 suggests that a sizable amount of operating cash flows is allocated to income taxes, whereas the mean ETR_2 indicates that income taxes account for about 3% of net sales during the period under investigation.

Table 3.2 reports the Pearson and Spearman correlation coefficients for the variables included in the "non-loss" sample's regression equations (1-4). We observe that Jansen et al.'s EM_DN proxy is significantly correlated with all of the tax aggressiveness variables (BTDs, ETR_1, ETR_2 & ETR_3).

Table 3.1: Descriptive Statistics ("non-loss" sample)

	Mean	Median	Min	Max	Std. Deviation	N (firm-year observations)
AUDIT	0.534751773	1	0	1	0.49919671	705
EM_DN	0.34893617	0	0	1	0.47681462	705
ETR_1	0.331916714	0.312257051	0.033026425	0.78348073	0.12248455	705
ETR_2	0.033311747	0.021189606	0.000764747	0.18127042	0.03403879	705
ETR_3	0.24987753	0.19480997	0.009841148	0.93234327	0.20276803	705
BTDs	-0.00263209	-0.00357908	-0.04742841	0.08000948	0.01756656	705
ln (sz)	15.77959175	15.7492728	13.53530313	17.9781722	1.20569381	705
EM_DN*AUDIT	0.167375887	0	0	1	0.37336427	705
EM_DN * ln(sz)	5.472411205	0	0	17.9781722	7.50497763	705

Table 3.2: Pearson and Spearman Correlations ("non-loss" sample)

	AUDIT	EM_DN	ETR_1	ETR_2	ETR_3	BTDs	ln (sz)	EM_DN* AUDIT	EM_DN* ln(sz)
N	705	705	705	705	705	705	705	705	705
AUDIT	1	-0.056	-0.018	0.196***	0.127***	-0.100**	0.676***	0.399***	0.031
EM_DN	-0.056	1	0.127***	-0.130***	-0.136***	-0.040	-0.087**	0.647***	0.975***
ETR_1	-0.086**	0.143***	1	-0.135***	-0.015	-0.799***	-0.109**	0.097**	0.120***
ETR_2	0.211***	-0.117***	-0.039	1	0.469***	-0.241***	0.265***	-0.020	-0.100**
ETR_3	0.107**	-0.121***	0.089**	0.269***	1	-0.295***	-0.027	-0.064	-0.140***
BTDs	-0.007	-0.090**	-0.649***	-0.242***	-0.293***	1	0.048	-0.076*	-0.039
ln (sz)	0.652***	-0.092**	-0.165***	0.320***	-0.032	0.098**	1	0.242***	0.042
EM_DN*AUDIT	0.399***	0.647***	0.045	-0.017	-0.065	-0.066	0.230***	1	0.746***
EM_DN* ln(sz)	-0.023	0.996***	0.134***	-0.107**	-0.123***	-0.087**	-0.043	0.688***	1

Notes: Pearson correlation coefficients are shown below the diagonal, while Spearman correlation coefficients are shown above the diagonal.

***Correlation is significant at the 0.01 level (2-tailed).

** Correlation is significant at the 0.05 level (2-tailed).

* Correlation is significant at the 0.10 level (2-tailed).

We observe that EM_DN is negatively correlated with both ETR_2 and ETR_3, implying that Greek SMEs' income-decreasing practices may be tax-motivated.

Additionally, the positive correlation between EM_DN and ETR_1 as well as the negative correlation between EM_DN and BTDs may corroborate Hanlon and Heitzman's (2010) observation that private companies employ conforming tax avoidance strategies that lower their book income and, and hence, their taxable income.

Correlations between the interaction terms EM_DN*AUDIT and EM_DN* ln (sz) and tax aggressiveness also provide useful information. Specifically, EM_DN*AUDIT has a weak correlation with the tax proxies, implying that Jansen et al.'s metric does not signal probable tax aggressiveness of audited sample companies.

Additionally, the significant and negative correlation between the interaction term EM_DN*ln (sz) and ETR_2 and ETR_3 implies that Jansen et al.'s proxy indicates that larger firms are more likely to engage in tax-induced income-decreasing activities than smaller enterprises. When tax aggressiveness is quantified using ETR_1 and BTDs, the association between EM_DN*ln(sz) and the aforementioned variables suggests that larger Greek SMEs that have been recognized as potentially manipulating their earnings have smaller book-tax differences and pay higher effective tax rates.

Moreover, the correlations between the firm size variable (ln (sz)) and the main variables provide valuable information, since size can explain a range of reporting motivations, as Hope et al. (2013) indicate. The correlation between company size and AUDIT is significant and positive, which is consistent with Greek legislation requiring statutory audits for private enterprises that exceed certain size thresholds. Interestingly, the significant and negative association between company size and EM_DN suggests that Jansen et al.'s diagnostic flags smaller companies as more likely to manipulate earnings downward than larger companies.

Finally, our research reflects the contradictory findings in the preceding literature regarding the relationship between firm size and tax proxies. Specifically, company size is significantly and positively correlated with BTDs (e.g., Chen et al., 2013), and ETR_2 (e.g., Zimmerman, 1983). Additionally, whereas firm size is positively and negatively connected with ETR_1 (e.g., Adhikari et al., 2006), it is not correlated with ETR_3 (e.g., Stickney and McGee, 1982).

This divergence in results is not just attributable to the fact that the company size-ETR association fluctuates over time, as Gupta and Newberry (1997) emphasize, but also to the

idiosyncrasies of the (Greek) SME setting, which is markedly different from those of publicly traded large companies.

3.8.2. Descriptive Statistics & Correlations ("Loss" sample)

Tables 3.3 and 3.4 present the descriptive statistics and correlations between variables for the "loss" sample, respectively. As evidenced by the mean value of the AUDIT dummy variable, nearly half of the enterprises in the "loss" sample had their financial statements audited. Additionally, a sizable percentage of sample companies have negative or zero pre-tax book income (mean BOOKLOSS: 0.370), negative or zero cash flow from operations (mean CFOLOSS: 0.339), and negative or zero income tax expense (mean TAXLOSS: 0.448).

The mean EM_DN (0.2595) reveals that nearly a quarter of sample companies experienced concurrent declines in Profit Margin and rises in Asset Turnover, indicating that they may have managed their earnings downward. Additionally, the mean of the interaction term EM_DN*AUDIT is 0.115, indicating that 11.5 % of the sample companies having audited financial statements have been flagged as probable downward earnings manipulators by Jansen et al.'s diagnostic.

Additionally, the interactions of BOOKLOSS, TAXLOSS, and CFOLOSS with EM_DN reveal some intriguing results. EM_DN has identified 9% (mean EM_DN*BOOKLOSS), 10% (mean EM_DN*TAXLOSS), and 5% (mean EM_DN*CFOLOSS) of companies with negative or zero pre-tax income, income-tax expense, and cash flow from operations as possibly managing their earnings downward, respectively.

Moving on to the ETRs, we observe that the mean ETRs of the "loss" sample are significantly lower than those of the "non-loss" sample, either because loss firms are included in the "loss" sample or because loss firms may exhibit a greater degree of tax-induced income decreasing behavior than "non-loss" firms.

Table 3.4 presents Pearson and Spearman correlation coefficients for variables included in the "loss" sample's regression equations (5) - (8). At first glance, it appears as though the interactions of EM_DN with the loss dummy variables are more closely related to the tax proxies than the individual version of EM_DN is.

EM_DN*BOOKLOSS and EM_DN*TAXLOSS have a significant and negative correlation with ETR_1 and ETR_2 and BTDs, demonstrating that not only profitable but also loss-making enterprises may manage their earnings to reduce their tax liabilities.

Table 3.3: Descriptive Statistics ("loss" sample)

	Mean	Median	Min	Max	Std. Deviation	N (firm-year observations)
AUDIT	0.444108761	0	0	1	0.4969163	3975
BOOKLOSS	0.370845921	0	0	1	0.48306712	3975
CFOLOSS	0.339375629	0	0	1	0.47352804	3975
TAXLOSS	0.448388721	0	0	1	0.49738002	3975
EM_DN	0.259566969	0	0	1	0.43841637	3975
ETR_1	0.150650506	0	-0.55655067	0.82493205	0.22238648	3975
ETR_2	0.010649383	0.00090597	0	0.11041839	0.02002172	3975
ETR_3	0.011063601	0	-2.40449827	0.79824674	0.37224531	3975
BTDs	-0.01467764	-0.00598341	-0.20714057	0.09259268	0.04140329	3975
ln (sz)	15.68439594	15.64017035	13.47460391	18.1897538	1.04643786	3975
EM_DN*AUDIT	0.115055388	0	0	1	0.31909399	3975
EM_DN* ln(sz)	4.066140885	0	0	18.1897538	6.88775415	3975
EM_DN *BOOKLOSS	0.092396777	0	0	1	0.28958895	3975
EM_DN*TAXLOSS	0.102719033	0	0	1	0.30359593	3975
EM_DN*CFOLOSS	0.054380665	0	0	1	0.22676894	3975

Table 3.4: Pearson and Spearman Correlations ("loss" sample)

	AUDIT	BOOK LOSS	CFO LOSS	TAX LOSS	EM_DN	ETR_1	ETR_2	ETR_3	BTDs	ln (sz)	EM_DN *AUDIT	EM_DN *ln(sz)	EM_DN *BOOKLOSS	EM_DN *TAXLOSS	EM_DN *CFOLOSS
N	3975	3975	3975	3975	3975	3975	3975	3975	3975	3975	3975	3975	3975	3975	3975
AUDIT	1	-0.057***	-0.092***	-0.106***	0.003	0.106***	0.145***	0.102***	-0.034*	0.600***	0.395***	0.056***	-0.020	-0.038**	-0.071***
BOOKLOSS	-0.057***	1	0.203***	0.515***	-0.018	-0.693***	-0.561***	-0.291***	-0.695***	0.028	-0.031*	-0.016	0.412***	0.211***	0.058***
CFOLOSS	-0.092***	0.203***	1	0.143***	-0.152***	-0.143***	-0.196***	-0.662***	-0.172***	-0.044**	-0.150***	-0.154***	-0.028	-0.028	0.337***
TAXLOSS	-0.106***	0.515***	0.143***	1	-0.056***	-0.637***	-0.901***	-0.392***	-0.115***	0.027	-0.073***	-0.055***	0.197***	0.374***	0.051***
EM_DN	0.003	-0.018	-0.152***	-0.056***	1	0.066***	0.032*	0.106***	-0.016	-0.025	0.629***	0.985***	0.539***	0.577***	0.416***
ETR_1	0.009	-0.151***	-0.008	-0.092***	-0.026	1	0.695***	0.356***	0.144***	-0.013	0.087***	0.064***	-0.296***	-0.240***	-0.039**
ETR_2	0.142***	-0.370***	-0.196***	-0.489***	-0.007	0.076***	1	0.489***	0.088***	0.032*	0.070***	0.036**	-0.218***	-0.338***	-0.068***
ETR_3	0.018	0.018	-0.059***	0.022	0.014	-0.005	0.003	1	0.064***	0.023	0.119***	0.107***	-0.084***	-0.144***	-0.220***
BTDs	0.029*	-0.507***	-0.172***	-0.135***	-0.022	0.025	0.044**	-0.005	1	-0.000	-0.035**	-0.018	-0.274***	-0.061***	-0.059***
ln (sz)	0.576***	0.024	-0.043**	0.025	-0.023	0.002	0.120***	0.028	0.067***	1	0.235***	0.062***	-0.005	-0.013	-0.037**
EM_DN* AUDIT	0.395***	-0.031*	-0.150***	-0.073***	0.629***	-0.015	0.036**	0.011	-0.001	0.227***	1	0.702***	0.305***	0.301***	0.150***
EM_DN* ln(sz)	0.027	-0.017	-0.153***	-0.056***	0.997***	-0.025	-0.003	0.014	-0.017	0.015	0.664***	1	0.534***	0.568***	0.401***
EM_DN* BOOKLOSS	-0.020	0.412***	-0.028	0.197***	0.539***	-0.128***	-0.149***	0.008	-0.209***	-0.006	0.305***	0.538***	1	0.684***	0.335***
EM_DN* TAXLOSS	-0.038**	0.211***	-0.028	0.374***	0.577***	-0.033*	-0.181***	0.008	-0.087***	-0.014	0.301***	0.575***	0.684***	1	0.362***
EM_DN* CFOLOSS	-0.071***	0.058***	0.337***	0.051***	0.416***	0.001	-0.067***	-0.008	-0.089***	-0.030*	0.150***	0.411***	0.335***	0.362***	1

Notes: Pearson correlation coefficients are shown below the diagonal, while Spearman correlation coefficients are shown above the diagonal.
***Correlation is significant at the 0.01 level (2-tailed).
** Correlation is significant at the 0.05 level (2-tailed).
* Correlation is significant at the 0.10 level (2-tailed).

Interestingly, as indicated by the significant and negative association between EM_DN*CFOLOSS and ETR_2, sample enterprises with negative or zero cash flow from operations may reduce their reported income to offset tax liabilities.

In general, the interactions between EM_DN and the loss dummy variables indicate that EM_DN may be effective in capturing loss firms' income-decreasing strategies for tax purposes.

Similar to the "non-loss" sample, company size (ln (sz)) is positively and strongly correlated with AUDIT, indicating that auditing of financial statements is analogous to a company's size. Additionally, the correlation between firm size and CFOLOSS is significant and negative, revealing an inverse relationship between company size and cash flow from operations.

Additionally, correlations between firm size and tax aggressiveness variables yield results that are quite similar to those found in the "non-loss" sample. The significant and positive relationships between firm size and ETR_2 and BTDs that we observed in the "non-loss" sample are also observed in the "loss" sample, but company size is not correlated with ETR_1 or ETR_3. These findings, together with the weak association between EM*ln(sz) and our tax proxies, suggest that tax aggressiveness is not always proportional to a firm's size in the Greek context.

Finally, we observe analogous correlations between the interaction EM_DN *AUDIT and our tax proxies as with the "non-loss" sample, with the exception of ETR_2, which is strongly and positively associated with EM_DN *AUDIT at the 5% level.

3.9. Multivariate Analysis

3.9.1. Regression results for the "non-loss" sample

Table 3.5 presents the results of regressions (1) - (4). Although Jansen et al.'s EM_DN diagnostic is not associated with the majority of tax aggressiveness proxies, it is associated with ETR_3. This significant and negative relation between EM_DN and ETR_3 reflects Greek SMEs' efforts to manage their earnings downward in order to reduce their tax liabilities.

Given that ETR_3 is less sensitive to differences in financial accounting practices due to its denominator (Gupta and Newberry, 1997; Karampinis and Hevas, 2013), Jansen et al.'s downward earnings management metric may be indicative of tax aggressive schemes involving individual components of operating income, namely operating revenues and operating expenses.

Thus, tax-motivated earnings management can be accomplished by underreporting sales or overreporting expenses, and Jansen et al.'s metric appears to be a significant and negative determinant of ETR_3.

Another intriguing discovery concerns the relationship between firm size and tax variables.

Table 3.5: Regressions results for equations (1)-(4) ("non-loss" sample)

*The table reports the coefficients from OLS regressions with clustered standard errors by year and firm for the "non-loss" sample when the independent variable is EM_DN (t-statistics are reported in parentheses). Panel A presents results for eq.(1), Panel B reports results for eq.(2), Panel C reports results for eq.(3) and Panel D for eq.(4). Variables' definitions are given in Appendix H. ***, **, * represents statistical significance at 1%, 5%, and 10% level, respectively (one-tailed).*

Panel A: BTDs =$\gamma_0+\gamma_1$EM_DN+γ_2AUDIT +$\gamma_3$ln (sz)+ γ_4EM_DN*AUDIT + γ_5 EM_DN*ln (sz)+ε

	Coefficient	t-Statistic
Constant	-0.056***	-9.122
EM_DN	0.015	0.529
AUDIT	-0.002***	-2.675
EM_DN*AUDIT	-0.000	-0.109
EM_DN* ln (sz)	-0.001	-0.569
ln (sz)	0.003***	7.404

Panel B: ETR_1= $\gamma_0+\gamma_1$EM_DN+γ_2AUDIT +$\gamma_3$ln (sz)+ γ_4EM_DN*AUDIT + γ_5*EM_DN*ln (sz)+ε

	Coefficient	t-Statistic
Constant	0.689***	6.861
EM_DN	-0.037	-0.237
AUDIT	0.006*	1.536
EM_DN*AUDIT	-0.004	-0.244
EM_DN* ln (sz)	0.003	0.368
ln (sz)	-0.023***	-4.062

Panel C: ETR_2= $\gamma_0+\gamma_1$EM_DN+γ_2AUDIT +$\gamma_3$ln (sz)+ γ_4EM_DN*AUDIT + γ_5 EM_DN*ln (sz)+ε

	Coefficient	t-Statistic
Constant	-0.093***	-4.020
EM_DN	-0.007	-0.174
AUDIT	-0.000	-0.078
EM_DN*AUDIT	-0.003	-0.345
EM_DN* ln (sz)	0.000	0.150
ln (sz)	0.008***	4.955

Table 3.5: Regressions results for equations (1)-(4) ("non-loss" sample) (continued)

*The table reports the coefficients from OLS regressions with clustered standard errors by year and firm for the "non-loss" sample when the independent variable is EM_DN (t-statistics are reported in parentheses). Panel A presents results for eq.(1), Panel B reports results for eq.(2), Panel C reports results for eq.(3) and Panel D for eq.(4). Variables' definitions are given in Appendix H. ***, **, * represents statistical significance at 1%, 5%, and 10% level, respectively (one-tailed).*

Panel D: $ETR_3 = \gamma_0+\gamma_1 EM\_DN+\gamma_2 AUDIT +\gamma_3 ln\ (sz)+ \gamma_4 EM\_DN*AUDIT + \gamma_5 EM\_DN*ln\ (sz)+\varepsilon$

	Coefficient	**t-Statistic**
Constant	0.847***	21.429
EM_DN	-0.319**	-1.715
AUDIT	0.102***	3.424
EM_DN*AUDIT	-0.058	-0.802
EM_DN* ln (sz)	0.018*	1.424
ln (sz)	-0.040***	-11.969

In Greece, there has been no conclusive proof that small businesses are more tax aggressive than medium - sized enterprises or vice versa. Stamatopoulos et al. (2016) conclude that larger enterprises experienced higher ETRs than smaller firms in their research of the determinants of corporate effective tax rates in Greece from 2000 to 2014.

Unlike Stamatopoulos et al. (2016), our regression results indicate that larger firms have higher book-tax differences and pay lower effective tax rates, as indicated by the positive and negative relationships between the company size variable and BTDs and ETRs (ETR_1 and ETR_3), respectively. The difference between our findings and those of Stamatopoulos et al. (2016) may be explained by the fact that our research was conducted over a different time period and with a different sample composition, as our study focuses exclusively on small and medium-sized businesses, excluding micro - enterprises and large publicly-traded firms.

We find no significant positive or negative association between the tax variables and the interaction term EM_DN*ln(sz) (except for a weak relation with ETR_3). This finding implies that, among companies highlighted as possible downward earnings manipulators by Jansen et al.'s metric, company size is not a determinant of tax aggressiveness.

Further, regression results indicate that auditing imposes considerable limits on the sample companies' tax aggressiveness, as indicated by the (significant) negative relationship between AUDIT and BTDs and the (significant) positive relationship between AUDIT and ETR_1 and ETR_3. Thus, it can be concluded that Greek auditors, regardless of the audit firm for which they work, are motivated to restrain tax evasion aggressiveness for two primary

reasons: the tax authorities' close inspection of financial statements and the imposition of severe penalties by the tax authorities directly to them[110].

Additionally, the lack of a relationship between the interaction EM_DN*AUDIT and the tax proxies indicates that EM_DN's labeling of audited companies as likely downward earnings manipulators had no effect on the sample companies' tax aggressiveness proxies.

3.9.2. Regression results for the "loss" sample

The regression results for the regression equations (5) - (8) are shown in Table 3.6. With the exception of ETR_2, the individual version of EM_DN appears to be unrelated to the tax aggressiveness proxies. Nonetheless, we discover a strong connection between the interaction of EM_DN and BOOKLOSS and the applied tax proxies. Specifically, EM_DN*BOOKLOSS is significantly and positively associated with BTDs and significantly and negatively associated with ETRs.

The positive correlation between EM_DN*BOOKLOSS and BTDs implies that, despite being identified as possible downward earnings manipulators by Jansen et al.'s diagnostic, Greek loss SMEs increase their book-tax differences. This finding may be explained by the fact that EM_DN is driven by the use of operating income in the profit margin ratio, and so excludes non-operating items (e.g., non-operating and non-taxable income) that generate book-tax differences.

For example, even if a company is identified as a potential downward earnings manipulator by the ATO/PM diagnostic due to expense-based earnings management (as outlined by Jansen et al.), the payment of dividends by its parent company will result in the recording of non-taxable book income[111]. This results in a book-tax difference that is unrelated to expense-based earnings management and so is not captured by the EM_DN variable.

Additionally, the positive association between EM_DN*BOOKLOSS and BTDs may indicate that Greek loss SMEs engage in tax planning activities by manipulating sales or operating expenses to transform positive book income to negative book income while simultaneously generating permanent differences to offset the magnitude of negative pre-tax income.

[110] According to Article 65A of the Code of Tax Procedures (Law 4174/2013), auditing firms may issue tax certificates to audited businesses certifying that they have complied with their tax responsibilities. Tax authorities may investigate auditing firms' tax certificates and, if they discover tax violations or incorrect tax computation, they may impose penalties on auditing companies ranging from €10.000 to €100.000, depending on the severity of the tax offenses.

[111] Under the prerequisites of Article 48 of the Code of Income Tax (Law 4172/2013).

The negative association between EM_DN*BOOKLOSS and ETRs implies that enterprises identified as potential downward earnings manipulators, regardless of the ETR denominator (pre-tax income, cash flow from operations, or sales revenues), aim to reduce their effective tax rates. While Jansen et al.'s metric does not provide a clear picture of the tax avoidance scheme being used (e.g., a tax avoidance mechanism that generates permanent or temporary differences), it does demonstrate that a directionally opposite change in the Asset Turnover and Profit Margin ratios may indicate tax-induced income decreasing practices.

When we examine the impacts of EM_DN's interaction with the other loss dummy variables (TAXLOSS-CFOLOSS) on the tax proxies, we see that they are significantly different from the effects of the EM_DN*BOOKLOSS interaction. EM_DN*TAXLOSS, in particular, appears to be more strongly connected with tax aggressiveness variables than EM_DN*CFOLOSS.

EM_DN*TAXLOSS is significantly and negatively associated (at the 10% level) with BTDs and significantly and positively associated (at the 5% level) with ETR_1. Although these relationships are weaker than those between EM_DN*BOOKLOSS and the tax aggressiveness variables, they may reflect distinct tax avoidance strategies employed by companies having a negative or zero current income tax expense.

As Badertscher et al. (2019) conclude, it is crucial to determine if companies use conforming tax avoidance schemes, as many appear to be tax compliant via high ETRs or low BTDs, but instead employ undiscovered tax strategies that reduce both book and taxable income.

Interestingly, the sign of the coefficients of EM_DN*TAXLOSS in relation to BTDs and ETR_1 indicates that Greek SMEs with a negative or zero current income tax expense may employ conforming tax-avoidance strategies. According to Badertscher et al. (2019), these strategies can be carried out through transactions that impact gross margin or selling, general, and administrative expenses. The conclusion reached by Badertscher et al. (2019) is bolstered by the fact that EM_DN indicates the possibility of downward earnings manipulation when the Profit Margin ratio decreases, and the Asset Turnover ratio increases concurrently.

Given that EM_DN captures transactions that affect gross margin as well as selling, general, and administrative expenses, it is reasonable to conclude that Greek loss SMEs may employ tax avoidance strategies to reduce both book and taxable income. Thus, while BTDs and ETRs capture non-conforming tax avoidance, as Hanlon and Heitzman (2010)

note, their association with Jansen et al.'s diagnostic may also provide useful information for identifying conforming tax avoidance.

Additionally, the non-significant and positive association of EM_DN*TAXLOSS with ETR_2 and the significant and negative association of EM_DN*TAXLOSS with ETR_3 (at the 10% level) lead to some intriguing conclusions. Given that gross margin can be manipulated in terms of sales or cost of goods sold, the observed insignificant correlation between ETR_2 (where the denominator is sales revenues) and EM_DN*TAXLOSS may reflect the fact that Greek loss SMEs employ tax-avoidance strategies that affect operating expenses (such as selling, general, and administrative expenses) rather than gross profit.

In terms of the relation between EM_DN*TAXLOSS and ETR_3 (where the denominator is Cash Flow from Operations), the reversal in the sign of EM_DN*TAXLOSS when regressed against ETR_3 indicates that EM_DN*TAXLOSS is sensitive to the denominator measure used in ETR. Thus, while Hanlon and Heitzman (2010) assert that scaling by cash flow facilitates the identification of conforming tax avoidance, it is difficult to conclude that the interaction of EM_DN*TAXLOSS and ETR_3 reflects conforming tax avoidance to some extent.

We observe that EM_DN*CFOLOSS has the weakest associations with tax proxies, being negatively and significantly correlated only with BTDs. This finding makes it more difficult to draw definitive conclusions about whether companies with negative or zero cash flow from operations engage in income-decreasing tax strategies. This conclusion is reinforced by the difficulty in reconciling the relevant regression results for EM_DN*CFOLOSS with those for EM_DN*BOOKLOSS and EM_DN*TAXLOSS.

Conclusions about the relationship between AUDIT and company size in terms of tax aggressiveness variables are mixed. When tax aggressiveness is quantified using BTDs and ETR_1, auditing appears to constrain aggressive tax strategies, as evidenced by the AUDIT variable's significant negative and positive coefficients for BTDs and ETR_1, respectively. On the other hand, when ETR_2 and ETR_3 are used to measure tax aggressiveness, the sign of the AUDIT coefficient is positive but insignificant. As with the "non-loss" sample, the interaction EM_DN*AUDIT has no effect on the tax aggressiveness proxies[112].

.

[112] EM_DN*AUDIT is statistically insignificant in the vast majority of relevant tests.

Table 3.6: Regressions results for equations (5)-(8) ("loss" sample)

*The table reports the coefficients from OLS regressions with clustered standard errors by year and firm for the "loss" sample when the independent variable is EM_DN (t-statistics are reported in parentheses). Panel A presents results for eq.(5), Panel B reports results for eq.(6), Panel C reports results for eq.(7) and Panel D for eq.(8). Variables' definitions are given in Appendix H. ***, **, * represents statistical significance at 1%, 5%, and 10% level, respectively (one-tailed).*

Panel A: BTDs = $\gamma_0+\gamma_1$EM_DN$+\gamma_2$BOOKLOSS $+\gamma_3$TAXLOSS$+\gamma_4$CFOLOSS $+\gamma_5$EM_DN*BOOKLOSS$+ \gamma_6$EM_DN*TAXLOSS $+\gamma_7$EM_DN*CFOLOSS$+\gamma_8$AUDIT $+\gamma_9$ln (sz)$+ \gamma_{10}$EM_DN*AUDIT $+ \gamma_{11}$EM_DN*ln (sz)$+\varepsilon$

	Coefficient	t-Statistic
Constant	-0.067***	-13.104
EM_DN	-0.009	-0.575
BOOKLOSS	-0.058***	-28.064
CFOLOSS	-0.007***	-13.004
TAXLOSS	0.015***	5.412
AUDIT	-0.003***	-2.353
EM_DN*BOOKLOSS	0.010***	3.705
EM_DN*TAXLOSS	-0.004*	-1.627
EM_DN*CFOLOSS	-0.006**	-1.909
EM_DN*AUDIT	0.000	0.608
EM_DN *ln (sz)	0.004***	11.217
ln (sz)	-0.004**	-2.008

Panel B: $ETR_1= \gamma_0+\gamma_1$EM_DN$+\gamma_2$BOOKLOSS $+\gamma_3$TAXLOSS$+\gamma_4$CFOLOSS $+\gamma_5$EM_DN*BOOKLOSS$+ \gamma_6$EM_DN*TAXLOSS $+\gamma_7$EM_DN*CFOLOSS$+\gamma_8$AUDIT $+\gamma_9$ln (sz)$+ \gamma_{10}$EM_DN*AUDIT $+ \gamma_{11}$EM_DN*ln (sz)$+\varepsilon$

	Coefficient	t-Statistic
Constant	0.400***	9.315
EM_DN	0.031	0.212
BOOKLOSS	-0.155***	-27.843
CFOLOSS	0.011***	5.636
TAXLOSS	-0.194***	-19.881
AUDIT	0.016***	4.391
EM_DN*BOOKLOSS	-0.055***	-6.323
EM_DN*TAXLOSS	0.015**	1.735
EM_DN*CFOLOSS	-0.011	-1.082
EM_DN*AUDIT	0.000	0.030
EM_DN *ln (sz)	-0.007***	-2.841
ln (sz)	-0.001	-0.080

***Table 3.6: Regressions results for equations (5)-(8) ("loss" sample)* (*continued*)**

*The table reports the coefficients from OLS regressions with clustered standard errors by year and firm for the "loss" sample when the independent variable is EM_DN (t-statistics are reported in parentheses). Panel A presents results for eq.(5), Panel B reports results for eq.(6), Panel C reports results for eq.(7) and Panel D for eq.(8). Variables' definitions are given in Appendix H. ***, **, * represents statistical significance at 1%, 5%, and 10% level, respectively (one-tailed).*

Panel C: $ETR_2 = \gamma_0 + \gamma_1 EM\_DN + \gamma_2 BOOKLOSS + \gamma_3 TAXLOSS + \gamma_4 CFOLOSS + \gamma_5 EM\_DN*BOOKLOSS + \gamma_6 EM\_DN*TAXLOSS + \gamma_7 EM\_DN*CFOLOSS + \gamma_8 AUDIT + \gamma_9 ln\ (sz) + \gamma_{10} EM\_DN*AUDIT + \gamma_{11} EM\_DN*ln\ (sz) + \varepsilon$

	Coefficient	**t-Statistic**
Constant	-0.010***	-5.725
EM_DN	-0.022**	-1.773
BOOKLOSS	-0.005***	-22.004
CFOLOSS	-0.005***	-10.266
TAXLOSS	-0.016***	-13.207
AUDIT	0.000	0.480
EM_DN*BOOKLOSS	-0.001**	-2.193
EM_DN*TAXLOSS	0.001	0.806
EM_DN*CFOLOSS	0.000	0.454
EM_DN*AUDIT	0.001*	1.382
EM_DN *ln (sz)	0.002***	12.411
ln (sz)	-0.002	-0.676

Panel D: $ETR_3 = \gamma_0 + \gamma_1 EM\_DN + \gamma_2 BOOKLOSS + \gamma_3 TAXLOSS + \gamma_4 CFOLOSS + \gamma_5 EM\_DN*BOOKLOSS + \gamma_6 EM\_DN*TAXLOSS + \gamma_7 EM\_DN*CFOLOSS + \gamma_8 AUDIT + \gamma_9 ln\ (sz) + \gamma_{10} EM\_DN*AUDIT + \gamma_{11} EM\_DN*ln\ (sz) + \varepsilon$

	Coefficient	**t-Statistic**
Constant	0.087	0.724
EM_DN	-0.041	-0.267
BOOKLOSS	0.052***	8.950
CFOLOSS	-0.338***	-19.778
TAXLOSS	0.000	0.012
AUDIT	6.172	0.002
EM_DN*BOOKLOSS	-0.058***	-7.619
EM_DN*TAXLOSS	-0.015*	-1.468
EM_DN*CFOLOSS	-0.013	-0.174
EM_DN*AUDIT	0.003	0.365
EM_DN* ln (sz)	0.001	0.172
ln (sz)	-0.025	-0.507

By and large, company size does not appear to be associated with tax aggressiveness, leading us to conclude that tax aggressiveness among SMEs does not follow predictable patterns and is not size dependent. As a result, relationships between firm size and tax

aggressiveness should not be assumed, particularly in the SME context, and relevant results should be interpreted in light of country-specific characteristics.

Nonetheless, we report intriguing findings about the interaction of EM_DN*ln(sz) and tax proxies. When tax aggressiveness is quantified using BTDs and ETR_1, we observe a higher prevalence of tax-induced earnings manipulation in larger Greek SMEs in the "loss" sample. While the significant and positive coefficient of EM_DN*ln(sz) in relation to ETR_2 appears to contradict our previous observation, it cannot be ruled out that the larger Greek SMEs in the "loss" sample engage in more conforming tax avoidance than the smaller ones.

3.10. Supplementary tests

3.10.1. Inclusion of control variables

In this section, we examine the sensitivity of our findings to several control variables that have been used in prior research on private companies' earnings manipulation and tax aggressiveness.

We specifically account for leverage (coded: LEV)[113] since companies with a higher level of leverage have incentives to manage earnings due to concerns about breaching debt covenants (Kim and Yi, 2006).

Additionally, we account for capital intensity (coded: PPE[114]), inventory intensity (coded: INV[115]) and intangible assets (coded: INTANG[116]). PPE is included because capital-intensive companies are disproportionately affected by the variations in depreciation expense treatment for tax and financial reporting purposes (Chen et al., 2010). Additionally, INV is included because the inventory accounting methods used by a company may have an effect on its tax obligation (Gupta and Newberry, 1997). Finally, we include INTANG in our regressions to account for differences in intangible asset book and tax treatment that may affect our tax proxies (Chen et al., 2010).

As a result, the new regression models include the main variables discussed previously (e.g., EM_DN, BTDs, ETR_1, ETR_2, and ETR_3), as well as the control variables discussed previously, in order to investigate the influence of other factors on our primary tests. Thus, the following new regression models are developed for both non-loss and loss samples:

[113] See Appendix H for variable definition.
[114] See Appendix H for variable definition.
[115] See Appendix H for variable definition.
[116] See Appendix H for variable definition.

Regression models with the inclusion of control variables for the "non-loss" sample

$$BTDs = \gamma_0+\gamma_1 EM\_DN+\gamma_2 AUDIT +\gamma_3 ln\ (sz)+ \gamma_4 EM\_DN*AUDIT + \gamma_5 EM\_DN*ln\ (sz)+\gamma_6 LEV+\gamma_7 PPE+\gamma_8 INTANG+\gamma_9 INV + \varepsilon \ (1a)$$

$$ETR_1 = \gamma_0+\gamma_1 EM\_DN+\gamma_2 AUDIT +\gamma_3 ln\ (sz)+ \gamma_4 EM\_DN*AUDIT + \gamma_5 EM\_DN*ln\ (sz)+\gamma_6 LEV+\gamma_7 PPE+\gamma_8 INTANG+\gamma_9 INV + \varepsilon \ (2a)$$

$$ETR_2 = \gamma_0+\gamma_1 EM\_DN+\gamma_2 AUDIT +\gamma_3 ln\ (sz)+ \gamma_4 EM\_DN*AUDIT + \gamma_5 EM\_DN*ln\ (sz)+\gamma_6 LEV+\gamma_7 PPE+\gamma_8 INTANG+\gamma_9 INV + \varepsilon \ (3a)$$

$$ETR_3 = \gamma_0+\gamma_1 EM\_DN+\gamma_2 AUDIT +\gamma_3 ln\ (sz)+ \gamma_4 EM\_DNAUDIT + \gamma_5 EM\_DN*ln\ (sz)+\gamma_6 LEV+\gamma_7 PPE+\gamma_8 INTANG+\gamma_9 INV + \varepsilon \ (4a)$$

Regression models with the inclusion of control variables for the "loss" sample

$$BTDs = \gamma_0+\gamma_1 EM\_DN+\gamma_2 BOOKLOSS +\gamma_3 TAXLOSS+\gamma_4 CFOLOSS+ \gamma_5 EM\_DN*BOOKLOSS+ \gamma_6 EM\_DN*TAXLOSS +\gamma_7 EM\_DN*CFOLOSS+\gamma_8 AUDIT + \gamma_9 ln\ (sz)+ \gamma_{10} EM\_DN*AUDIT + \gamma_{11} EM\_DN*ln\ (sz)+\gamma_{12} LEV+\gamma_{13} PPE+\gamma_{14} INTANG+ \gamma_{15} INV+ \varepsilon \ (5a)$$

$$ETR_1 = \gamma_0+\gamma_1 EM\_DN+\gamma_2 BOOKLOSS +\gamma_3 TAXLOSS+\gamma_4 CFOLOSS+ \gamma_5 EM\_DN*BOOKLOSS+ \gamma_6 EM\_DN*TAXLOSS +\gamma_7 EM\_DN*CFOLOSS+\gamma_8 AUDIT + \gamma_9 ln\ (sz)+ \gamma_{10} EM\_DN*AUDIT + \gamma_{11} EM\_DN*ln\ (sz)+\gamma_{12} LEV+\gamma_{13} PPE+\gamma_{14} INTANG+ \gamma_{15} INV+ \varepsilon \ (6a)$$

$$ETR_2 = \gamma_0+\gamma_1 EM\_DN+\gamma_2 BOOKLOSS +\gamma_3 TAXLOSS+\gamma_4 CFOLOSS+ \gamma_5 EM\_DN*BOOKLOSS+ \gamma_6 EM\_DN*TAXLOSS +\gamma_7 EM\_DN*CFOLOSS+\gamma_8 AUDIT + \gamma_9 ln\ (sz)+ \gamma_{10} EM\_DN*AUDIT + \gamma_{11} EM\_DN*ln\ (sz)+\gamma_{12} LEV+\gamma_{13} PPE+\gamma_{14} INTANG+ \gamma_{15} INV+ \varepsilon \ (7a)$$

$$ETR_3 = \gamma_0+\gamma_1 EM\_DN+\gamma_2 BOOKLOSS +\gamma_3 TAXLOSS+\gamma_4 CFOLOSS +\gamma_5 EM\_DN*BOOKLOSS+ \gamma_6 EM\_DN*TAXLOSS +\gamma_7 EM\_DN*CFOLOSS+\gamma_8 AUDIT + \gamma_9 ln\ (sz)+ \gamma_{10} EM\_DN*AUDIT + \gamma_{11} EM\_DN*ln\ (sz)+\gamma_{12} LEV+\gamma_{13} PPE+\gamma_{14} INTANG+ \gamma_{15} INV+ \varepsilon \ (8a)$$

Sections 3.10.1.1 and 3.10.1.2 present the regression results for regression models (1a) - (4a) and (5a) - (8a).

3.10.1.1. Regression results concerning the "non-loss" sample after the inclusion of control variables

Table 3.7 summarizes the results of regressions (1a) - (4a). We observe that after incorporating the control variables, the statistical significance of the EM_DN variable in relation to the tax proxies increased. Companies identified by Jansen et al.'s diagnostic as potential downward earnings managers, in particular, have larger book-tax differences and a lower effective tax rate (when ETR is measured by ETR_3). Therefore, regression results demonstrate, to a degree, the utility of Jansen et al.'s diagnostic for signaling tax-induced earnings manipulation.

The regression results for control variables vary according to the tax aggressiveness proxies used. For example, PPE is a significant and positive determinant of BTDs, as greater property, plant, and equipment also results in higher temporary book-tax differences as a result of even greater depreciation (Frank et al., 2009). In contrast to Chen et al. (2013), LEV is positively and insignificantly associated with BTDs, similar to INV and INTANG. Moving on to ETRs, we observe that LEV and PPE are both significantly and negatively associated with ETR_3, which is consistent with previous research (e.g., Stickney and Mc Gee, 1982; Gupta and Newberry, 1997; Derashid and Zhang, 2003; Adhikari et al., 2006).

These findings lend some support to Derashid and Zhang's (2003) conclusion that companies with a higher debt and capital intensity pay lower effective tax rates as a result of tax-deductible interest payments and accelerated depreciation. Also, the significant and positive association between INV and ETR_3 is consistent with Gupta and Newberry (1997), who argue that firms with a high inventory have higher ETRs.

Additionally, we discover additional intriguing relationships between the control variables and the remaining ETRs. We observe a significant and positive association between INTANG and ETR_2 and a significant and negative relation between INV and ETR_2. Hanlon and Heitzman (2010) establish a link between taxation and intangible assets, observing that taxation has a direct effect on intangible asset investment.

Table 3.7: Regressions results for equations (1a) - (4a) ("non-loss" sample)

*The table reports the coefficients from OLS regressions with clustered standard errors by year and firm for the "non-loss" sample when the independent variable is EM_DN (t-statistics are reported in parentheses). Panel A presents results for eq.(1a), Panel B reports results for eq.(2a), Panel C reports results for eq.(3a) and Panel D for eq.(4a). Variables' definitions are given in Appendix H. ***, **, * represents statistical significance at 1%, 5%, and 10% level, respectively (one-tailed).*

Panel A: BTDs= $\gamma_0+\gamma_1$EM_DN+γ_2AUDIT +$\gamma_3$ln(sz)+ γ_4EM_DN*AUDIT + γ_5EM_DN*ln (sz)+γ_6LEV+γ_7PPE+γ_8INTANG+γ_9INV + ε

	Coefficient	**t-Statistic**
Constant	-0.055***	-5.960
EM_DOWN	0.036**	2.303
AUDIT	-0.005***	-20.321
ln (sz)	0.003***	6.224
EM_DN*AUDIT	0.003**	1.835
EM_DN* ln (sz)	-0.002***	-2.382
LEV	0.000	0.276
PPE	0.007***	2.332
INTANG	-0.011	-0.704
INV	-0.000	-0.073

Panel B: ETR_1= $\gamma_0+\gamma_1$EM_DN+γ_2AUDIT +$\gamma_3$ln(sz)+ γ_4EM_DN*AUDIT + γ_5 EM_DN*ln (sz)+γ_6LEV+γ_7PPE+γ_8INTANG+γ_9INV + ε

	Coefficient	**t-Statistic**
Constant	0.712***	7.057
EM_DOWN	-0.103	-0.587
AUDIT	0.019**	1.827
ln (sz)	-0.025***	-3.988
EM_DN*AUDIT	-0.020	-0.813
EM_DN* ln (sz)	0.009	0.737
LEV	0.040***	2.390
PPE	-0.022	-1.184
INTANG	0.102	0.861
INV	0.032	0.567

Table 3.7: Regressions results for equations (1a) - (4a) ("non-loss" sample)(continued)
*The table reports the coefficients from OLS regressions with clustered standard errors by year and firm for the "non-loss" sample when the independent variable is EM_DN (t-statistics are reported in parentheses). Panel A presents results for eq.(1a), Panel B reports results for eq.(2a), Panel C reports results for eq.(3a) and Panel D for eq.(4a). Variables' definitions are given in Appendix H. ***, **, * represents statistical significance at 1%, 5%, and 10% level, respectively (one-tailed).*

Panel C: $ETR_2 = \gamma_0+\gamma_1 EM\_DN+\gamma_2 AUDIT +\gamma_3 ln(sz)+ \gamma_4 EM\_DN*AUDIT + \gamma_5 EM\_DN*ln\ (sz)+\gamma_6 LEV+\gamma_7 PPE+\gamma_8 INTANG+\gamma_9 INV + \varepsilon$

	Coefficient	**t-Statistic**
Constant	-0.025	-0.607
EM_DOWN	0.038	0.616
AUDIT	0.005***	2.770
ln (sz)	0.003*	1.363
EM_DN*AUDIT	-0.001	-0.202
EM_DN* ln (sz)	-0.002	-0.673
LEV	-0.001	-0.272
PPE	0.002	0.457
INTANG	0.066***	4.319
INV	-0.050***	-56.046

Panel D: $ETR_3 = \gamma_0+\gamma_1 EM\_DN+\gamma_2 AUDIT +\gamma_3 ln(sz)+ \gamma_4 EM\_DN*AUDIT + \gamma_5 EM\_DN*ln\ (sz)+\gamma_6 LEV+\gamma_7 PPE+\gamma_8 INTANG+\gamma_9 INV + \varepsilon$

	Coefficient	**t-Statistic**
Constant	0.606***	17.202
EM_DOWN	-0.401***	-3.456
AUDIT	0.094***	3.271
ln (sz)	-0.018***	-9.057
EM_DN*AUDIT	-0.087	-1.265
EM_DN* ln (sz)	0.024***	2.699
LEV	-0.069**	-1.676
PPE	-0.164***	-29.446
INTANG	-0.132	-1.267
INV	0.075***	2.439

Guenther et al. (2013) and Ayers et al. (2018) argue that because intangible assets such as patents are more easily transferred between different departments and units of a business, they are suitable for income shifting tax avoidance schemes. Thus, while the positive relationship between ETR_2 and INTANG indicates that intangible-intensive firms are willing to pay higher taxes as a percentage of sales revenue, it may also signal future opportunistic tax-saving strategies involving income shifting.

Unlike Gupta and Newberry (1997) and Stickney and McGee (1982), who report a positive association between inventory-intensive firms and ETRs as a result of firms' investment decisions, the observed negative correlation between INV and ETR_2 could be due to factors unrelated to firms' asset mix decisions, such as earnings manipulation through inventory manipulation.

In terms of company size, the addition of control variables does not alter our previous conclusions (reported in section 3.9.1.). The regression results corroborate prior research to a certain extent (e.g., Stickney and McGee, 1982; Chen et al., 2013) and demonstrate that larger Greek SMEs have larger book-tax differences and lower ETRs (except for the relation of company size and ETR_2).

The regression results for the AUDIT variable's association with the tax proxies also confirm that auditing is a constraining factor for tax aggressiveness, as evidenced by the significant and negative association of AUDIT with BTDs and the significant and positive association of AUDIT with all ETR versions. These findings are consistent with Kanagaretnam et al. (2016), who find that audit quality is significantly associated with a lower likelihood of tax aggressiveness regardless of the auditing firm (i.e., Big 4 or second-tier auditors).

Additionally, the regression results for the AUDIT variable are consistent with Choi and Wong (2007), who discovered that external auditors play a more critical governance role in countries with weak governance structures and enforcement mechanisms than in countries with strong legal institutions.

Given Greece's deficient legal institutional environment (e.g., Choi and Wong, 2007), it is reasonable to conclude that auditing acts as a substitute for Greece's inadequate legal infrastructures in terms of constraining tax aggressiveness.

3.10.1.2. Regression results concerning the "loss" sample after the inclusion of control variables

Table 3.8 outlines the regression results for models (5a) - (8a). While the results for the individual version of EM_DN do not appear to improve with the addition of control variables, we do find that the interaction EM_DN*BOOKLOSS is a significant determinant of all tax aggressiveness proxies. This, combined with the fact that EM_DN is a significant predictor of BTDS and ETR_3 in the "non-loss" sample (reported in section 3.10.1.1.), suggests that Jansen et al.'s metric may be an extremely useful tool for identifying tax-induced financial misstatements by profitable companies and companies with negative or zero pre-tax income.

Another interesting finding is the observed relationship between EM_DN*TAXLOSS and tax aggressiveness variables. While EM_DN*TAXLOSS appears to be unrelated to BTDs, it is significantly related to all ETRs. EM_DN*TAXLOSS, in particular, has a positive relation with ETR_1 and ETR_2, but a negative association with ETR_3. The positive relation between EM_DN*TAXLOSS and ETR_1 may reflect the use of income-decreasing accruals, which increase the firm's ETR by reducing book income in the denominator while leaving the numerator unchanged, as Adhikari et al. (2005) note.

On the other hand, the positive relationship between EM_DN*TAXLOSS and ETR_2 may reflect a different approach by Greek loss SMEs to earnings management than the use of income-decreasing accruals. Not only would underreporting sales in conjunction with expense-based earnings management aimed at significantly reducing operating income be flagged as probable earnings manipulation by Jansen et al.'s metric, but it would also increase ETR_2 (i.e., since its denominator is sales revenues). Thus, if the tax aggressiveness scheme is related to a concurrent decrease in Profit Margin Ratio and an increase in Asset Turnover Ratio and thus, falls within the detection range of Jansen et al.'s metric, it could be associated with an increase in ETR_2.

Although the fact that EM_DN*TAXLOSS is sensitive to the denominator of ETR complicates drawing conclusions about the tax behavior of Greek SMEs with negative or zero tax expense, it may provide fertile ground for exploring their various tax-motivated income decreasing practices.

Moving on to the control variables, we observe that LEV exhibits the most stable association with the tax aggressiveness variables. Consistent with prior research, LEV is significantly and negatively correlated with BTDs (e.g., Chen et al., 2013) and all ETR versions (e.g., Stickney and McGee, 1982; Gupta and Newberry, 1997), with the exception of ETR_3.

The remaining control variables do not exhibit the same consistency with the tax proxies as LEV. While PPE is significantly and negatively associated with ETR_1, as reported in prior literature (e.g., Gupta and Newberry, 1997), we observe a significant and positive relationship between PPE and ETR_2 and ETR_3.

Similarly, while INTANG is significantly and negatively associated with ETR_1, when ETR is measured using ETR_2, INTANG is significantly and positively associated with this version of ETR.

Table 3.8: Regressions results for equations (5a) - (8a) ("loss" sample)

*The table reports the coefficients from OLS regressions with clustered standard errors by year and firm for the "loss" sample when the independent variable is EM_DN (t-statistics are reported in parentheses). Panel A presents results for eq.(5a), Panel B reports results for eq.(6a), Panel C reports results for eq.(7a) and Panel D for eq.(8a). Variables' definitions are given in Appendix H. ***, **, * represents statistical significance at 1%, 5%, and 10% level, respectively (one-tailed).*

Panel A: BTDs= $\gamma_0+\gamma_1$EM_DN$+\gamma_2$BOOKLOSS $+\gamma_3$TAXLOSS$+\gamma_4$CFOLOSS $+\gamma_5$EM_DN*BOOKLOSS$+ \gamma_6$EM_DN*TAXLOSS $+\gamma_7$EM_DN*CFOLOSS$+\gamma_8$AUDIT $+\gamma_9$ln (sz)$+ \gamma_{10}$EM_DN*AUDIT $+ \gamma_{11}$EM_DN*ln (sz)$+\gamma_{12}$LEV$+\gamma_{13}$PPE$+\gamma_{14}$INTANG$+\gamma_{15}$*INV$+\varepsilon$

	Coefficient	**t-Statistic**
Constant	-0.068***	-21.644
EM_DN	-0.028**	-1.676
BOOKLOSS	-0.055***	-22.819
CFOLOSS	-0.005***	-7.283
TAXLOSS	0.015***	4.235
AUDIT	-0.004***	-6.488
EM_DN*BOOKLOSS	0.008**	1.903
EM_DN*TAXLOSS	-0.004	-1.108
EM_DN*CFOLOSS	-0.006*	-1.308
EM_DN*AUDIT	-0.007***	-2.693
EM_DN*ln (sz)	0.001**	1.944
ln (sz)	0.004***	19.831
LEV	-0.008***	-4.810
PPE	0.002	1.208
INTANG	0.001	0.171
INV	0.010**	2.242

Panel B: $ETR_1= \gamma_0+\gamma_1$EM_DN$+\gamma_2$BOOKLOSS $+\gamma_3$TAXLOSS$+\gamma_4$CFOLOSS $+\gamma_5$EM_DN*BOOKLOSS$+ \gamma_6$EM_DN*TAXLOSS $+\gamma_7$EM_DN*CFOLOSS$+\gamma_8$AUDIT $+\gamma_9$ln (sz)$+ \gamma_{10}$EM_DN*AUDIT $+ \gamma_{11}$EM_DN*ln (sz)$+\gamma_{12}$LEV$+\gamma_{13}$PPE$+\gamma_{14}$INTANG$+\gamma_{15}$*INV$+\varepsilon$

	Coefficient	**t-Statistic**
Constant	0.372***	4.345
EM_DN	0.148	0.662
BOOKLOSS	-0.171***	-23.194
CFOLOSS	0.014***	4.315
TAXLOSS	-0.182***	-17.021
AUDIT	0.011***	4.942
EM_DN*BOOKLOSS	-0.073***	-34.791
EM_DN*TAXLOSS	0.016*	1.467
EM_DN*CFOLOSS	-0.006	-0.308
EM_DN*AUDIT	0.010	0.432
EM_DN*ln (sz)	-0.007	-0.482
ln (sz)	-0.003	-0.716
LEV	-0.024***	-4.684
PPE	-0.030**	-1.786
INTANG	-0.076***	-3.838
INV	-0.009	-0.317

Table 3.8: Regressions results for equations (5a) - (8a) ("loss" sample (continued)

*The table reports the coefficients from OLS regressions with clustered standard errors by year and firm for the "loss" sample when the independent variable is EM_DN (t-statistics are reported in parentheses). Panel A presents results for eq.(5a), Panel B reports results for eq.(6a), Panel C reports results for eq.(7a) and Panel D for eq.(8a). Variables' definitions are given in Appendix H. ***, **, * represents statistical significance at 1%, 5%, and 10% level, respectively (one-tailed).*

Panel C: $ETR_2 = \gamma_0+\gamma_1 EM\_DN+\gamma_2 BOOKLOSS +\gamma_3 TAXLOSS+\gamma_4 CFOLOSS +\gamma_5 EM\_DN*BOOKLOSS+ \gamma_6 EM\_DN*TAXLOSS +\gamma_7 EM\_DN*CFOLOSS+\gamma_8 AUDIT +\gamma_9 ln(sz)+ \gamma_{10} EM\_DN*AUDIT + \gamma_{11} EM\_DN*ln(sz)+\gamma_{12} LEV+\gamma_{13} PPE+\gamma_{14} INTANG+\gamma_{15}*INV+\varepsilon$

	Coefficient	**t-Statistic**
Constant	-0.002	-0.369
EM_DN	-0.002	-0.403
BOOKLOSS	-0.005***	-8.065
CFOLOSS	-0.002***	-6.711
TAXLOSS	-0.014***	-11.801
AUDIT	0.001***	2.500
EM_DN*BOOKLOSS	-0.001***	-8.939
EM_DN*TAXLOSS	0.003**	2.070
EM_DN*CFOLOSS	0.001	1.258
EM_DN*AUDIT	-0.001	-0.493
EM_DN*ln (sz)	-2.863	-0.005
ln (sz)	0.001***	2.716
LEV	-0.004***	-5.281
PPE	0.002***	3.917
INTANG	0.010**	1.982
INV	-0.013***	-40.544

Panel D: $ETR_3 = \gamma_0+\gamma_1 EM\_DN+\gamma_2 BOOKLOSS +\gamma_3 TAXLOSS+\gamma_4 CFOLOSS +\gamma_5 EM\_DN*BOOKLOSS+ \gamma_6 EM\_DN*TAXLOSS +\gamma_7 EM\_DN*CFOLOSS+\gamma_8 AUDIT +\gamma_9 ln(sz)+ \gamma_{10} EM\_DN*AUDIT + \gamma_{11} EM\_DN*ln(sz)+\gamma_{12} LEV+\gamma_{13} PPE+\gamma_{14} INTANG+\gamma_{15}*INV+\varepsilon$

	Coefficient	**t-Statistic**
Constant	0.087	1.066
EM_DN	0.135	0.512
BOOKLOSS	0.056***	6.586
CFOLOSS	-0.361***	-23.801
TAXLOSS	0.008	0.388
AUDIT	4.036	0.001
EM_DN*BOOKLOSS	-0.050***	-4.286
EM_DN*TAXLOSS	-0.025**	-2.192
EM_DN*CFOLOSS	0.020	0.267
EM_DN*AUDIT	-0.004	-0.097
EM_DN*ln (sz)	-0.008	-0.483
ln (sz)	-0.001	-0.142
LEV	0.053	1.160
PPE	0.031***	8.882
INTANG	-0.007	-0.068
INV	0.025	0.839

Thus, with the exception of Leverage, the findings regarding the control variables obstruct the drawing of conclusive inferences about the effect of capital structure-related factors on the tax aggressiveness of Greek loss SMEs.

In terms of auditing's effect on the tax aggressiveness of Greek loss SMEs, we discover that auditing acts as a constraint on tax aggressiveness, as measured by BTDs, ETR_1, and ETR_2. AUDIT is significantly and negatively associated with BTDs, and significantly and positively associated with ETR_1 and ETR_2. This finding is consistent with the results from the "non-loss" sample. These findings indicate that auditing, regardless of the auditing firm, helps to mitigate the tax aggressiveness of Greek loss SMEs.

Finally, we do not find evidence to support the notion that larger firms are more tax aggressive, as we did in the "non-loss" sample. This conclusion is supported by the fact that the company size variable demonstrates a varying relationship with the tax proxies in terms of significance and sign, while the interaction EM_DN*ln(sz) exhibits an insignificant relation with all of the tax proxies.

3.10.2. Tax-Effect BTDs

As a part of our supplementary tests, we re-run our BTD regressions (1) and (5) substituting BTDs with Tax-Effect BTDS, as Tang and Firth (2011) suggested. Tang and Firth (2011) argue that income-effect BTDs (i.e., that we have used in our main tests) not only introduce measurement errors (as a result of tax rate differentials, for example) but also reveal only those tax strategies that affect either book income or tax income, whereas Tax-Effect BTDs are a more accurate and efficient indicator of opportunistic reporting.

Tang & Firth (2011) calculate Tax-Effect BTDs as follows:

$$\textit{Tax-effect BTDs} = \textit{book income} * \textit{statutory tax rate} - \textit{taxable income} * \textit{statutory tax rate}$$

We quantify Tax-Effect BTDs in the manner described by Tang and Firth (2011) and use them to replace BTDs in regressions (1) and (5) of the "non-loss" and "loss" samples, respectively. Except for BTDs, we do not scale our main variables by lagged total assets. As a result, regressions (1) and (5) are expressed as follows:

$$\textit{Tax-Effect BTDs} = \gamma_0 + \gamma_1 EM\_DN + \gamma_2 AUDIT + \gamma_3 ln(sz) + \gamma_4 EM\_DN*AUDIT + \gamma_5 EM\_DN*ln\ (sz) + \varepsilon\ (1*)$$

$$Tax\text{-}Effect\ BTDs = \gamma_0 + \gamma_1 EM\_DN + \gamma_2 BOOKLOSS + \gamma_3 TAXLOSS + \gamma_4 CFOLOSS + \gamma_5 EM\_DN*BOOKLOSS + \gamma_6 EM\_DN*TAXLOSS + \gamma_7 EM\_DN*CFOLOSS + \gamma_8 AUDIT + \gamma_9 ln\ (sz) + \gamma_{10} EM\_DN*AUDIT + \gamma_{11} EM\_DN*ln\ (sz) + \varepsilon\ (5*)$$

The results of the new regression equations (1*) and (5*) are shown in Table 3.9 and are not significantly different from the results of regressions using income-effect BTDs.

As with the results of our main tests' regression equations (1) and (5), EM_DN is not a significant determinant of Tax-Effect BTDs. Additionally, and consistent with previous findings, EM_DN*BOOKLOSS is significantly and positively associated with Tax-Effects BTDs. This finding suggests that, regardless of the BTD measure used, Jansen et al.'s metric may be useful in identifying potential tax-induced earnings manipulation in Greek SMEs with negative or zero pre-tax income.

In contrast to previous findings, the sign of the EM_DN*CFOLOSS coefficient is positive (and significant), indicating that the EM_DN*CFOLOSS interaction is sensitive to the BTD measure used. This finding may support Tang and Firth's (2011) contention that Tax-Effect BTDs capture tax strategies that affect both book and taxable income, as indicated by the positive association of EM_DN*CFOLOSS with Tax-Effect BTDs.

Table 3.9: Regressions results for equations (1*) & (5*) (Tax-Effect BTDs)

The table reports the coefficients from OLS regressions with clustered standard errors by year and firm regarding the use of Tax-Effect BTDs for the "non-loss" and "loss" sample when the independent variable is EM_DN (t-statistics are reported in parentheses). Panel A presents results for eq. (1) and Panel B reports results for eq.(5*). Variables' definitions are given in Appendix H. ***, **, * represents statistical significance at 1%, 5%, and 10% level, respectively (one-tailed).*

Panel A: Tax-Effect BTDs=$\gamma_0+\gamma_1 EM\_DN+\gamma_2 AUDIT+\gamma_3 ln\ (sz)+\gamma_4 EM\_DN*AUDIT+\gamma_5 EM\_DN*ln\ (sz)+\varepsilon$

	Coefficient	**t-Statistic**
Constant	-0.016***	-9.122
EM_DOWN	0.004	0.529
AUDIT	-0.000***	-2.675
EM_DN*AUDIT	-0.000	-0.109
EM_DN*ln (sz)	-0.000	-0.569
ln(sz)	0.001***	7.404

***Table 3.9: Regressions results for equations (1*) & (5*) (Tax-Effect BTDs)* (continued)**

The table reports the coefficients from OLS regressions with clustered standard errors by year and firm regarding the use of Tax-Effect BTDs for the "non-loss" and "loss" sample when the independent variable is EM_DN (t-statistics are reported in parentheses). Panel A presents results for eq. (1) and Panel B reports results for eq.(5*). Variables' definitions are given in Appendix H. ***, **, * represents statistical significance at 1%, 5%, and 10% level, respectively (one-tailed).*

Panel B: Tax-Effect BTDs= $\gamma_0+\gamma_1$EM_DN+γ_2BOOKLOSS +γ_3TAXLOSS+γ_4CFOLOSS +γ_5EM_DN*BOOKLOSS+ γ_6EM_DN*TAXLOSS +γ_7EM_DN*CFOLOSS+γ_8AUDIT +$\gamma_9$ln (sz)+ γ_{10}EM_DN*AUDIT + γ_{11}EM_DN*ln (sz)+ε

	Coefficient	**t-Statistic**
Constant	-0.465***	-3.297
EM_DN	-0.072	-0.158
BOOKLOSS	0.206***	20.096
CFOLOSS	-0.039***	-7.275
TAXLOSS	0.283***	31.385
AUDIT	-0.038***	-10.706
EM_DN*BOOKLOSS	0.088***	5.648
EM_DN*TAXLOSS	0.018	1.199
EM_DN*CFOLOSS	0.030*	1.420
EM_DN*AUDIT	-0.001	-0.026
EM_DN*ln (sz)	-0.001	-0.061
ln(sz)	0.023***	2.681

Additionally, the use of Tax-Effect BTDs appears to confirm previously reported findings regarding the significant and positive relationship between company size and BTDs, for both the "non-loss" (regression equation 1*) and "loss" (regression equation 5*) samples. Besides that, previous findings regarding auditing's constraining effect on tax aggressiveness remain unchanged, as evidenced by the AUDIT variable's significant and negative association with Tax-Effect BTDs.

In general, reported results do not appear to significantly improve following the use of Tax-Effect BTDs. This could be because Tax-Effects BTDs perform better in contexts such as China, where firms face differential tax rates, as Tang and Firth (2011) argue.

Additionally, unlike Tang and Firth (2011), who were able to use Tax-Effect BTDs because they were disclosed in the tax footnotes of B-share listed companies' financial statements, we estimated Tax-Effect BTDs from financial statement data, as Greek companies do not disclose tax-related information.

3.10.3. Alternative financial misstatement measure

To gain a better understanding of tax-induced financial misstatements in Greek SMEs, we replace Jansen et al.'s diagnostic with an alternative measure of financial misstatement. Our new financial misstatement metric, like Jansen et al.'s, is based on fundamental accounting relationships. We employ Hafzalla et al.'s percent accruals, and our selection is greatly influenced by Francis and Krishnan's (1999) and Leuz et al.'s (2003) seminal papers.

Francis and Krishnan (1999) explore the effect of accruals on auditors reporting conservatism. They develop three models of accrual intensity and classify their sample firms in high-or low-accrual. Their first model classifies firms based on the sign and magnitude of accruals (e.g., high- and low-positive net accrual firms), while their second model categorizes firms based on the aggregated sign of the individual components of accruals (e.g., high and low negative-accrual firms). Their third model, which is most relevant to our research, calculates gross accruals as the sum of the absolute values of individual accrual components of accruals, regardless of their directionality effect on income. Francis and Krishnan (1999) believe that their third (gross accruals) model is the finest of the three since it is the most accurate indicator of a company's accrual level.

Similarly, Leuz et al. (2003) propose four measures to assess earnings management. One of Leuz et al.'s (2003) proposed measures is the magnitude of accruals, which they define as the median ratio of total accruals to cash flow from operations. A high value for the relevant ratio indicates pervasive use of discretion to manipulate accounting earnings (Burgstahler et al., 2006; Shen and Chih, 2007). Hribar and Nichols (2007) place Leuz et al.'s (2003) study among those that employ unsigned measures with the goal of identifying earnings management, irrespective of its direction (i.e., unlike studies that test for income-increasing or income-decreasing earnings management).

The importance of total accruals as a valid measure of detecting financial misstatements has been highlighted by other researchers, as well. According to several researchers (e.g., Lee et al., 1999; Bayley and Taylor, 2007; Brazel et al., 2009; Dechow et al., 2011), total accruals serve as an effective proxy for financial misstatements and fraudulent financial reporting and are frequently a more accurate measure than the commonly used models of discretionary accruals.

We follow Francis and Krishnan (1999) and Leuz et al. (2003) in using total accruals as a proxy for financial misstatements, but instead of utilizing their absolute total accruals metrics to investigate the magnitude of financial misstatements, we chose Hafzalla et al.'s percent accruals.

Hafzalla et al. propose a novel definition of accruals that, in the scaling section, departs from the classical definition. Hafzalla et al. emphasize specifically that the scaling of total accruals to absolute net income helps clarify the composition of earnings into cash and accruals. This new definition of accruals proposed by Hafzalla et al. makes far more sense than the traditional definition of total accruals (i.e., scaled by average total assets), since percent accruals focus on the composition of earnings, whereas traditional total accruals scaled by average total assets serve only ranking purposes due to firm size.

Hafzalla et al. (2012, p. 212) define traditional operational accruals, traditional total accruals, and percent total and operating accruals as follows:

Traditional Operating Accruals = (Net Income− Cash from Operations/Average Total Assets

Traditional Total Accruals = [Net Income− (Net Dividends and Distributions to/from Equityholders + increase in the cash balance)]/Average Total Assets

Percent Operating Accruals = (Net Income − Cash from Operations)/|Net Income|

Percent Total Accruals = [Net Income− (Net Dividends and Distributions to/from Equityholders + increase in the cash balance)]/|Net Income|.

What is most intriguing about Hafzalla et al.'s percent accruals is that by scaling total accruals by the absolute value of Net Income, the sign of accruals may be maintained. According to Francis and Krishnan (1999), net accruals are either income-increasing (or positive) or income-decreasing (or negative) if income minus cash flow is positive or negative. Additionally, percent accruals provide information on the level of accruals relative to earnings, and thus on the degree of potential accounting discretion.

Hafzalla et al.'s percent accruals measure is mainly used in studies exploring accrual anomaly (e.g., Papanastasopoulos, 2014; Papanastasopoulos and Tsiritakis, 2015). As Doukakis and Papanastasopoulos (2014, p. 257) mention, the accrual anomaly "*suggests that firms with high (low) accruals experience low (high) earnings performance and stock returns in the future*".

To our knowledge, this is the first time that percent accruals have been used in research on financial misstatements and tax aggressiveness. Nonetheless, in line with Burgstahler et

al.'s (2006) remark, we acknowledge that our proxy is not ideal and can detect financial misstatements only in a relative sense.

We repeat the tests in (1) - (4) and (5) - (8) substituting Jansen et al.'s downward earnings management metric with Hafzalla et al.'s negative percent operating accruals. We focus on negative percent operational accruals because we anticipate that income-decreasing accruals will have an effect on our tax aggressiveness/tax avoidance proxies. We calculate percent operational accruals (PER_ACC) using the following:

$$PER\_ACC = TACC/|NI|$$

where,

TACC=Total operating accruals

|NI|: The absolute value of Earnings After Taxes

After computing percent operational accruals (coded as PER_ACC), our independent variable negative percent accruals (coded as NEG_PER_ACC) equals PER_ACC if PER_ACC <0 and 0 if PER_ACC > 0.

We include the interaction of NEG_PER_ACC with the AUDIT (NEG_PER_ACC*AUDIT) and company size (NEG_PER_ACC*ln(sz)) variables to examine their combined effect on tax aggressiveness. Additionally, we add the interaction of NEG_PER_ACC with the dummy variables BOOKLOSS, TAXLOSS, and CFOLOSS in the regression equations for the "loss" sample.

We scale BTDs by the absolute value of Earnings after Taxes, but not ETRs. Each variable is winsorized at the 1st and 99th percentiles of its distribution. Thus, the following modifications are made to our new OLS regressions for the "non-loss" and "loss" subsamples:

Regression models with the inclusion of Negative Percent Accruals for the "non-loss" sample

$$BTDs=\gamma_0+\gamma_1 NEG\_PER\_ACC+\gamma_2 AUDIT+\gamma_3 ln\,(sz)+\gamma_4 NEG\_PER\_AC*AUDIT+\gamma_5 NEG\_PER\_AC*ln(sz)+\varepsilon \quad (1A)$$

$$ETR_1=\gamma_0+\gamma_1 NEG\_PER\_ACC+\gamma_2 AUDIT+\gamma_3 ln\,(sz)+\gamma_4 NEG\_PER\_AC*AUDIT+\gamma_5 NEG\_PER\_AC*ln(sz)+\varepsilon \quad (2A)$$

$$ETR_2 = \gamma_0+\gamma_1 NEG\_PER\_ACC+\gamma_2 AUDIT +\gamma_3 ln\ (sz) + \gamma_4 NEG\_PER\_AC*AUDIT + \gamma_5 NEG\_PER\_AC*ln(sz) + \varepsilon \quad (3A)$$

$$ETR_3= \gamma_0+\gamma_1 NEG\_PER\_ACC+\gamma_2 AUDIT +\gamma_3 ln\ (sz) + \gamma_4 NEG\_PER\_AC*AUDIT + \gamma_5 NEG\_PER\_AC*ln(sz) + \varepsilon \quad (4A)$$

Regression models with the inclusion of Negative Percent Accruals for the "loss" sample

$$BTDs= \gamma_0+\gamma_1 NEG\_PER\_ACC+\gamma_2 BOOKLOSS +\gamma_3 TAXLOSS +\gamma_4 CFOLOSS + \gamma_5 NEG\_PER\_ACC *BOOKLOSS+ \gamma_6 NEG\_PER\_ACC *TAXLOSS +\gamma_7 NEG\_PER\_ACC *CFOLOSS+\gamma_8 AUDIT +\gamma_9 ln\ (sz) + \gamma_{10} NEG\_PER\_ACC *AUDIT + \gamma_{11} NEG\_PER\_ACC *ln\ (sz) + \varepsilon \quad (5A)$$

$$ETR_1= \gamma_0+\gamma_1 NEG\_PER\_ACC+\gamma_2 BOOKLOSS +\gamma_3 TAXLOSS +\gamma_4 CFOLOSS + \gamma_5 NEG\_PER\_ACC *BOOKLOSS+ \gamma_6 NEG\_PER\_ACC *TAXLOSS +\gamma_7 NEG\_PER\_ACC *CFOLOSS+\gamma_8 AUDIT +\gamma_9 ln\ (sz) + \gamma_{10} NEG\_PER\_ACC *AUDIT + \gamma_{11} NEG\_PER\_ACC *ln\ (sz) + \varepsilon \quad (6A)$$

$$ETR_2= \gamma_0+\gamma_1 NEG\_PER\_ACC+\gamma_2 BOOKLOSS +\gamma_3 TAXLOSS +\gamma_4 CFOLOSS + \gamma_5 NEG\_PER\_ACC *BOOKLOSS+ \gamma_6 NEG\_PER\_ACC *TAXLOSS +\gamma_7 NEG\_PER\_ACC *CFOLOSS+\gamma_8 AUDIT +\gamma_9 ln\ (sz) + \gamma_{10} NEG\_PER\_ACC *AUDIT + \gamma_{11} NEG\_PER\_ACC *ln\ (sz) + \varepsilon \quad (7A)$$

$$ETR_3= \gamma_0+\gamma_1 NEG\_PER\_ACC+\gamma_2 BOOKLOSS +\gamma_3 TAXLOSS +\gamma_4 CFOLOSS + \gamma_5 NEG\_PER\_ACC *BOOKLOSS+ \gamma_6 NEG\_PER\_ACC *TAXLOSS +\gamma_7 NEG\_PER\_ACC *CFOLOSS+\gamma_8 AUDIT +\gamma_9 ln\ (sz) + \gamma_{10} NEG\_PER\_ACC *AUDIT + \gamma_{11} NEG\_PER\_ACC *ln\ (sz) + \varepsilon \quad (8A)$$

Sections 3.10.3.1 and 3.10.3.2, respectively, present regression results for regression models (1A) - (4A) and (5A) - (8A).

3.10.3.1. Regression results concerning the "non-loss" sample after the inclusion of Negative Percent Accruals

Table 3.10 illustrates the regression results for equations (1A) - (4A) for the "non-loss" sample after incorporating Hafzalla et al.'s negative percent accruals as our main independent variable. We observe that NEG_PER_ACC is significantly and positively associated with BTDs and significantly and negatively associated with ETR_1, but is not significantly associated with the remaining tax proxies (ETR_2 and ETR_3).

The direction of the coefficients of NEG_PER_ACC in relation to BTDs and ETR_1 indicates that higher NEG_PER_ACC results in decreased book-tax differences and increased ETR_1. At first glance, these findings appear to contradict previous research on the effect of negative (income-decreasing) accruals on tax aggressiveness variables. As discussed in Section 3.9.2, Badertscher et al. (2019) note that the occurrence of high effective tax rates (or low book-tax differences) may imply the existence of strategies targeted at reducing both book and taxable income (i.e., conforming tax avoidance). Additionally, as Adhikari et al. (2005) note, income-decreasing accruals raise the effective tax rate by lowering book income (i.e., the ETR's numerator).

The positive association between the NEG_PER_ACC proxy and BTDs and the negative relation between the NEG_PER_ACC proxy and ETR_1 supports Adhikari et al.'s (2005) observation about the mitigating effect of income-decreasing (i.e., negative) accruals on book income. As negative accruals increase, book income decreases, resulting in a decrease in BTDs and an increase in ETR. These findings corroborate Cloyd et al. (1996), who claim that conforming tax avoidance tactics are more prevalent in private firms than public companies.

The relationships between the AUDIT variable and the tax proxies suggest that the mitigating effect of auditing on tax aggressiveness stays constant, even when we substitute Jansen et al.'s metric with Hafzalla et al.'s negative percent accruals. This conclusion is borne up by the significant and negative relationship between AUDIT and BTDs, as well as the significant and positive relationship between AUDIT and ETR_1 and ETR_3.

In terms of the link between the interaction term NEG_PER_ACC*AUDIT and the tax proxies, we observe a significant and stronger association with BTDs and ETR_1, as well as a weaker but still significant association with ETR_2 and ETR_3. We observe a positive relationship between NEG_PER_ACC*AUDIT and ETR_2 and ETR_3, as well as a positive and negative relationship between NEG_PER_ACC*AUDIT and BTDs and ETR_1, respectively.

Table 3.10: Regressions results for equations (1A) - (4A) ("non-loss" sample)

*The table reports the coefficients from OLS regressions with clustered standard errors by year and firm for the "non-loss" sample when the independent variable is NEG_PER_ACC (t-statistics are reported in parentheses). Panel A presents results for eq.(1A), Panel B reports results for eq.(2A), Panel C reports results for eq.(3A) and Panel D for eq.(4A). Variables' definitions are given in Appendix H. ***, **, * represents statistical significance at 1%, 5%, and 10% level, respectively (one-tailed).*

Panel A: $BTDs = \gamma_0+\gamma_1 NEG\_PER\_ACC+\gamma_2 AUDIT +\gamma_3 ln\ (sz)+ \gamma_4 NEG\_PER\_AC*AUDIT + \gamma_5 NEG\_PER\_AC*ln\ (sz)+\varepsilon$

	Coefficient	**t-Statistic**
Constant	-0.042***	-20.277
NEG_PER_ACC	0.002**	2.263
AUDIT	-0.001***	-2.699
NEG_PER_ACC*AUDIT	0.000***	3.897
NEG_PER_ACC*ln (sz)	-0.000**	-2.129
ln (sz)	0.002***	14.767

Panel B: $ETR_1 = \gamma_0+\gamma_1 NEG\_PER\_ACC+\gamma_2 AUDIT +\gamma_3 ln\ (sz)+ \gamma_4 NEG\_PER\_AC*AUDIT + \gamma_5 * NEG\_PER\_AC*ln\ (sz)+\varepsilon$

	Coefficient	**t-Statistic**
Constant	0.576***	8.884
NEG_PER_ACC	-0.027***	-3.879
AUDIT	0.007*	1.536
NEG_PER_ACC*AUDIT	-0.005***	-3.589
NEG_PER_ACC*ln (sz)	0.001***	3.410
ln (sz)	-0.017***	-4.398

Panel C: $ETR_2 = \gamma_0+\gamma_1 NEG\_PER\_ACC+\gamma_2 AUDIT +\gamma_3 ln\ (sz)+ \gamma_4 NEG\_PER\_AC*AUDIT + \gamma_5 * NEG\_PER\_AC*ln\ (sz)+\varepsilon$

	Coefficient	**t-Statistic**
Constant	-0.107***	-5.330
NEG_PER_ACC	-0.001	-0.704
AUDIT	-0.002*	-1.575
NEG_PER_ACC*AUDIT	0.000*	1.423
NEG_PER_ACC*ln (sz)	0.000	0.948
ln (sz)	0.009***	6.550

Table 3.10: Regressions results for equations (1A) - (4A) ("non-loss" sample) (continued)

*The table reports the coefficients from OLS regressions with clustered standard errors by year and firm for the "non-loss" sample when the independent variable is NEG_PER_ACC (t-statistics are reported in parentheses). Panel A presents results for eq.(1A), Panel B reports results for eq.(2A), Panel C reports results for eq.(3A) and Panel D for eq.(4A). Variables' definitions are given in Appendix H. ***, **, * represents statistical significance at 1%, 5%, and 10% level, respectively (one-tailed).*

Panel D: $ETR_3 = \gamma_0+\gamma_1 NEG\_PER\_ACC+\gamma_2 AUDIT +\gamma_3 ln\ (sz)+ \gamma_4 NEG\_PER\_AC*AUDIT + \gamma_5 NEG\_PER\_AC*ln\ (sz)+\varepsilon$

	Coefficient	**t-Statistic**
Constant	0.728***	34.960
NEG_PER_ACC	0.009	0.447
AUDIT	0.076***	6.345
NEG_PER_ACC*AUDIT	0.005*	1.607
NEG_PER_ACC*ln (sz)	-0.000	-0.193
ln (sz)	-0.030***	-26.832

The observed relationships between NEG_PER_ACC*AUDIT and the tax proxies do not suggest that auditors assist their clients in committing tax-related financial misstatements. To be more precise, the positive relationship between NEG_PER_ACC*AUDIT and ETR_2 and ETR_3 does not imply that auditors collaborate with their clients to reduce their effective tax rate. Likewise, the associations between NEG_PER_ACC*AUDIT and BTDs and ETR_1, do not imply that auditors help their clients engage in conforming tax avoidance. Rather than that, this finding could reflect an alignment of incentives between managers and auditors, regarding the reporting of negative (income-decreasing) accruals.

It's worth noting that negative accruals can occur as a result of both aggressive financial reporting and poor financial performance. For example, DeAngelo et al. (1994) and Butler et al. (2004) indicate that problematic enterprises have substantial negative accruals.

Nonetheless, negative accruals may occur as a result of managerial discretion, even when companies are experiencing financial hardships. For example, Charitou et al. (2007a) detect a high level of negative discretionary accruals in insolvent companies that exponentially increases one year prior to the commencement of insolvency proceedings.

Prior research has extensively examined the relationship between auditing and accruals. Becker et al. (1998) stress the vital role of auditing in constraining managerial discretion. According to Francis et al. (1999), a critical aspect of auditing's mitigating effect on managerial discretion is the validation of reported accruals.

Nonetheless, as Francis and Krishnan (1999) argue, accruals enhance audit risk since they are associated with the existence of material misstatements in financial statements, which

may occur as a result of managerial discretion or untraced going concern issues. In any case, the auditor must acquire credible assurance about the source of reported accruals (managerial discretion or financial difficulties), which is even more crucial when the accruals are negative (income-decreasing).

When negative accruals emerge as a result of poor performance or serious financial troubles, auditors may require corporations to report their true financial status in their financial statements, regardless of the tax implications (e.g., DeAngelo et al., 1994). In light of the foregoing, Francis and Krishnan (1999) establish that negative accruals result in auditor reporting conservatism[117].

Charitou et al. (2007b) argue that distressed enterprises' income-decreasing conservative accounting choices may be the product of auditors' or lenders' pressure, rather than managerial discretion targeted at earnings manipulation. As a result, we discover that auditors' pressure on managers to make more prudent accounting choices and managers' decisions to minimize earnings through negative accruals may result in what Kim et al. (2003) refer to as reporting incentive convergence.

Thus, the mitigating effect of NEG_PER_ACC*AUDIT on BTDs and ETR_1 may reflect auditor conservatism rather than management and auditors colluding to decrease corporate tax liabilities.

The regression results for the association between company size and tax aggressiveness suggest that larger firms have larger book-tax differences and pay lower effective tax rates (except for the relation of company size with ETR_2). These findings concur with Chen et al. (2013) and Stickney and McGee (1982), and are comparable to those reported for the "non-loss" sample (sections 3.9.1 & 3.10.1.1.).

The previously established relationship between company size and BTDs and ETR_1 is corroborated by regression results relating to the association of the interaction NEG_PER_ACC * ln(sz) with the tax proxies used. The positive association between NEG_PER_ACC * ln(sz) and ETR_1 illustrates that larger companies utilize negative accruals to a greater extent than smaller firms to reduce their effective tax rate.

Additionally, the negative relationship between NEG_PER_ACC*ln(sz) and BTDs demonstrates that, despite the use of income-decreasing accruals, larger firms create larger

[117] According to Francis and Krishnan (1999, p. 140), auditor reporting conservatism "*can be thought of as compensation for the auditor's inability to assess the accuracy of reported accruals, and the potential effect that accruals may have on asset realization and going concern problems*". Kim et al. (2003) define auditor conservatism as an auditor's predisposition for income-decreasing accounting choices out of fear of being sued.

book-tax differences than smaller firms. This finding about BTDs suggests that larger Greek SMEs may employ a mix of conforming and non-conforming tax avoidance tactics.

For example, the application of a conforming tax-avoidance strategy that results in negative accruals and a decrease in book and taxable income may include a variety of accounting choices, such as those proposed by Lin et al. (2014), which include an increase in accounts payables and accrued liabilities and a decrease in accounts receivable and inventories. Simultaneously, if a non-conforming tax strategy[118] increases book income far more than conforming tax strategy decreases it and has no tax implications (e.g., recognition of an increase in the value of investment property[119]), a temporary book-tax difference is generated.

Regardless of the foregoing, as Chan et al. (2013) point out, the impact of company size on corporate taxes cannot be assessed without addressing other critical aspects such as management incentives.

Overall, the regression results for the "non-loss" sample suggest that Hafzalla's et al.'s negative percent accruals are likely to be effective at capturing tax-motivated financial misstatements by Greek SMEs.

3.10.3.2. Regression results concerning the "loss" sample after the inclusion of Negative Percent Accruals

Table 3.11 illustrates the regression results for the "loss" sample's equations (5A) - (8A). The relationship between Hafzalla et al.'s negative percent accruals and tax proxies is comparable to that observed in the "non-loss" sample. NEG_PER_ACC is positively and significantly associated with BTDs and negatively and significantly related with ETR_1. Additionally, the relationship between NEG_PER_ACC and ETR_2 and ETR_3 is insignificant.

In contrast to Chen et al. (2013), who find an insignificant and positive relation between BTDs and total accruals, regression results for both samples reveal that BTDs are significantly and positively associated to negative percent accruals. Thus, regardless of the sample composition ("non-loss" vs. "loss" firms), Hafzalla et al.'s negative percent accruals proxy is a significant determinant of book-tax differences of Greek SMEs.

[118] Badertscher et al. (2010) discuss a variety of non-conforming tax strategies, including income shifting, the installation of operational processes in countries with favorable tax regimes, and so on.

[119] Changes in the value of investment properties are recognized for income tax purposes only upon the sale or disposition of the investment property, according to Wong et al. (2015).

The preceding conclusion also holds true for negative percent accruals as a valid determinant for ETR_1, the most often used and traditional version of Effective Tax Rate.

Thus, one potential explanation of these findings is that both profitable and loss-making Greek SMEs utilize income-decreasing accruals to reduce book and taxable income. As a result, it appears that conforming tax avoidance is more appealing to Greek SMEs than non-conforming tax avoidance.

Table 3.11: Regressions results for equations (5A) - (8A) ("loss" sample)

*The table reports the coefficients from OLS regressions with clustered standard errors by year and firm for the "loss" sample when the independent variable is NEG_PER_ACC (t-statistics are reported in parentheses). Panel A presents results for eq.(5A), Panel B reports results for eq.(6A), Panel C reports results for eq.(7A) and Panel D for eq.(8A). Variables' definitions are given in Appendix H. ***, **, * represents statistical significance at 1%, 5%, and 10% level, respectively (one-tailed).*

Panel A: BTDs = $\gamma_0+\gamma_1$NEG_PER_ACC+γ_2BOOKLOSS +γ_3TAXLOSS+γ_4CFOLOSS +γ_5NEG_PER_ACC*BOOKLOSS+ γ_6NEG_PER_ACC*TAXLOSS +γ_7NEG_PER_ACC*CFOLOSS+γ_8AUDIT +$\gamma_9$ln (sz)+ γ_{10}NEG_PER_ACC*AUDIT + γ_{11}NEG_PER_ACC*ln (sz)+ε

	Coefficient	**t-Statistic**
Constant	-1.126***	-7.297
NEG_PER_ACC	0.125***	5.505
BOOKLOSS	-1.530***	-46.805
CFOLOSS	-0.355***	-9.610
TAXLOSS	0.935***	164.491
AUDIT	-0.182***	-4.078
NEG_PER_ACC*BOOKLOSS	-0.014***	-8.587
NEG_PER_ACC*TAXLOSS	-0.053***	-12.095
NEG_PER_ACC*CFOLOSS	-0.369***	-9.132
NEG_PER_ACC*AUDIT	0.014	1.228
NEG_PER_ACC*ln (sz)	-0.004***	-3.128
ln(sz)	0.068***	7.437

Table 3.11: Regressions results for equations (5A) - (8A) ("loss" sample) (continued)
*The table reports the coefficients from OLS regressions with clustered standard errors by year and firm for the "loss" sample when the independent variable is NEG_PER_ACC (t-statistics are reported in parentheses). Panel A presents results for eq.(5A), Panel B reports results for eq.(6A), Panel C reports results for eq.(7A) and Panel D for eq.(8A). Variables' definitions are given in Appendix H. ***, **, * represents statistical significance at 1%, 5%, and 10% level, respectively (one-tailed).*

Panel B: $ETR_1 = \gamma_0+\gamma_1 NEG\_PER\_ACC+\gamma_2 BOOKLOSS +\gamma_3 TAXLOSS+\gamma_4 CFOLOSS +\gamma_5 NEG\_PER\_ACC*BOOKLOSS+ \gamma_6 NEG\_PER\_ACC*TAXLOSS +\gamma_7 NEG\_PER\_ACC*CFOLOSS+\gamma_8 AUDIT +\gamma_9 ln\ (sz)+ \gamma_{10} NEG\_PER\_ACC*AUDIT + \gamma_{11} NEG\_PER\_ACC*ln\ (sz)+\varepsilon$

	Coefficient	**t-Statistic**
Constant	0.354***	8.540
NEG_PER_ACC	-0.010***	-3.319
BOOKLOSS	-0.185***	-20.713
CFOLOSS	0.021***	4.223
TAXLOSS	-0.159***	-15.785
AUDIT	0.019***	4.867
NEG_PER_ACC*BOOKLOSS	0.001**	2.170
NEG_PER_ACC*TAXLOSS	0.003***	4.658
NEG_PER_ACC*CFOLOSS	-0.011**	-1.854
NEG_PER_ACC*AUDIT	-0.000	-0.528
NEG_PER_ACC*ln (sz)	0.000**	2.132
ln(sz)	-0.005**	-2.313

Panel C: $ETR_2 = \gamma_0+\gamma_1 NEG\_PER\_ACC+\gamma_2 BOOKLOSS +\gamma_3 TAXLOSS+\gamma_4 CFOLOSS +\gamma_5 NEG\_PER\_ACC*BOOKLOSS+ \gamma_6 NEG\_PER\_ACC*TAXLOSS +\gamma_7 NEG\_PER\_ACC*CFOLOSS+\gamma_8 AUDIT +\gamma_9 ln\ (sz)+ \gamma_{10} NEG\_PER\_ACC*AUDIT + \gamma_{11} NEG\_PER\_ACC*ln\ (sz)+\varepsilon$

	Coefficient	**t-Statistic**
Constant	-0.016***	-2.997
NEG_PER_ACC	8.878	0.018
BOOKLOSS	-0.006***	-12.299
CFOLOSS	-0.006***	-11.712
TAXLOSS	-0.016***	-19.905
AUDIT	-0.000**	-1.871
NEG_PER_ACC*BOOKLOSS	-5.857***	-2.963
NEG_PER_ACC*TAXLOSS	-0.000***	-6.978
NEG_PER_ACC*CFOLOSS	-0.006***	-3.862
NEG_PER_ACC*AUDIT	0.000***	4.950
NEG_PER_ACC*ln (sz)	1.496	0.446
ln(sz)	0.002***	6.728

Table 3.11: Regressions results for equations (5A) - (8A) ("loss" sample) (continued)
*The table reports the coefficients from OLS regressions with clustered standard errors by year and firm for the "loss" sample when the independent variable is NEG_PER_ACC (t-statistics are reported in parentheses). Panel A presents results for eq.(5A), Panel B reports results for eq.(6A), Panel C reports results for eq.(7A) and Panel D for eq.(8A). Variables' definitions are given in Appendix H. ***, **, * represents statistical significance at 1%, 5%, and 10% level, respectively (one-tailed).*

Panel D: $ETR_3 = \gamma_0+\gamma_1 NEG\_PER\_ACC+\gamma_2 BOOKLOSS +\gamma_3 TAXLOSS+\gamma_4 CFOLOSS +\gamma_5 NEG\_PER\_ACC*BOOKLOSS+ \gamma_6 NEG\_PER\_ACC*TAXLOSS +\gamma_7 NEG\_PER\_ACC*CFOLOSS+\gamma_8 AUDIT +\gamma_9 ln\ (sz)+ \gamma_{10} NEG\_PER\_ACC*AUDIT + \gamma_{11} NEG\_PER\_ACC*ln\ (sz)+\varepsilon$

	Coefficient	**t-Statistic**
Constant	0.067	0.751
NEG_PER_ACC	-0.003	-0.847
BOOKLOSS	0.001	0.234
CFOLOSS	-0.396***	-46.889
TAXLOSS	0.005	0.253
AUDIT	-0.008	-0.284
NEG_PER_ACC*BOOKLOSS	0.001***	7.193
NEG_PER_ACC*TAXLOSS	0.001***	2.398
NEG_PER_ACC*CFOLOSS	-0.307***	-9.502
NEG_PER_ACC*AUDIT	0.000	0.374
NEG_PER_ACC*ln (sz)	0.000	1.059
ln(sz)	0.004	0.751

The interactions between NEG_PER_ACC and the dummy variables (BOOKLOSS, TAXLOSS, and CFOLOSS) in relation to the tax proxies shed more light on the tax strategies of Greek loss SMEs. To begin, we detect a significant and negative association between BTDs and NEG_PER_ACC* BOOKLOSS, NEG_PER_ACC* TAXLOSS, and NEG_PER_ACC* CFOLOSS. This demonstrates that the more income-decreasing accruals Greek loss SMEs utilize, the higher the book-tax differences.

Prior literature indicates that the presence of incentives to minimize tax liabilities increases the likelihood of an increase in BTDs, even for loss-making companies. For example, Blackburne and Blouin (2017) find that BTDs rise in the presence of tax-mitigation incentives, resulting in a higher downward skew in taxable income. Maydew (1997) emphasizes the fact that even loss firms have a motive to minimize taxable income through loss carrybacks and carryforwards[120]. Additionally, Hanlon (2005) and Noga and Schnader

[120] The Greek Income Tax Code (Law 4172/2013) contains no provisions for net operating loss carrybacks and provides a five-year carryforward period for net operating loss.

(2013) establish a link between large/abnormal BTDs and manipulated or low cash flow from operations, respectively.

Calegari's (2000) seminal research offers an alternative explanation for the interaction terms NEG_PER_ACC*BOOKLOSS, NEG_PER_ACC*TAXLOSS, and NEG_PER_ACC *CFOLOSS having a positive effect on BTDs. Calegari (2000) underlines the distinction between book-tax accruals and book-only accruals and how their combined use can be used to manage earnings across numerous years. Owing to accruals' temporality, Calegari (2000) asserts that that to be effective in a multiyear income-decreasing tax planning strategy, book-tax accruals should be used in conjunction with book-only accruals to offset cumulative increases in expenses.

By following Calegari's (2000) reasoning, offsetting book-tax accruals (or income-decreasing accruals) with increased book-only accruals could result in an increase in BTDs. Thus, a strategy along these lines could account for the observed link between NEG_PER_ACC*BOOKLOSS, NEG_PER_ACC*TAXLOSS, and NEG_PER_ACC* CFOLOSS and BTDs.

According to Ayers et al. (2010), companies are frequently induced to report larger book income and lower taxable income to the tax authorities. Nevertheless, as Hanlon (2005) points out, Book-Tax Differences are not always indicative of accounting discretion. Thus, the revealed associations between tax proxies and the interaction terms NEG_PER_ACC *BOOKLOSS, NEG_PER_ACC*TAXLOSS, and NEG_PER_ACC*CFOLOSS are not necessarily attributable to tax-motivated earnings manipulation of Greek loss SMEs.

Various researchers have demonstrated that BTDs occur for a variety of reasons other than tax avoidance schemes, including differences between financial reporting and tax rules (Weber, 2009), deteriorating earnings quality (Ayers et al., 2010), upward earnings management (Lietz, 2013), and downward earnings management related to bankruptcy issues (Noga and Schnader, 2013).

Despite the foregoing, as Luo (2019) points out, large BTDs may be the result of opportunistic handling of either book or taxable income. Additionally, the results on the influence of NEG_PER_ACC*BOOKLOSS, NEG_PER_ACC*TAXLOSS, and NEG_PER_ACC*CFOLOSS on ETRs reveal some interesting associations. NEG_PER_ACC*BOOKLOSS and NEG_PER_ACC*TAXLOSS, in particular, exhibit a significant and positive association with ETR_1 and ETR_3. This result demonstrates that Greek SMEs with negative or zero pre-tax income and current income tax expense use income-decreasing accruals to minimize their tax liabilities.

NEG_PER_ACC*CFOLOSS is negatively correlated with all ETRs. Given the negative sign of NEG_PER_ACC, an initial reading of the provided results would imply that Greek SMEs with negative or no cash flow pay higher effective tax rates.

This finding would be consistent with an inverse interpretation of earlier studies examining the association between tax avoidance and cash flows. Prior literature (e.g., Rego, 2003; Guenther et al., 2017; Hutchens et al., 2020) finds that tax-avoiding companies which report lower ETRs, have higher after-tax cash flows. Thus, by inverting the interpretation of prior research findings, it may be asserted that companies that pay higher ETRs have lower after-tax cash flows, affording an explanation for the association of NEG_PER_ACC*CFOLOSS with ETRs.

Nonetheless, the fact that many Greek SMEs have negative or zero cash flows cannot be attributed solely to increasing cash-tax payments, as income tax rates have not changed between 2016 and 2018. For example, a business with negative or no cash flow could use income-decreasing accruals, resulting in a decrease in book income and an increase in ETR_1 (since the denominator of ETR_1 is book income). Additionally, because cash flow from operations is directly related to net income, any attempt to reduce net income results in a decrease in cash flow from operations (which is the denominator of ETR_3) and an increase in ETR_3.

The negative (and significant) association between NEG_PER_ACC*BOOKLOSS, NEG_PER_ACC*TAXLOSS, and NEG_PER_ACC*CFOLOSS and ETR_2 reveals that when Greek loss firms employ income-decreasing accruals, ETR_2 increases.

In light of this conclusion, Hundsdoerfer and Jacob (2019) suggest that where incentives are in place to manage both book and taxable income (i.e., conforming tax avoidance), lowering reported sales for a given level of operating costs may be used. Underreporting revenue through sales suppression is a common method of tax evasion in Greece. Sales can be manipulated in a variety of ways, such by omitting to issue the appropriate invoice and recording the sales transaction, or by exercising accounting discretion (e.g., deferring sales recognition or granting large customer discounts). Revenue deferral, as Guenther (1994) argues, enables concurrent deferral of taxable income.

Thus, as the denominator of ETR_2 is sales revenues, underreporting of sales by Greek loss SMEs could result in an increase in ETR_2. In contrast to Hundsdoerfer and Jacob's (2019) finding that loss-making corporations have weaker motives to apply conforming tax avoidance strategies, the aforementioned results indicate that tax-induced opportunistic incentives are prevalent among Greek loss-making SMEs.

The regression results for the effect of AUDIT on tax aggressiveness variables are partially consistent with those for the "non-loss" sample. Specifically, AUDIT is (significantly) negatively related to BTDs and positively associated with ETR_1. This finding is indicative of auditing's constraining effect on tax aggressiveness.

The relationship between AUDIT and BTDs and ETR_1 discussed previously is related indirectly to the findings of Hanlon et al. (2012) and Donohoe and Knechel (2014). Hanlon et al. (2012) demonstrate that large book-tax differences account for higher audit fees, due to increased audit risk. Additionally, Donohoe and Knechel (2014) demonstrate that auditors charge an additional audit fee premium in instances of tax aggressiveness, regardless of any other premiums, such as earnings management-related premiums.

As a result of the increased audit risk associated with large book-tax differences and tax aggressiveness, auditors charge higher audit fees. This increased audit risk may be the primary driver of the association of AUDIT with BTDs and ETR_1. In contrast to the "non-loss" sample, the association between NEG_PER_ACC*AUDIT and tax proxies is weak and insignificant (except for ETR_2).

As evidenced in the "non-loss" sample, the association between company size and tax aggressiveness indicates that larger Greek SMEs in the "loss" sample have larger book-tax differences and face lower effective tax rates, as measured by ETR_1. Additionally, the significant and positive relationship between company size and ETR_2 could imply that larger companies manipulate or underreport sales to a greater extent than smaller firms (since understating sales (the ETR_2 denominator) results in an increase in ETR_2).

Furthermore, regression results relating to the association of the interaction NEG_PER_ACC*ln(sz) with tax proxies (BTDs & ETR_1) not only corroborate (to a degree) previously reported findings regarding the relationship between company size and tax aggressiveness, but also the relevant regression results from the "non-loss" sample.

Thus, larger Greek SMEs in the "non-loss" and "loss" samples use income-decreasing accruals to lower their effective tax rates (when ETR is measured using ETR_1) more than smaller firms. Additionally, the more income-decreasing accruals that larger Greek SMEs apply in both samples, the larger book-tax differences they generate than smaller firms.

To summarize, because the existence of financial misstatement incentives underpinning the tax behavior of Greek SMEs, particularly loss-making SMEs, has not been thoroughly investigated, Hafzalla et al.'s negative percent accruals, like Jansen et al.'s diagnostic, contribute to the identification of new findings in this under-researched area.

3.11. Conclusions, Limitations & Suggestions for future research

We explore whether Greek SMEs engage in financial misstatement practices in order to reduce their tax burden in this Chapter. Our reference period (2016-2018) covers the first years of implementation of Greece's new accounting standards, which took effect in 2015. On the basis of prior studies, we construct two samples of Small and Medium-sized entities with distinct characteristics.

Unlike other tax-related studies that focus exclusively on profitable firms, we examine the tax aggressiveness of loss-making SMEs by constructing a separate sample of profitable SMEs and SMEs with negative or zero pretax income, negative or zero income tax expense, and negative or zero cash flow from operations.

To investigate financial misstatements, we employ Jansen et al.'s diagnostic which is based on the inverse relationship between Profit Margin and Asset Turnover Ratio. Our proxies for tax aggressiveness are Total Book-Tax Differences and various versions of Effective Tax Rates.

De Simone et al. (2020) imply that utilizing a variety of tax avoidance proxies may be incredibly beneficial in differentiating the sorts of tax planning methods, based on the tax proxies' relationships with the factors involved. In line with De Simone et al. (2020), we explore the relation between Jansen et al.'s diagnostic and tax aggressiveness using a variety of tax proxies. Additionally, we analyze the impact of auditing and company size on the tax proxies utilized. Also, we examine the combined effect of the auditing and firm size variables along with Jansen et al.'s diagnostic on the tax aggressiveness variables.

We perform OLS regressions with clustered standard errors by year and firm in the manner described by Petersen (2009) to determine the efficacy of Jansen et al.'s diagnostic in detecting tax-induced financial misstatements.

We discover that Jansen et al.'s diagnostic for downward earnings management works better for the "loss" sample than for the "non-loss" sample, and particularly for loss SMEs. Additionally, regression results indicate that auditing restricts the tax aggressiveness of both profitable and loss-making SMEs. Additionally, company size differs between profitable and loss-making SMEs as a determinant of tax aggressiveness, corroborating Rego's (2003) observation that firm size is the most contentious parameter studied in previous tax-related research.

Additionally, we conduct several supplementary tests. We incorporate several control variables (Leverage, Property, Plant & Equipment, Inventory, and Intangibles) that have been utilized previously in tax-related research. Additionally, we apply Tang and Firth's

(2011) Tax-Effect BTDs to determine whether they better represent tax aggressiveness and interact more effectively with Jansen et al.'s metric. Finally, we compare Jansen et al.'s diagnostic to Hafzalla et al.'s negative percent accruals proxy to determine its strength as an alternative for tax-induced financial misstatements.

By including the aforementioned control variables, Jansen et al.'s diagnostic for the "non-loss" sample enhances its efficiency and maintains its efficacy as a tool signaling tax-induced financial misstatements for loss SMEs. When we examine the relationships between the control variables and the tax proxies, we discover that Leverage has a significant and negative relationship with the bulk of the tax proxies in both samples. This implies that Greek SMEs with a higher debt load, regardless of whether they are profitable or not, pay lower effective tax rates. The other control variables do not display the same degree of stability as Leverage when compared to the tax proxies.

Nonetheless, certain well-documented relationships emerge in regard to Greek SMEs. For example, profitable Greek SMEs with a higher capital intensity pay lower effective tax rates (Derashid and Zhang, 2003), but profitable Greek SMEs with a high inventory face higher ETRs (Gupta and Newberry, 1997). On the other hand, Greek loss SMEs react differently when additional control variables are included (except for Leverage). For example, whereas intangibles are negatively associated with Book-Tax differences and ETR_1, this relationship changes in the "non-loss" sample. The inclusion of control variables had no effect on our prior findings regarding the mitigating effect of auditing and the ambiguous effect of company size on tax aggressiveness.

Concerning the use of Tax-Effect BTDs, regression results indicate a weak and insignificant relationship between Jansen et al.'s diagnostic and Tang and Firth's (2011) measure, possibly because Tax-Effect BTDs perform better in environments with varying tax rates and distinct tax reporting requirements (Tang and Firth, 2011). Nonetheless, the positive and significant association between the interaction terms EM_DN*BOOKLOSS and EM_DN*CFOLOSS and Tax-Effect BTDs suggests that both Jansen et al.'s (2011) and Tang and Firth's (2011) measures may be effective at capturing tax-induced financial misstatements in Greek SMEs with negative or zero pre-tax income and cash flow from operations.

The regression results for both profitable and loss-making Greek SMEs confirm the utility of Hafzalla et al.'s negative percent accruals as a functional tool for assessing tax-induced financial misstatements. We observe that Hafzalla et al.'s negative percent accruals load

more efficiently with BTDs and ETR_1 than with ETR_2 and ETR_3. This relationship holds true for both "loss" and "non-loss" samples.

The interaction of Hafzalla et al.'s negative percent accruals with the loss dummy variables BOOKLOSS, TAXLOSS, and CFOLOSS produces substantial associations with all tax proxies and leads to some intriguing conclusions about Greek loss SMEs. More precisely, regression results indicate that Greek loss-making SMEs may use income-decreasing accruals to reduce their book and taxable income (i.e., conforming tax avoidance) or as part of their tax avoidance strategies.

Regardless of whether Jansen et al.'s diagnostic is replaced with Hafzalla et al.'s negative percent accruals, auditing continues to be a constraint on tax aggressiveness. Additionally, contrary to previous findings, the effect of company size on tax aggressiveness is consistent across profitable and loss firms, since regression results indicate that larger Greek SMEs in both samples have larger book-tax differences and pay lower effective tax rates (when ETR is measured by ETR_1) than smaller firms. Moreover, regression results indicate that larger Greek SMEs in both samples use income-decreasing accruals to lower their effective tax rates (where ETR is measured by ETR_1) to a greater extent than smaller SMEs.

We make numerous contributions to the literature: For start, we venture into hitherto uncharted territory: the investigation of financial misstatements and tax aggressiveness by Greek SMEs. Additionally, our study examines both profitable and loss-making companies, in contrast to the majority of tax-related research, which focuses primarily on profitable firms.

Thus, we suggest two new measures (Jansen et al.'s metric, 2012; Hafzalla et al.'s negative percent accruals, 2011) that have never been used in relevant studies previously. Additionally, we contribute to the scant literature on the investigation of private companies' tax-motivated financial misstatements. Our research is unique in that, unlike previous studies (e.g., Marques et al., 2011; Watrin et al., 2012; Lin et al., 2014; Sundvik, 2016; Sundvik, 2017a), we examine the behavior of SMEs in the absence of specific tax incentives such as tax rate reductions or the imposition of new taxes.

Our findings are not without limitations and caveats. In particular, Jansen et al.'s diagnostic is prone to Type I (false recognition of earnings management) and Type II errors (failure to recognize earnings management). Also, Hafzalla et al.'s negative percent accruals have not been validated in comparable research investigations and may reflect standard accounting practices or financial distress, rather than opportunistic behavior. As Tang (2020) notes, the efficacy of total accruals in identifying earnings management is debatable.

Our tax-related variables are also subject to well-documented limitations (e.g., Plesko, 2003; Hanlon and Heitzman, 2010). As Hanlon and Heitzman (2010) point out, using financial statement data to estimate taxable income results in estimation errors. Additionally, Book-Tax Differences (BTDs) are not just a noisy proxy for earnings management, but they may also occur as a result of permissible differences between accounting standards and tax laws (Hanlon and Heitzman, 2010; Chan et al., 2010).

Moreover, Dyreng et al. (2008) underline the flaws in the Effective Tax Rate's measurement of actual taxes paid, whereas Hanlon and Heitzman (2010) argue that when private companies are investigated, the Effective Tax Rate is not useful because it does not capture conforming tax avoidance, which is the most prevalent form of tax avoidance among private firms. On the other hand, our choice of tax aggressiveness proxies is motivated by data availability, as the data required to construct more precise proxies (e.g., Cash Effective Tax Rate) for Greek SMEs were unavailable.

Despite the metrics generally used in tax-related research, such as the ones utilized in our research, are only moderately effective in distinguishing tax aggressiveness, more accurate substitutes are difficult to uncover (Blouin, 2014; Tang, 2006).

Additionally, our research has limitations similar to those described by other researchers (e.g., Adhikari et al., 2005), most notably the possibility that certain variables were omitted from our models (i.e., omitted variables bias). Finally, we emphasize the importance of interpreting our findings cautiously due to the small size of our sample and the brief duration of our reference period (2016-2018).

While our study is country-specific, we contribute to the sparse literature on private firms and small and medium-sized enterprises (SMEs) and answer to Sundvik's (2017a) call for future research examining different metrics of earnings manipulation from a tax perspective. Regardless of the limitations of our research, we believe it to be provocative for future research, particularly in the Greek context.

Future research can be conducted by comparing the applied financial misstatements diagnostics to more sophisticated tax-related proxies (e.g., Frank et al., 2009; Dyreng et al., 2008; Tang and Firth, 2011; Badertscher et al., 2019) that may more accurately capture tax-aggressive behavior and various types of tax avoidance (conforming/non-conforming). Additionally, the validity of the proposed financial misstatements could be reviewed on a European level to determine whether private EU companies engage in tax-motivated earnings manipulation following the new European Accounting Directive's transposition into national law.

SOURCES

1. Adhikari, A., Derashid, C. & Zhang, H. (2005) "Earnings Management to Influence Tax Policy: Evidence from Large Malaysian Firms", Journal of International Financial Management & Accounting, Vol. 16, No. 2, pp. 142-163.

2. Adhikari, A., Derashid, C. & Zhang, H. (2006) "Public policy, political connections, and effective tax rates: Longitudinal evidence from Malaysia", Journal of Accounting and Public Policy, Vol 25, pp. 574–595.

3. Arnedo, L. & Lizarraga, F. & Sanchez, S. (2007) "Does public/private status affect the level of earnings management in code-law contexts outside the United States? A study based on the Spanish case", The International Journal of Accounting, Elsevier, vol. 42(3), pp. 305-328.

4. Artavanis, N., Morse, A. & Tsoutsoura, M. (2015) "Tax Evasion across Industries: Soft Credit Evidence from Greece", NBER Working Papers No 21552, National Bureau of Economic Research, http://www.nber.org/papers/w21552.

5. Ayers, B.C., Jiang, J. & Laplante, S.K. (2009) "Taxable Income as a Performance Measure: The Effects of Tax Planning and Earnings Quality", Contemporary Accounting Research, 26: 15-54.

6. Ayers, B.C., Laplante, S.K & McGuire, S.T. (2010) "Credit Ratings and Taxes: The Effect of Book–Tax Differences on Ratings Changes", Contemporary Accounting Research, 27: 359-402.

7. Ayers, B. C., Call, A. C., & Schwab, C. M. (2018) "Do Analysts' Cash Flow Forecasts Encourage Managers to Improve The Firm's Cash Flows? Evidence from Tax Planning", Contemporary Accounting Research, 35: 767–793.

8. Badertscher, B. A., Katz, S. P. & Rego, S. O. (2010) "The Impact of Private Equity Ownership on Portfolio Firms' Corporate Tax Planning", Working Paper 10-004, Harvard Business School, https://www.hbs.edu/ris/Publication%20Files/10-004_032acba8-167c-4563-a37f-fe18ee1b9030.pdf.

9. Badertscher, B. A., Katz, S. P. & Rego, S. O. (2013) "The separation of ownership and control and corporate tax avoidance", Journal of Accounting and Economics, Vol. 56(2), pp. 228-250.

10. Badertscher, B. A., Katz, S. P., Rego, S. O. & Wilson, R. J. (2019) "Conforming Tax Avoidance and Capital Market Pressure", The Accounting Review, Vol 94 (6), pp. 1–30.

11. Ball, R. (2013) "Accounting Informs Investors and Earnings Management is Rife: Two Questionable Beliefs", Accounting Horizons, Vol. 27, No. 4, pp. 847-853.

12. Bayley, Luke & Taylor, Stephen L. (2007) “Identifying Earnings Overstatements: A Practical Test”, Available at SSRN: https://ssrn.com/abstract=995957.
13. Becker, C.L., DeFond, M.L., Jiambalvo, J. & Subramanyam, K. (1998) “The Effect of Audit Quality on Earnings Management”, Contemporary Accounting Research, 15: 1-24.
14. Bekiris, F. V. & Doukakis, L. C. (2011) “Corporate Governance and Accruals Earnings Management”, Managerial and Decision Economics, 2011, Vol. 32, pp. 439-456.
15. Beneish, M.D. (2001) “Earnings management: a perspective”, Managerial Finance, Vol. 27 No. 12, pp. 3-17.
16. Bernard, V. L. & Skinner, D. J. (1996) “What motivates managers’ choice of discretionary accruals?”, Journal of Accounting and Economics, vol. 22 (1-3), pp. 313-325.
17. Blackburne, T., & Blouin, J. (2017) “Understanding the informativeness of book-tax differences”, Working paper, University of Washington, and University of Pennsylvania, https://sites.insead.edu/facultyresearch/research/file.cfm?fid=61924.
18. Blaylock, B., Shevlin, T. & Wilson, R. J. (2012) “Tax Avoidance, Large Positive Temporary Book-Tax Differences, and Earnings Persistence”, The Accounting Review, Vol. 87, No. 1, pp. 91–120.
19. Blouin, Jennifer (2014) “Defining and Measuring Tax Planning Aggressiveness”, National Tax Journal, vol. 67(4), pp. 875-900.
20. Borralho, J. M., Gallardo Vázquez, D. & Hernández-Linares, R. (2020) “Earnings management in private family versus non-family firms. The moderating effect of family business generation”, Spanish Journal of Finance and Accounting / Revista Española de Financiación y Contabilidad, 49:2, pp. 210-233.
21. Brazel, J.F., Jones, K.L. & Zimbelman, M.F. (2009) “Using Nonfinancial Measures to Assess Fraud Risk”, Journal of Accounting Research, 47: 1135-1166.
22. Buijink, W., Janssen, B. & Schols, Y. (2002) “Evidence of the effect of domicile on corporate average effective tax rates in the European Union”, Journal Of International Accounting, Auditing & Taxation, 11, pp. 115–130.
23. Burgstahler, D. C., Hail, L. & Leuz, C. (2006) “The Importance of Reporting Incentives: Earnings Management in European Private and Public Firms”, The Accounting Review Vol. 81, No. 5 (Oct.2006), pp. 983-1016.
24. Butler, Marty, Leone, Andrew J. & Willenborg, Michael (2004) “An empirical analysis of auditor reporting and its association with abnormal accruals”, Journal of Accounting and Economics, vol. 37(2), pp.139-165.

25. Callao, Susana & Jarne, José Ignacio (2010) "Have IFRS Affected Earnings Management in the European Union?", Accounting in Europe, 7:2, 159-189.
26. Calegari, Michael J. (2000) "The effect of tax accounting rules on capital structure and discretionary accruals", Journal of Accounting and Economics, vol. 30(1), pp. 1-31.
27. Campa, D., & Camacho-Miñano, M. (2015) "The impact of SME's pre-bankruptcy financial distress on earnings management tools", International Review of Financial Analysis, Elsevier, vol. 42(C), pages 222-234.
28. Chan, K. Hung, Lin, Kenny Z. & Mo, Phyllis L.L. (2010) "Will a departure from tax-based accounting encourage tax noncompliance? Archival evidence from a transition economy", Journal of Accounting and Economics, vol. 50(1), pp. 58-73.
29. Chan, K. H., Lin, K. Z., & Tang, F. (2013) "Tax effects of book-tax conformity, financial reporting incentives and firm size", Journal of International Accounting Research, 12(2), pp. 1-25.
30. Charitou, Andreas, Lambertides, Neophytos & Trigeorgis, Lenos (2007a) "Managerial Discretion in Distressed Firms", British Accounting Review, Vol. 39, No. 4, 2007, pp. 323-346.
31. Charitou, Andreas, Lambertides, Neophytos & Trigeorgis, Lenos (2007b) "Earnings Behaviour of Financially Distressed Firms: The Role of Institutional Ownership", Abacus, Vol. 43, No. 3, pp. 271-296.
32. Chen, S., Chen, X., Cheng, Q. & Shevlin, T. (2010) "Are family firms more tax aggressive than non-family firms?", Journal of Financial Economics, Vol. 95(1), pp. 41-61.
33. Chen, Linda H., Dhaliwal, Dan S. & Trombley, Mark A. (2012) "Consistency of Book-Tax Differences and the Information Content of Earnings", The Journal of the American Taxation Association: Fall 2012, Vol. 34, No. 2, pp. 93-116, Available at SSRN: https://ssrn.com/abstract=2032593.
34. Chen, E., Gavious, I. & Yosef, R. (2013) "The relationship between the management of book income and taxable income under a moderate level of book-tax conformity", Journal of Accounting, Auditing & Finance, Oct 2013, Vol 28(4), pp. 323–347
35. Choi, J. H., & Wong, T. J. (2007) "Auditors Governance Functions and Legal Environments: An International Investigation", Contemporary Accounting Research, 24(1), 13-46.
36. Chytis, E., Tasios, S., Georgopoulos, I., & Hortis, Z. (2019) "The relationship between tax avoidance, company characteristics and corporate governance: Evidence from Greece", Corporate Ownership & Control, 16(4), pp. 77-86.

37. Cloyd, C.B., Pratt, J. & Stock, T. (1996) “The use of financial accounting choice to support aggressive tax positions: Public and private firms”, Journal of Accounting Research, vol. 34(1), pp. 23-43.
38. Cohen, S., Papadaki, A. & Siougle, G. (2007) “SEOs in a ‘Hot Market’: evidence of timing”, Applied Financial Economics, 17:14, pp. 1179-1190.
39. Coppens, L., & Peek, E. (2005) “An Analysis of Earnings Management by European Private Firms”, Journal of International Accounting, Auditing and Taxation, Volume 14, Issue 1, 2005, pp. 1-17.
40. DeAngelo, Harry, DeAngelo, Linda & Skinner, Douglas J. (1994) “Accounting choice in troubled companies”, Journal of Accounting and Economics 17(1-2): 113-143.
41. Dechow, P. M., Sloan, R. G.& Sweeney, A. P. (1995) “Detecting Earnings Management”, The Accounting Review, Vol 70 No2, April 1995, pp. 193-225.
42. Dechow, P.M., Sloan, R.G. & Sweeney, A.P. (1996) “Causes and Consequences of Earnings Manipulation: An Analysis of Firms Subject to Enforcement Actions by the SEC”, Contemporary Accounting Research, 13: 1-36.
43. Dechow, P.M., & Skinner, D. J. (2000) “Earnings Management: Reconciling the Views of Accounting Academics, Practitioners, and Regulators”, Accounting Horizons, Vol. 14 No. 2, pp. 235-250.
44. Dechow, P.M., Ge, W., Larson, C. R. & Sloan, R. G. (2011) “Predicting Material Accounting Misstatements”, Contemporary Accounting Research Vol. 28 No. 1, pp. 17–82.
45. Derashid, C., & Zhang, H. (2003) “Effective tax rates and the “industrial policy” hypothesis: evidence from Malaysia”, Journal of International Accounting, Auditing & Taxation Vol 12, pp. 45–62
46. De Simone, L,, Nickerson, J., Seidman, J. & Stomberg, B. (2019) “How Reliably Do Empirical Tests Identify Tax Avoidance”, Rock Center for Corporate Governance at Stanford University, Working Paper No. 200, Stanford University Graduate School of Business Research Paper No. 15-5, Available at SSRN: https://ssrn.com/abstract=2534058.
47. De Simone, L,, Nickerson, J., Seidman, J. & Stomberg, B. (2020) “How Reliably Do Empirical Tests Identify Tax Avoidance?”, Contemporary Accounting Research, vol. 37(3), pp. 1536-1561.
48. Dimitras, A. I., Kyriakou, M. I. & Iatridis, G. (2015) “Financial crisis, GDP variation and earnings management in Europe”, Research in International Business and Finance, vol. 34(C), pp. 338-354.

49. Dimitropoulos, P. E., Asteriou, D. & Kousenidis, D. & Leventis, S. (2013) “The impact of IFRS on accounting quality: Evidence from Greece”, Advances in accounting, vol. 29(1), pp. 108-123.
50. Directive 2013/34/EU of The European Parliament and Of The Council of 26 June 2013, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32013L0036.
51. Donohoe, Michael P. & Knechel, W. Robert (2014) “Does Corporate Tax Aggressiveness Influence Audit Pricing?”, Contemporary Accounting Research, vol. 31(1), pp. 284-308.
52. Doukakis, L. C. & Papanastasopoulos, G. A. (2014) “The accrual anomaly in the U.K. stock market: Implications of growth and accounting distortions”, Journal of International Financial Markets, Institutions and Money, Vol. 32, pp. 256-277
53. Dyreng, S. D., Hanlon, M. & Maydew, E. L. (2008) “Long-Run Corporate Tax Avoidance”, The Accounting Review: January 2008, Vol. 83, No. 1, pp. 61-82.
54. European Commission, 2015 SBA Fact Sheet/Greece, https://www.heliachamber.gr/iliaimages/greece_en_F19573.pdf.
55. European Commission, 2016 SBA Fact Sheet/Greece, https://ec.europa.eu/docsroom/documents/22382/attachments/15/translations/en/renditions/pdf.
56. European Commission, 2017 SBA Fact Sheet/Greece, https://ec.europa.eu/docsroom/documents/29489/attachments/13/translations/en/renditions/pdf.
57. European Commission, 2018 SBA Fact Sheet/Greece, https://ec.europa.eu/docsroom/documents/32581/attachments/13/translations/en/renditions/native.
58. European Commission, 2019 SBA Fact Sheet/Greece, https://ec.europa.eu/docsroom/documents/38662/attachments/13/translations/en/renditions/native.
59. European Commission, 2019 European Semester: Assessment of progress on structural reforms, prevention and correction of macroeconomic imbalances, and results of in-depth reviews under Regulation (EU) No 1176/2011-Country Report Greece 2019, https://ec.europa.eu/info/publications/2019-european-semester-country-reports_en.
60. European Commission, Directorate-General for Taxation and Customs Union, Poniatowski, G., Durán-Cabré, J., Bonch-Osmolovskiy, M., et al., “Study and reports on

the VAT gap in the EU-28 Member States : report 2019, 2021", https://data.europa.eu/doi/10.2778/04272.

61. European Commission, 2020 European Semester: Assessment of progress on structural reforms, prevention and correction of macroeconomic imbalances, and results of in-depth reviews under Regulation (EU) No 1176/2011-Country Report Greece 2020, https://ec.europa.eu/info/publications/2020-european-semester-country-reports_en.

62. Feige, Edgar L. (1990) "Defining and Estimating Underground and Informal Economies: The New Institutional Economics Approach", World Development, vol 18 (7), pp. 989-1002.

63. Ferentinou, A. C. & Anagnostopoulou, S. C. (2016) "Accrual-based and real earnings management before and after IFRS adoption: The case of Greece", Journal of Applied Accounting Research, vol. 17(1), pp. 2-23.

64. Fields, T. D., Lys, T. Z. & Vincent, L. (2001) "Empirical Research on Accounting Choice", Journal of Accounting and Economics 31, pp. 255–307.

65. Francis, J. R. & Krishnan, J. (1999) "Accounting Accruals and Auditor Reporting Conservatism", Contemporary Accounting Research, vol. 16 (1), pp. 135-165.

66. Francis, J. R, Maydew, E.L. & Sparks, H.C. (1999) "The Role of Big 6 Auditors in the Credible Reporting of Accruals", Auditing: A Journal of Practice & Theory Vol 18 (2): 17–34.

67. Frank, M. M., Lynch, L. J. & Rego, S. O. (2009) "Tax Reporting Aggressiveness and Its Relation to Aggressive Financial Reporting", The Accounting Review, Vol. 84 No:2, pp. 467–496.

68. Gerakos, J. (2012) "Discussion of Detecting Earnings Management: A New Approach", Journal of Accounting Research, vol. 50 (2), pp. 335-347.

69. Goncharov, I., & Zimmermann, J. (2005) "Earnings Management when Incentives Compete: The Role of Tax Accounting in Russia", Journal of International Accounting Research, 5 (1), pp. 45-61.

70. Gow, I., Ormazabal, G., & Taylor, D. (2010) "Correcting for Cross-Sectional and Time-Series Dependence in Accounting Research", The Accounting Review, 85(2), pp. 483-512.

71. Guay, W. R. & Kothari, S.P. & Watts, R. L. (1996) "A Market-Based Evaluation of Discretionary-Accrual Models", Journal of Accounting Research, vol. 34, pp. 83-105.

72. Guenther, David A. (1994) "Earnings Management in Response to Corporate Tax Rate Changes: Evidence from the 1986 Tax Reform Act", The Accounting Review, Vol. 69(1), pp. 230-243.

73. Guenther, David A. Matsunaga, Steven R. & Williams, Brian M., (2013) “Tax avoidance, tax aggressiveness, tax risk and firm risk”, Unpublished paper, https://business. illinois. edu/accountancy/wp-content/uploads/sites/12/2014/10/Tax-2013-Guenther. pdf.
74. Guenther, David A., Njoroge, Kenneth & Williams, Brian (2017) “Use of Increased Operating Cash Flow by Firms that Avoid Taxes”, https://ssrn.com/abstract=3013215.
75. Gupta, S. & Newberry, K. (1997) “Determinants of the Variability in Corporate Effective Tax Rates: Evidence from Longitudinal Data”, Journal of Accounting and Public Policy, 16, pp. 1-34.
76. Hafzalla, N., Lundholn, R. & Van Winkle, M. E. (2011) “Percent Accruals”, The Accounting Review, Vol 86, No1, 2011, pp. 209-236.
77. Hanlon, M. (2005) “The Persistence and Pricing of Earnings, Accruals, and Cash Flows When Firms Have Large Book-Tax Differences”, The Accounting Review, Vol 80 (1), pp. 137-166.
78. Hanlon, M. & Heitzman, S. (2010) “A Review of Tax Research”, Journal of Accounting and Economics 50, no. 2–3, pp. 127–178.
79. Hanlon, Michelle, Krishnan, Gopal V. & Mills, Lillian F. (2012) “Audit Fees and Book-Tax Differences”, The Journal of the American Taxation Association 34.1: 55–86.
80. Healy, P. M. & Wahlen, J. M. (1999) “A review of the earnings management literature and its implications for standard setting”, Accounting Horizons, 13, pp. 365-383.
81. Hirshleifer, D., Kewei Hou, T., Siew H. & Yinglei Z. (2004) “Do investors overvalue firms with bloated balance sheets?”, Journal of Accounting and Economics, Vol. 38 (1), pp. 297-331.
82. Hope, O. K., Thomas, W. & Vyas D. (2013) “Financial Reporting Quality of US Private and Public Firms”, The Accounting Review, Vol. 88, No. 5, pp. 1715-1742.
83. Hribar, P., & Collins, D. W. (2002) “Errors in Estimating Accruals: Implications for Empirical Research”, Journal of Accounting Research, Vol. 40(1), pp. 105-134.
84. Hribar, P. & Nichols, C. D. (2007) “The Use of Unsigned Earnings Quality Measures in Tests of Earnings Management”, Journal of Accounting Research, Vol. 45(5), pp.1017-1053.
85. Huguet, D. & Gandía, J. L. (2016) “Audit and earnings management in Spanish SMEs”, Business Research Quarterly, Volume 19, Issue 3, July–September 2016, pp. 171-187.
86. Hundsdoerfer, Jochen & Jacob, Martin (2019) “Conforming Tax Planning and Firms’ Cost Behavior”, https://ssrn.com/abstract=3430726.

87. Hutchens, Michelle, Rego, Sonja O. & Williams, Brian (2020) “Tax Avoidance, Uncertainty, and Firm Risk”, https://ssrn.com/abstract=3348559.

88. Iatridis, G. & Dimitras, A. I. (2013) “Financial crisis and accounting quality: Evidence from five European countries”, Advances in accounting, vol. 29(1), pp. 154-160.

89. International Standard on Auditing (ISA) 240, https://www.ifac.org/system/files/publications/files/A012%202013%20IAASB%20Handbook%20ISA%20240.pdf.

90. Jackson, A. B. (2018) “Discretionary Accruals: Earnings Management ... or Not?”, Abacus, Vol 54, Issue 2, pp. 136-153.

91. Jansen, I. P., Ramnath, S. & Yohn, T. L. (2012) “A Diagnostic for Earnings Management Using Changes in Asset Turnover and Profit Margin”, Contemporary Accounting Research, vol. 29(1), pp. 221-251.

92. Kałdoński, M. & Jewartowski, T. (2019) “Do firms using real earnings management care about taxes? Evidence from a high book-tax conformity country”, Finance Research Letters, 101351, ISSN 1544-6123, https://doi.org/10.1016/j.frl.2019.10135.

93. Kanagaretnam, Kiridaran, Lee, Jimmy, Lim, Chee Yeow & Lobo, Gerald J. (2016) “Relation between auditor quality and corporate tax aggressiveness: Implications of cross-country institutional differences”, Auditing: A Journal of Practice and Theory, 35, (4), pp. 105-135, Research Collection School Of Accountancy, https://ink.library.smu.edu.sg/soa_research/1533.

94. Karampinis, N. I. & Hevas, D. L. (2013) “Effects of IFRS Adoption on Tax-induced Incentives for Financial Earnings Management: Evidence from Greece”, The International Journal of Accounting, Vol. 48(2), pp. 218-247.

95. Kapoutsou, E., Tzovas, C. & Chalevas, C. (2015) “Earnings Management and Income Tax: Evidence from Greece”, Corporate Ownership & Control, Volume 12, Issue 2, Continued – 5, pp. 511-529.

96. Kelmanson, B., Kirabaeva, K., Medina, L., Mircheva, B. & Weiss, J. (2019) “Explaining the Shadow Economy in Europe: Size, Causes and Policy Options”, IMF Working Papers 19/278, International Monetary Fund.

97. Kim, J.B., Chung, R. & Firth, M. (2003) “Auditor Conservatism, Asymmetric Monitoring, and Earnings Management”, Contemporary Accounting Research, Vol. 20, No. 2, pp. 323-359.

98. Kim, J. B. & Yi, C. H. (2006) “Ownership Structure, Business Group Affiliation, Listing Status, and Earnings Management: Evidence from Korea”, Contemporary Accounting Research, Vol. 23 No. 2, pp. 427–64.
99. Kirkos, E., Spathis, C. & Manolopoulos, Y. (2007) “Data Mining techniques for the detection of fraudulent financial statements”, Expert Systems with Applications: An International Journal, Vol. 32, No. 4, pp. 995-1003.
100. Klassen, J. K., Lisowsky, P., & Mescall, D. (2016) “The role of Auditors, Non-Auditors, and Internal Tax Departments in Corporate Tax Aggressiveness”, Accounting Review, 91(1), pp. 179-205.
101. Kosi, U. & Valentincic, A. (2013) “Write-offs and Profitability in Private Firms: Disentangling the Impact of Tax-Minimisation Incentives”, European Accounting Review, 22:1, pp. 117-150.
102. Koumanakos, E., Siriopoulos, C. & Georgopoulos, A. (2005) “Firm acquisitions and earnings management: evidence from Greece”, Managerial Auditing Journal, Vol. 20 No. 7, pp. 663-678.
103. Koumanakos, E., Georgopoulos, A. & Siriopoulos, C. (2008) “Auditor awareness of earnings management”, International Journal of Accounting, Auditing and Performance Evaluation, 2008, Vol. 5(1), pp. 50-65.
104. Kvaal, E., Langli, J. C. & Abdolmohammadi, M. J. (2012) “Earnings Management Priorities of Private Family Firms”, https://ssrn.com/abstract=1532824.
105. Lanis, R. & Richardson, G. (2011) “The effect of board of director composition on corporate tax aggressiveness”, Journal of Accounting and Public Policy, Vol. 30 (1), pp. 50-70.
106. Lanis, R. & Richardson, G. (2012) “Corporate social responsibility and tax aggressiveness: An empirical analysis”, Journal of Accounting & Public Policy, Vol 3, pp. 86–108.
107. Law 2190/1920, http://elib.aade.gr/elib/view?d=/gr/act/1920/2190.
108. Law 3190/1955, http://elib.aade.gr/elib/view?d=/gr/act/1955/3190.
109. Law 4072/2012, http://elib.aade.gr/elib/view?d=/gr/act/2012/4072.
110. Law 4172/2013, http://elib.aade.gr/elib/view?d=/gr/act/2013/4172.
111. Law 4174/2013, http://www.publicrevenue.gr/elib/view?d=/gr/act/2013/4174/.
112. Law 4308/2014, http://www.publicrevenue.gr/elib/view?d=/gr/act/2014/4308.
113. Law 4336/2015, http://elib.aade.gr/elib/view?d=/gr/act/2015/4336.
114. Law 4389/2016, http://elib.aade.gr/elib/view?d=/gr/act/2016/4389.

115. Law 4449/2017, http://www.publicrevenue.gr/elib/view?d=/gr/act/2017/4449.
116. Lee, Thomas A., Ingram, & Robert W. & Howard, Thomas P. (1999) "The Difference between Earnings and Operating Cash Flow as an Indicator of Financial Reporting Fraud", Contemporary Accounting Research, vol. 16(4), pp. 749-786.
117. Lennox, C., Lisowsky, P. & Pittman, J. (2013) "Tax Aggressiveness and Accounting Fraud", Journal of Accounting Research, vol. 51(4), pp. 739-778.
118. Levitt, A. "The Numbers Game," remarks to New York University Center for Law and Business, September 28, 1998, para. 4. Available at: www.sec.gov/news/speeches/spch220.txt.
119. Leuz, C., Nanda, D. & Wysocki, P. D. (2003) "Earnings management and investor protection: an international comparison", Journal of Financial Economics, Vol 69, Issue 3, pp. 505-527.
120. Lietz, Geritt (2013) "Tax avoidance vs. tax aggressiveness: a unifying conceptual framework", Working Paper, University of Münster, available at: http://ssrn.com/abstract=2363828.
121. Lin, K. Z., Mills, L. F., & Zhang, F. (2014) "Public versus private firm responses to the tax rate reduction in China", Journal of the American Taxation Association, 36 (1), pp. 137-163.
122. Lisowsky, P., Robinson, L. & Schmidt, A. (2013) "Do Publicly Disclosed Tax Reserves Tell Us About Privately Disclosed Tax Shelter Activity?", Journal of Accounting Research, Vol. 51(3), pp. 583-629.
123. Luo, Bing (2019) "Effects of auditor-provided tax services on book-tax differences and on investors' mispricing of book-tax differences", Advances in accounting, vol. 47(C), pp.1-17.
124. Marques, M., Rodrigues, L. L. & Craig, R. (2011) "Earnings management induced by tax planning: The case of Portuguese private firms", Journal of International Accounting, Auditing and Taxation, vol. 20(2), pp. 83-96.
125. Maydew, E.L. (1997) "Tax-induced earnings management by firms with net operating losses", Journal of Accounting Research, vol. 35(1), pp. 83-96.
126. McNichols, M. & Wilson, G.D. (1988) "Evidence of earnings management from the provision for bad debts", Journal of Accounting Research 26 (Supplement), pp. 1-31.
127. Miller, Douglas L., Cameron, A. Colin & Gelbach, Jonah (2009) "Robust inference with multi-way clustering", Working Paper, No. 09-9, University of California, Department of Economics, Davis, CA, http://hdl.handle.net/10419/58397.

128. Noga, Tracy J. & Schnader, Anne L. (2013) “Book-Tax Differences as an Indicator of Financial Distress”, Accounting Horizons, Vol. 27 (3): 469–489.
129. Papanastasopoulos, G. A. (2014) “Accounting Accruals and Stock Returns: Evidence from European Equity Markets”, European Accounting Review, 23:4, pp. 729-768.
130. Papanastasopoulos, G. A. & Tsiritakis E. (2014) “The accrual anomaly in Europe: The role of accounting distortions”, International Review of Financial Analysis, Vol. 41, pp. 176-185.
131. Petersen, M. A. (2009) “Estimating standard errors in finance panel data sets: Comparing approaches”, Review of Financial Studies, vol 22 (1), pp. 435-480.
132. Phillips, J. D., Pincus, M. P.K. & Rego, S. O. (2003) “Earnings Management: New Evidence Based on Deferred Tax Expense”, The Accounting Review, Vol 78, No. 2, pp. 491-521.
133. Plesko, G. A. (2003) “An evaluation of alternative measures of corporate tax rates”, Journal of Accounting and Economics, Vol 35, pp. 201–226.
134. Rego, S. O. (2003) “Tax Avoidance Activities of U.S. Multinational Corporations”, Contemporary Accounting Research, vol. 20(4), pp. 805-833.
135. Repousis, S. (2016) “Using Beneish model to detect corporate financial statement fraud in Greece”, Journal of Financial Crime Vol. 23 No. 4, pp. 1063-1073.
136. Rosner, R. L. (2003) “Earnings Manipulation in Failing Firms”, Contemporary Accounting Research, Contemporary Accounting Research Vol. 20 No. 2, pp. 361–408.
137. Roychowdhury, S. (2006) “Earnings management through real activities manipulation”, Journal of Accounting and Economics, Vol 42, pp. 335–370.
138. Sánchez-Ballesta, Juan Pedro & Yagüe, José (2021) “Financial reporting incentives, earnings management, and tax avoidance in SMEs”, Journal of Business, Finance and Accounting, Volume 48, Issue7-8, pp. 1404-1433.
139. Schipper, K. (1989) “Commentary on earnings management”, Accounting Horizons, Vol. 3 (4), pp. 91-102.
140. Schneider, F., & Enste, D. H. (2000) “Shadow Economies: Size, Causes, and Consequences”, Journal of Economic Literature Vol. XXXVIII (March 2000) pp. 77–114.
141. Schwab, C. M., Stomberg, B. & Xia, J. (2020) “How Well Do Effective Tax Rates Capture Tax Avoidance?”, Kelley School of Business Research Paper No. 18-92, Available at SSRN: https://ssrn.com/abstract=3281289.
142. Shackelford, D. A. & Shevlin, T. J. (2001) “Empirical Tax Research in Accounting”, Journal of Accounting and Economics, Vol 31, pp. 321–387.

143. Shen, C.H. & Chih, H.L. (2007) “Earnings Management and Corporate Governance in Asia’s Emerging Markets”, Corporate Governance: An International Review, Vol. 15(5), pp. 999-1021.
144. Slemrod, J. (2004) “The Economics of Corporate Tax Selfishness”, No 10858, National Bureau of Economic Research, http://www.nber.org/papers/w10858.
145. Slemrod, J. & Weber, C. (2012) “Evidence of the invisible: toward a credibility revolution in the empirical analysis of tax evasion and the informal economy”, International Tax and Public Finance, vol. 19, pp. 25-53.
146. Spathis, C. T. (2002) “Detecting false financial statements using published data: some evidence from Greece”, Managerial Auditing Journal 17/4, pp. 179-191.
147. Spathis, C., Doumpos M. & Zopounidis C. (2002) “Detecting falsified financial statements: a comparative study using multicriteria analysis and multivariate statistical techniques”, European Accounting Review, 2002, 11:3, pp. 509-535.
148. Stamatopoulos, Ioannis, Hadjidema, Stamatina and Eleftheriou, Konstantinos (2016) “Explaining Corporate Effective Tax Rates Before and During the Financial Crisis: Evidence from Greece”, MPRA Paper, University Library of Munich, Germany, https://mpra.ub.uni-muenchen.de/73787/.
149. Stickney, C. P. & McGee, V. E. (1982) “Effective Corporate Tax Rates: The Effect of Size, Capital Intensity, Leverage, and Other Factors”, Journal of Accounting and Public Policy, Volume 1, Issue 2, Winter 1982, pp. 125-152.
150. Stockmans A., Lybaert N. & Voordeckers W. (2010) “Socioemotional wealth and earnings management in private family firms”, Family Business Review 23(3), pp. 280–294.
151. Stockmans, A., Lybaert, N. & Voordeckers, W. (2013) “The conditional nature of board characteristics in constraining earnings management in private family firms”, Journal of Family Business Strategy, Elsevier, vol. 4(2), pp. 84-92.
152. Sundvik, D. (2016) “Earnings management around Swedish corporate income tax reforms”, International Journal of Accounting, Auditing and Performance Evaluation, Vol. 12(3), pp. 261-286.
153. Sundvik, D. (2017a) “Book-tax conformity and earnings management in response to tax rate cuts”, Journal of International Accounting, Auditing and Taxation, Elsevier, vol. 28(C), pp. 31-42.
154. Sundvik, D. (2017b) “Tax-induced fiscal year extension and earnings management”, Journal of Applied Accounting Research, Vol. 18 No. 3, 2017, pp. 356-374.

155. Tang, T.Y.H. (2006) “Book-Tax Differences, a Proxy for Earnings Management and Tax Management - Empirical Evidence from China”, Working paper, The Australian National University, http://dx.doi.org/10.2139/ssrn.872389.
156. Tang, T. & Firth, M. (2011) “Can book–tax differences capture earnings management and tax Management? Empirical evidence from China”, The International Journal of Accounting, 46 (2011), pp.175–204.
157. Tang, Tanya Y. H. (2020) “A review of tax avoidance in China”, China Journal of Accounting Research, Volume 13, Issue 4, PP. 327-338.
158. Thompson, Samuel B. (2011) “Simple formulas for standard errors that cluster by both firm and time”, Journal of Financial Economics, vol. 99(1), pp.1-10.
159. Tsipouridou, M. & Spathis, C. (2012) “Earnings management and the role of auditors in an unusual IFRS context: The case of Greece”, Journal of International Accounting, Auditing and Taxation, vol. 21(1), pp. 62-78.
160. Tsipouridou, M. & Spathis, C. (2014) “Audit opinion and earnings management: Evidence from Greece”, Accounting Forum, 38:1, pp. 38-54.
161. Watrin, C., Pott, C. & Ullmann, R. (2012) “The effects of book-tax conformity and tax accounting incentives on financial accounting: evidence from public and private limited companies in Germany”, International Journal of Accounting, Auditing and Performance Evaluation, Vol. 8(3), pp. 274-302.
162. Weber P. David (2009) “Do Analysts and Investors Fully Appreciate the Implications of Book-Tax Differences for Future Earnings?”, Contemporary Accounting Research, vol. 26(4), pp.1175-1206.
163. Wong, R.M.K., Lo, A.W.Y. & Firth, M. (2015) “Managing Discretionary Accruals and Book-Tax Differences in Anticipation of Tax Rate Increases: Evidence from China”, Journal of International Financial Management & Accounting 26:2, 188-222.
164. Vander Bauwhede, H., Willekens, M. & Gaeremynck, A. (2003) “Audit firm size, public ownership, and firms’ discretionary accruals management”, The International Journal of Accounting, Elsevier, vol. 38(1), pp. 1-22.
165. Van Tendeloo, B. (2007) “Audit quality and tax-induced earnings management in UK private firms”, Working Papers 2007-004, University of Antwerp, Faculty of Business and Economics, https://repository.uantwerpen.be/docman/irua/9e4fd8/e129d1a8.pdf.
166. Van Tendeloo, B. & Vanstraelen, A. (2008) “Earnings Management and Audit Quality in Europe: Evidence from the Private Client Segment Market”, European Accounting Review, 17:3, pp. 447-469.

167. Xie, H. (2001) “The Mispricing of Abnormal Accruals”, The Accounting Review, Vol 76, No 3, pp. 357-373.
168. Young, S. (1999) “Systematic Measurement Error in the Estimation of Discretionary Accruals: An Evaluation of Alternative Modelling Procedures”, Journal of Business Finance & Accounting, vol. 26 (7&8), pp. 833-862.
169. Zang, A. (2012) “Evidence on the Tradeoff Between Real Manipulation and Accrual Manipulation”, The Accounting Review Vol. 87, No. 2, pp. 675-703.
170. Zimmerman, Jerold L. (1983) “Taxes and firm size”, Journal of Accounting and Economics, Volume 5, pp.119-149.

APPENDIX G

Table 1: SME numbers (derived from European Commission's SBA Fact Sheets 2015-2019)

	2014				2015				2016				2017				2018			
	Number of enterprises		Value added		Number of enterprises		Value added		Number of enterprises		Value added		Number of enterprises		Value added		Number of enterprises		Value added	
	Number	Share	Billion €	Share	Number	Share	Billion €	Share	Number	Share	Billion €	Share	Number	Share	Billion €	Share	Number	Share	Billion €	Share
Micro	669.773	96.7 %	18.0	37.4 %	682.132	96.8 %	17.0	35.9 %	678.816	96.2 %	17.0	34.3 %	807.666	97.3 %	10.9	22.7 %	800.075	97.4%	9.0	17.6%
Small	20.058	2.9 %	10.0	20.9 %	19.631	2.8 %	9.6	20.3 %	23.829	3.4 %	9.5	19.2 %	19.662	2.4 %	9.2	19.0 %	18.958	2.3%	11.8	23.1%
Medium	2.455	0.4 %	8.0	16.6 %	2.576	0.4 %	9.0	18.9 %	2.684	0.4 %	9.8	19.7 %	2.349	0.3 %	10.6	21.9 %	2.176	0.3%	11.7	22.9%
SMEs	692.286	99.9 %	37.0	74.8 %	704.339	99.9	35.6	75.1 %	705.329	99.9 %	36.3	73.2 %	829.677	100.0 %	30.6	63.6 %	821.209	100.0%	32.6	63.5%
Large	400	0.1 %	12.0	25.2 %	397	0.1 %	11.8	24.9 %	388	0.1 %	13.3	26.8 %	376	0.0 %	17.5	36.4 %	331	0.0%	18.7	36.5%
Total	692.686	100.0 %	49.0	100.0 %	704.736	100.0 %	47.4	100.0 %	705.717	100.0 %	49.6	100.0 %	830.053	100.0 %	48.1	100.0 %	821.540	100 0%	51.2	100.0%

Table 2: Entity size criteria set by the new Accounting Directive 2013/34/EU

Entity size	Balance Sheet	Net Turnover	Average number of employees during the financial year
Micro	<€350.000	<€700.000	<10
Small	<€4.000.000	<€8.000.000	<50
Medium	<€20.000.000	<€40.000.000	<250
Large	>€20.000.000	>€40.000.000	>250

APPENDIX H: Variable Names and Definitions

Variable Name	Definition
EM_DN	1 if $\Delta PM_t < 0$, $\Delta ATO_t > 0$ (Based on Jansen et al., 2012)
ΔPM_t	(Operating $Income_t$)/($Sales_t$) – (Operating $Income_{t-1}$)/($Sales_{t-1}$) (Based on Jansen et al., 2012)
ΔATO_t	($Sales_t$/Net Operating $Assets_t$) – ($Sales_{t-1}$/Net Operating $Assets_{t-1}$) (Based on Jansen et al., 2012)
Operating Income	Earnings Before Interest & Taxes
Profit Margin	Earnings Before Interest & Taxes divided by Sales
Net Operating Assets	Operating $Assets_t$ - Operating $Liabilities_t$ (Based on Hirshleifer et al., 2004)
Operating $Assets_t$	Total $Assets_t$ - Cash and Short-Term $Investment_t$ (Based on Hirshleifer et al., 2004)
Operating $Liabilities_t$	Total $Assets_t$ - Short-Term $Debt_t$ - Long-Term $Debt_t$ - Minority $Interest_t$ - Preferred $Stock_t$ - Common $Equity_t$ (Based on Hirshleifer et al., 2004)
BTDs	Pre-Tax Book Income -Taxable Income (Based on Hanlon and Heitzman., 2010)
Tax-Effect BTDs	Book income ∗ statutory tax rate–Taxable income ∗ statutory tax rate (Based on Tang and Firth, 2011)
Pre-Tax Book Income	Earnings Before Taxes
Taxable Income	Current Income Tax Expense/Statutory Tax Rate
ETR_1	Current Income Tax Expense/pre-tax income (Based on Hanlon and Heitzman, 2010)
ETR_2	Current Income Tax Expense /net sales (Based on Buijink et al., 2002)
ETR_3	Current Income Tax Expense /Cash Flow from Operations (Based on Gupta and Newberry, 1997)
Cash Flow from operations	Net Income before extraordinary items and discontinued operations-Total Accruals (Based on Dechow et al., 1995)
Net Income before extraordinary items and discontinued operations	Earnings After Taxes
Total Accruals	(ΔCAt -ΔCLt -ΔCasht +ΔSTDt -Dept) (Based on Dechow et al., 1995)
ΔCA	Change in Current assets (CA_t-CA_{t-1})
ΔCL	Change in Current liabilities (CL_t-CL_{t-1})

APPENDIX H: Variable Names and Definitions (*continued*)

Variable Name	Definition
ΔCash	Change in Cash and cash equivalents ($CASH_t$-$CASH_{t-1}$)
ΔSTD	Change in debt included in current liabilities (STD_t-STD_{t-1})
Dep	Depreciation and amortization expense
ln(sz)	logarithm of the book value of total assets
PER_ACC (Percent Operating Accruals)	TACC/|NI| (Based on Hafzalla et al., 2011)
TACC	Total operating accruals
|NI|	The absolute value of Net Income before extraordinary items and discontinued operations
NEG_PER_ACC	PER_ACC if PER_ACC <0 and 0, otherwise
BOOKLOSS	1 if pre-tax income <= 0 and 0, otherwise (Rego, 2003)
TAXLOSS	1 if current income tax expense <= 0 and 0, otherwise (Rego, 2003)
CFOLOSS	1 if cash-flow from operations <= 0 and 0, otherwise
AUDIT	1 if a company's financial statements are audited and 0, otherwise
LEV	Total debt divided by lagged total assets
PPE	Property, Plant & Equipment divided by lagged total assets
INV	Inventory divided by lagged total assets
INTANG	Intangible assets divided by lagged total assets

CHAPTER 4: Summary, Suggestions for Future Research, and Limitations

This thesis examines both the theoretical and practical implications of Greece's recently implemented accounting framework (Law 4308/2014-Greek Accounting Standards). This thesis specifically examines: i) the degree of similarity and divergence between Greek Accounting Standards and IAS/IFRS, ii) the reasons for Greece's new accounting framework's departure from IAS/IFRS, and iii) whether Greek Small and Medium-sized Businesses engage in tax-induced financial misstatements following the enactment of Law 4308/2014.

Chapter 1 examines the degree to which Greek Accounting Standards are aligned with the IAS/IFRS framework. The motivation for Chapter 1's research purpose is that Greek Accounting Standards not only contain rules referring to the IAS/IFRS framework, but also allow companies to seek guidance within the IAS/IFRS framework.

The study of formal (de jure) accounting harmonization (i.e., the level of harmonization between accounting standards) has occupied the attention of numerous researchers who have sought to quantify the degree of harmonization between national accounting standards and international accounting standards (IFRS/US GAAP).

This study employs Jaccard's similarity coefficient, a measure introduced by Fontes et al. (2005) to determine the degree of harmonization between Greek Accounting Standards and IAS/IFRS Additionally, this study compares key measurement items relevant to Small and Medium-sized Entities (SMEs) under Greek Accounting Standards and IAS/IFRS, eliminating disclosure items and those related to consolidation. As a result, in addition to the measure suggested by Fontes et al. (2005), an expanded version of Peng and Van Der Laan Smith's (2010) list of IAS/IFRS key measurement items is also used.

There are three primary reasons for focusing on accounting provisions applicable to SMEs rather than micro or large companies: To start, despite the fact that micro - enterprises account for the great majority of business entities in Greece, their simplified accounting framework is irreconcilable with the goal of our research; second, large companies are almost certainly publicly traded companies that are required to use IFRS; third, SMEs constitute the backbone of Greece's economy, in terms of value added.

Calculating harmonization scores of specific accounting topics (e.g., inventories, accounting for government grants, etc.) and their associated key measurement item results in an overall harmonization score of 47.58 % between Greek Accounting Standards and IAS/IFRS. Interestingly, the research findings indicate that the observed deviation between Greek Accounting Standards and IAS/IFRS is attributable to the absence of IAS/IFRS measurement

items in the Greek Accounting Standards framework, rather than to diversification between the two accounting frameworks.

Chapter 2 examines whether country-specific factors in Greece shaped the observed deviation of the Greek Accounting Standards (Law 4308/2014) from the IAS/IFRS accounting framework discussed in Chapter 1. This study draws inspiration from Ding et al. (2007) to fulfill the aforementioned research objective.

Ding et al. (2007) develop two unique indexes to measure the absence and divergence of certain IAS accounting items from national accounting standards, respectively, and investigate the effect of country-specific factors on these indexes. Chapter 2 demonstrates, using a modified version of Ding et al.'s (2007) methodology and an aggregate index of innovative country-specific factors (culture, financial orientation, book-tax conformity, governance quality, and economic development level), that the applied country-specific factors affect the absence of specific IAS/IFRS accounting items from the national accounting standards of the EU-sample countries but have no effect on the divergence of the national accounting standards from IAS/IFRS, concerning specific accounting areas.

Greece's bank-based orientation, combined with its high book-tax conformity, distinctive cultural characteristics, mediocre governance quality and low economic development, all contribute to the absence of specific IAS/IFRS accounting measurement items from the framework of Greek Accounting Standards.

Also, the results of additional tests enable useful conclusions to be drawn about the effect of country-specific factors on the development of national accounting standards. The main results remain robust when alternative Absence and Divergence Indexes are used. Further, when countries under examination are members of a non-EU more developed country cluster (e.g., U.S.A., Japan, etc.), country-specific factors affect the divergence of their national accounting standards from IAS/IFRS (i.e., the Divergence Index), rather than the absence of specific IAS/IFRS accounting items from national accounting standards (i.e., the Absence Index).

Moreover, the auditing and accounting enforcement environment is critical to the accounting standards setting process only in countries (e.g., the U.S.A.) where auditing and enforcement bodies are empowered to formulate accounting standards (e.g., SEC). Finally, accounting choices (as measured by the Absence Index for EU nations and the Divergence Index for non-EU developed countries) can exacerbate or mitigate a country's level of tax evasion.

Unlike Chapters 1 and 2, which focus on the theoretical aspects of Greek Accounting Standards adoption, Chapter 3 examines the implications of Greek Accounting Standards adoption at the firm level. Chapter 3 investigates whether Greek SMEs participate in tax-induced financial

misstatement practices between 2016 and 2018, immediately following the enactment of Law 4308/2014 in 2015. We focus on Greek SMEs owing to the scarcity of tax-related studies on private enterprises, particularly in the Greek context.

The investigation of tax-induced financial misstatements is conducted using two previously unexplored measures: Jansen et al.'s (2012) diagnostic and Hafzalla et al.'s (2011) negative percent accruals. These proxies are regressed against four commonly used measures of tax aggressiveness (Total Book-Tax Differences and three versions of Effective Tax Rates).

Apart from the examination of financial misstatements using Jansen et al.'s (2012) and Hafzalla et al.'s (2011) methods, one of the novel aspects of Chapter 3 is the examination of the tax aggressiveness of loss SMEs. Thus, Chapter 3 investigates tax-induced financial misstatements perpetrated by profitable and loss-making Greek SMEs, using two discrete samples ("non-loss"/"loss" samples).

Chapter 3 offers empirical evidence for the proposed financial misstatement measures' usefulness. Jansen et al.'s (2012) metric performs better with the "loss" sample, since it is more effective at spotting Greek loss SMEs as potential tax-motivated downward manipulators than non-loss Greek SMEs. When tax aggressiveness is measured by Book-Tax Differences (BTDs) and ETR_1, Hafzalla et al.'s (2011) negative percent accruals proxy fits both samples equally well. Additionally, the use of Hafzalla et al.'s (2011) negative percent accruals demonstrates that income-decreasing accruals may be a part of Greek loss SMEs' tax planning strategies.

Moreover, Chapter 3 demonstrates that auditing constrains both profitable and loss-making SMEs' tax aggressiveness. Chapter 3 corroborates prior research by reporting an ambiguous effect of company size on tax aggressiveness.

The inclusion of various control variables (Leverage, Property, Plant & Equipment, Inventory, and Intangibles), which have been utilized in previous research, also results in notable conclusions. Specifically, the addition of control variables improves the effectiveness of Jansen et al.'s (2012) diagnostic in identifying profitable Greek SMEs ("non-loss" sample) as potential tax-induced earnings manipulators, without impairing its ability to detect potential tax-induced financial misstatements by loss SMEs. For both the "non-loss" and "loss" samples, leverage has the most consistent relationship with the bulk of the tax aggressiveness proxies, showing that Greek SME with larger amounts of debt pay lower effective tax rates.

Chapter 3 also discusses the outcomes of using Tang and Firth's (2011) Tax-Effect BTDs as a proxy for tax aggressiveness. While the performance of Tax-Effect BTDs in relation to Jansen et al.'s (2012) diagnostic is not optimal, regression results suggest that Jansen et al.'s (2012) and Tang and Firth's (2011) measures may be capable of signaling tax-induced financial

misstatements in Greek SMEs with negative or zero pre-tax income and cash flow from operations.

This thesis makes several contributions. At first, the degree of similarity and divergence between Greece's new national accounting standards and IAS/IFRS is quantified in terms of accounting measurement items. This enables a more nuanced understanding of the differences between the two accounting frameworks and Greece's level of formal accounting harmonization.

Another innovative feature of the present thesis is the use of variables that correspond to country-specific factors in a practical way. The use of these variables is catalytic in the sense that regression results verify prior literature (e.g., Ballas et al., 2010) about the effect of Greece's country-specific factors on Greece's past and present accounting choices.

Additionally, this thesis provides evidence and insights on two critical concerns. Initially, earnings manipulation can be investigated using metrics other than the widely used discretionary accruals models. Also, tax-motivated earnings manipulation of SMEs, while mostly unexplored, should be thoroughly researched.

Due to the exploratory nature of this thesis, certain limitations are existent. Chapter 1 explores differences between key measurement items between Greek Accounting Standards and IAS/IFRS, effective until the 31st of December 2017, excluding disclosure and consolidation items. Thus, Chapter 1 does not fully depict Greece's formal accounting harmonization level, following the enactment of Law 4308/2014. Besides that, the classification of measurement accounting items included in Greek Accounting Standards as conforming to IAS/IFRS involves subjective judgment based on the principle of substance over form.

Concerning Chapter 2, limitations include the EU's and international sample sizes being relatively small, as well as potentially omitted variables. Besides that, prior research (e.g,, Baydoun and Willett, 1995; Papadaki, 2005; Nobes, 2009; Heidhues and Patel, 2011; Nobes, 2018) has disputed Ding et al.'s (2007) data and methodology, as well as several of the country-specific factors (e.g., Hofstede's cultural values, 1984; Gray's cultural accounting framework).

In addition, it should be noted that the Absence and Divergence Indexes for the sample countries, with the exception of Greece, are not updated, and that some of the independent variables (e.g., Book-Tax Conformity and GDP) do not cover the same time period as the dependent variables.

In Chapter 3, both financial misstatement and tax aggressiveness measures are subject to important restrictions. Jansen et al.'s (2012) diagnostic may either misidentify or fail to detect downward earnings management. On the other hand, Hafzalla et al.'s (2011) negative percent accruals could be the result of routine transactions or financial distress, excluding any earnings manipulation. In a similar manner, the applicable tax proxies (BTDs, ETR_1 etc.) have received

widespread criticism in the preceding literature (e.g., Guenther, 2014). Chapter 3 also has limitations due to the limited sample size of SMEs, the short observation time, and possibly omitted variables.

Despite its shortcomings, this thesis lays a solid foundation for future research due to the breadth and diversity of the subjects covered. The degree of harmonization between Greek Accounting Standards and IAS/IFRS might be further investigated by including disclosure and consolidation items as well those IFRS not covered in our research (i.e., IFRS 9, 15, 16, and 17).

Similarly, additional research might be undertaken by developing Absence and Divergence Indexes for all EU member states in order to ascertain the extent of formal harmonization at the EU level following the transposition of the new EU Accounting Directive into national law. Also, the degree of international formal accounting harmonization could be assessed by developing Absence and Divergence Indexes for a global sample of countries. An intriguing line of research would be to explore a broader collection of country-specific factors than those considered in this thesis in order to gain a better understanding of the factors that contribute to the differences between national and international accounting standards.

Finally, the extent to which SMEs engage in tax-related financial misstatements could be investigated at the national and EU levels. On a national level, Jansen et al.'s (2012) diagnostic and Hafzalla et al.'s (2011) negative percent accruals could be applied in combination with more advanced tax proxies, such as Badertscher et al.'s (2019). The same research could be conducted at the European level, using a larger sample of EU SMEs, to explore the tax implications of the new European Accounting Directive.

SOURCES

1. Badertscher, B. A., Katz, S. P., Rego, S. O. & Wilson, R. J. (2019) "Conforming Tax Avoidance and Capital Market Pressure", The Accounting Review, Vol 94 (6), pp. 1–30.

2. Ballas, Apostolos A., Skoutela, Despina & Tzovas, Christos A. (2010) "The relevance of IFRS to an emerging market: evidence from Greece", Managerial Finance, vol. 36(11), pp. 931-948.

3. Baydoun, N. & Willett, R. (1995) "Cultural Relevance of Western Accounting Systems to Developing Countries", Abacus, 31: 67-92.

4. Ding, Yuan, Hope, Ole-Kristian, Jeanjean, Thomas & Stolowy, Hervé (2007) "Differences between domestic accounting standards and IAS: Measurement, determinants and implications", Journal of Accounting and Public Policy, Volume 26, Issue 1, pp.1-38.

5. Fontes, A., Rodrigues, L.L., Craig, R. (2005) "Measuring convergence of National Accounting Standards with International Financial Reporting Standards", Accounting Forum, Volume 29, Issue 4, pp. 415-436.

6. Gray, S.J. (1988) "Towards a Theory of Cultural Influence on the Development of Accounting Systems Internationally", Abacus, 24: 1-15.

7. Guenther, David A. (2014) "Measuring Corporate Tax Avoidance: Effective Tax Rates and Book-Tax Differences", https://ssrn.com/abstract=2478952.

8. Hafzalla, N., Lundholn, R. &Van Winkle, M. E. (2011) "Percent Accruals", The Accounting Review, Vol 86, No1, 2011, pp. 209-236.

9. Heidhues, Eva & Patel, Chris (2011) "A critique of Gray's framework on accounting values using Germany as a case study", Critical Perspectives on Accounting, vol. 22(3), pp. 273-287.

10. Hofstede, Geert (1984) "Cultural dimensions in management and planning", Asian Pacific Journal of Management 1, pp. 81–99.

11. Jansen, I. P., Ramnath, S. & Yohn, T. L. (2012) "A Diagnostic for Earnings Management Using Changes in Asset Turnover and Profit Margin", Contemporary Accounting Research, vol. 29(1), pp. 221-251.

12. Nobes, Christopher W. (2009) "Observations on measuring the differences between domestic accounting standards and IAS", Journal of Accounting and Public Policy, vol. 28(2), pp. 148-153.

13. Nobes, Christopher (2018) "Lessons from misclassification in international accounting", The British Accounting Review, vol. 50(3), pp. 239-254.

14. Papadaki, Afroditi (2005) "Discussion of "Why do national GAAP differ from IAS? The role of culture", The International Journal of Accounting, vol. 40(4), pp. 351-358

15. Peng, S & van der Laan Smith, J. (2010) “Chinese GAAP and IFRS: An analysis of the convergence process”, Journal of International Accounting, Auditing and Taxation, vol. 19(1), pp. 16-34.
16. Tang, T., & Firth, M. (2011) “Can book–tax differences capture earnings management and tax Management? Empirical evidence from China”, The International Journal of Accounting, 46 (2011), pp.175–204.