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“Testing for Bank Opaqueness Using Analysts’ Forecasts”



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ABSTRACT

Developing two proxy measures based on analysts' earnings per share forecasts in the period 1999- 2008, I test for bank opaqueness in the United States. Although, the general belief suggests that banking firms are informationally opaque, the results, in overall, are not consistent with expectations. Banks do not seem to exhibit a high degree of opaqueness, though there is evidence that this degree increased in 2007 and 2008, years in which the American economy faced a serious depression. In contrast, analysts seem to face greater difficulties in evaluating the financial position of firms included in the majority of the other U.S. industries.

Keywords: bank opaqueness, asymmetric information, banking strategies, analysts' forecasts.

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1. Introduction

Banks play an important role in today's financial markets. Their importance stems from their specialization in underwriting risk and providing financing to people and corporations through debt instruments that cannot be traded in public markets. Their comparative advantage in this activity results mainly from expertise and scale economies in information production. Moreover, banks are better in monitoring and imposing restrictive covenants to their borrowers. However, banking firms are regarded as being informationally opaque relative to other nonbanking firms. Banks managers may possess private information over the quality of their bank's loan portfolio and the effectiveness of its monitoring efforts. In addition, banks are considered to enjoy greater ability in smoothing- out earnings and "cooking" their financial statements and, recently, the extended use of securitization has rendered bank balance sheets even more opaque.

Of course, information asymmetry between insiders and outsiders exists in all firms. In an unregulated environment, market- based mechanisms are thought to be helpful in solving these information problems. However, market- based mechanisms may not be sufficient for the banking industry. Information asymmetry may be greater between bank managers and bank creditors, investors and depositors. In addition, problems in the banking system, if severe enough, may create major disruptions in the financial system. Thus, governments are particularly interested in the well-functioning of the banking system and banks are often subject to government regulation and supervision.

At the same time, contemporary banks are much more different in terms of strategy orientation than banks operating before the 1990s, due to deregulation, technological changes and financial innovation. Nowadays, banks may engage in a large variety of business strategies, which can vary between traditional banking activities and nontraditional banking activities. The implications of the newly emerged banking strategies on bank's financial performance are yet to be discovered. However, recent studies, contrary to the perception of many economists, provide evidence that in the United States nontraditional banking activities and the consequent increasing reliance on fee income, may contribute to banks' revenue volatility. This may suggest a larger degree of bank opaqueness and greater difficulty in assessing banking value.

Nonetheless, if the degree of bank opaqueness is relatively small, market participants may rely on market mechanisms to discipline banks and bank regulators

will be able to reduce banking supervision. Conversely, if banking assets are more difficult to be valued than nonbanking assets, then government regulation and supervision is essential. Yet, comprehending bank opacity may help bank managers and regulators to solve this opacity.

The purpose of this paper is to test for bank opacity using analysts' forecasts. To my knowledge, financial literature lacks of sufficient empirical work occupied with whether banks are relatively opaque. However, Flannery, Kwan, and Nimalendran (1998), in their effort to determine whether banks exhibit more or less evidence of asset opacity than similar- sized nonbanking firms, concluded that analysts are not in the position to predict large banks' earnings per share with greater accuracy than nonbanks of similar size, but are able to produce more reliable forecasts about small banks' earnings than about small nonbanks' earnings. Moreover, they found that asset composition does have an effect on banks' stock spread, trading volume and return volatility. In addition, Morgan (1997), contending that harder- to- value firms are more likely to have split bond ratings, found that banking firms are more likely to carry split ratings than nonfinancial firms and the probability of a split rating varies with the bank's asset composition. Nevertheless, intuition suggests that analysts are able to make better estimations about nonbanking firms' financial statements' data than for banking firms.

In this paper, to investigate for the degree of bank opacity, I developed two methods based on analysts' forecasts. With the first method, I estimated the forecast error of the total earnings per share of all industries in the American economy for the period 1999- 2008. The results are not consistent with expectations. Banks exhibit a lower forecast error than the majority of the other industries. Applying the same methodology in the period 1999- 2006, the forecast error of banks declines and still remains relatively lower than most other industries. With the second method, I estimated the mean of earnings per share forecasts' weighted standard deviation again for all U.S. industries. Using data from 1999 to 2008, the results are consistent with expectations. Banks have one of the highest mean of earnings per share forecasts' weighted standard deviation. However, if the sample data is constrained in the years between 1999 and 2006, banks exhibit a lower mean of earnings per share forecasts' weighted standard deviation relative to most U.S. industries.

Certainly, before evaluating these results, we must take into consideration the difficulties appeared when using quantitative measures to proxy for qualitative items and moreover, the specific drawbacks of measures based on analysts' forecasts. However, in overall, the results indicate a relatively low degree of bank opacity,

implying a lower need of bank supervision or an already established effective regulatory and supervisory system in the United States.

The rest of the paper is organized as follows. Chapter 2 reviews the literature regarding financial intermediation theory and the significant role of asymmetric information in financial transactions. Chapter 3 presents the difficulties emerged when valuing banking assets. Chapter 4 discusses the relation between financial liberalization, government regulations and banking strategies. Chapter 5 describes the financial ratios most used when evaluating a bank's financial position. Chapter 6 reviews the literature regarding proxy measures of asymmetric information and bank opaqueness. Chapter 7 describes the data sources and the methodology followed and presents the empirical results. Chapter 8 summarizes the results and makes the final concluding remarks.

2. Financial Intermediation Theory.

2.1 Introduction.

Financial intermediaries and financial markets' main role is to provide a mechanism by which funds are channeled to their most productive opportunities. A bank is a financial intermediary whose main activity is to provide deposits and loans that is, collect funds from units in surplus and allocate those funds to people and companies in deficit. Thus, financial intermediaries increase economic efficiency by ensuring a better allocation of resources. The borrowing- lending process can take the form of direct finance, that is, borrowers obtain funds directly from lenders in financial markets. However, direct finance faces difficulties and expenses in matching the needs of lenders and borrowers.

Lenders seek for safety, which includes the minimization of the risk of default of borrowers and of the assets dropping in value, and liquidity, which enables lenders to convert an asset more easily into cash. Thus, lenders, also known as surplus units, want to lend with high return and for short time periods. In contrast, borrowers, the deficit units, require funds at a particular specified date and for a specified period of time and thus, want to borrow cheap for long time periods. Financial intermediaries reconcile the needs and objectives of lenders and borrowers by providing safety to lenders and liquidity to savers and by minimizing transaction and information costs. In order to do so, financial intermediaries and in particular banks, perform three specific transformations. However, before I proceed to the transformations that banks perform and discuss further theoretical issues on financial intermediation, it is necessary to have a look at the structure of the financial system. The structure of the financial system highlights the importance of asymmetric information in financial markets.

2.2 The Structure of the Financial System.

2.2.1 Puzzles of the Financial System.

The financial system is a complex structure, in which funds from people who save are channeled to people with productive investment opportunities. It includes

many different types of institutions, like banks and insurance companies; all regulated by government, and features the follow eight basic *puzzles*¹:

1. *Stocks are not the most important source of external financing for businesses.* Unlike the belief of many people, stocks are not the most important source of financing of corporations. In contrast, many corporations started to buy back a large number of their own shares from private investors.

2. *Issuing marketable debt and equity securities is not the primary way of financing for businesses.* Throughout the world, bonds and stocks do not constitute the primary source of financing the activities of a company.

3. *Indirect finance, which involves the activities of financial intermediaries, is many times more important relative to direct finance, in which businesses raise funds directly from lenders.* In the United States, where marketable securities are more important than in other countries, indirect finance still provides for more than the two-third of external funding of corporations.

4. *Banks are the most important source of external funds for businesses.* Bank loans is the primary source of external financing of businesses, especially in developing countries and in bank- based systems, such as Germany and France.

5. *The financial system is heavily regulated.* Governments pose regulations to the financial system because they are particularly interested in promoting its efficiency.

6. *Only large firms have access to securities markets.* Smaller businesses are not able to raise funds through issuing marketable securities. Thus, they rely on banks to raise funds.

7. *Collateral is a prevalent feature in debt contracts.* Collateral is the dominant form in the majority of loan types (mortgages, business loans, auto loans etc.).

8. *Debt contracts are complicated legal documents that restrict the borrower's behavior.* In all countries, debt contracts include a set of provisions, called restrictive covenants, which are designed to forbid the borrower to engage in undesirable activities.

The above stated puzzles can be understood, if we consider the substantial transaction and information costs that financial markets have². These costs, which

¹ (Frederic S. Mischkin, 2000)

² Indeed, during the '70s and the '80s, empirical research revealed that financial markets are not fully efficient and neoclassical economic models, which suggested financial markets' optimal funds allocation, do not hold in the real world due to transaction and information costs.

restrain small savers and borrowers out of the financial markets, include the costs of searching for a counterparty in a financial transaction; the costs of gathering information about the counterparty and negotiating with him; the costs of monitoring the counterparty; and finally, the enforcement costs in case the counterparty fails to fulfill its commitments. However, financial intermediaries can reduce these costs. Financial intermediaries bundle the funds of many investors together and take advantage of economies of scale and thereby, achieve to maintain a low transaction cost level, despite the increased size of investments. Hence, the significance of financial intermediaries and indirect finance can, in part, be explained. Of course, financial intermediation creates additional costs to lenders and borrowers and is necessary that the benefits from intermediation outweigh its costs.

2.2.2 Asymmetric Information.

To analyze further why transaction and information costs exist in financial markets and why the financial system is structured the way it is structured, we have to consider asymmetric (or private) information. Asymmetric information suggests that one party has insufficient knowledge about the other party in a transaction and makes difficult for the two parties to do business together. Thus, asymmetric information is a central issue in financial transactions and arrangements, as full and complete information is not available to all interested parties.

According to when asymmetric information occurs, it takes two forms: adverse selection and moral hazard. Adverse selection occurs before the transaction occurs and implies that bad credits are the ones most likely to seek loans, i.e., as loan prices increase, only the most risky borrowers will be able to accept a loan at a very high price. Moral hazard occurs after the transaction occurs and stems from the lender's risk that the borrower will engage in undesirable activities making the repayment of the loan more unlikely. Both problems are key features in financial markets and make lenders to be less willing to give loans.

Adverse selection explains credit rationing, that is, the limitation of the amount that any borrower can borrow and is present in equity and debt markets, as bad firms are more eager to borrow than good firms. Good firms will not be willing to sell their stocks in lower prices and investors will not want to buy stocks from bad firms. Thus,

equity and debt markets may not work efficiently³. The above outlines that stocks and marketable securities are not a significant source of financing businesses.

To deal with the adverse selection problem lenders need to screen their potential borrowers and identify the high risk ones. Thus, the private production and sale of information about corporations' activities and their financial data becomes essential in the lending- borrowing process. Private companies have the expertise in collecting, analyzing and producing information over firms' financial position and investment activities. However, private production of information does not eliminate adverse selection totally because of the so- called "free- rider problem". The free-rider problem suggests that there are investors that want to exploit the produced information without cost. As a result, fewer people are willing to pay for that information and less information is produced in the marketplace.

Another way to deal with adverse selection is government regulation. Government regulation is posed in order to increase information about corporations and obligates them to follow the set accounting rules and disclosure standards. The latter explains why the financial system is among the most heavily regulated sectors. However, government regulation does not eliminate totally the adverse selection problem, as firms still have more information than investors.

The use of collateral (property promised to lender if borrower defaults) in debt contracts and high net worth (high difference between one firm's assets and its liabilities) also constitute tools that help to deal with adverse selection. Collateral reduces the lender's losses in the event of borrower's default and hence, lenders are more eager to make loans secured by collateral. This explains the high importance of collateral in households' and businesses' debt. High net worth has a similar function with collateral. It works as a safety net in case the borrowed firm has negative profits.

Finally, a financial intermediary, such as a bank, lessens the adverse selection problem by producing private information without facing the free- rider problem. Banks provide private loans that are not traded and other investors cannot take

³ As we shall see later on this chapter, in order for equity and securities markets to work well, it's highly important investors get substantial information about the issuers of securities. Disclosure laws have the purpose of enforcing securities' issuers to public true facts about their business or be penalized otherwise. Outside accounting firms are responsible to audit and certify over corporations' financial results and credit rating agencies rate the prospects of issuing companies and country's sovereign risk. Finally, stock analysts study thoroughly firms' financial data and financial press public daily economic updates.

advantage of the information generated by banks. The above statement highlights the importance of indirect finance and of banks in financing businesses.

In addition, the analysis of adverse selection explains why only large corporations have access to securities markets. The better known a corporation is, the more information about its activities is available in the marketplace and thus, it's easier to investors to evaluate its quality.

Moral hazard, as stated before, occurs after the transaction has taken place and is present when one party has incentives to hide information and engage in undesirable activities from the other party's point of view. Moral hazard affects the choice between debt and equity contracts. Equity contracts are affected by the principal- agent problem, a particular type of moral hazard. The principal agent problem refers to the situation that managers (agents) may act in their interest, rather than in the interests of the shareholders (principals). This problem arises because the agent has superior information and expertise and cannot be monitored without cost.

A tool to help solve the principal- agent problem is monitoring. Monitoring is a process that has the goal to investigate whether managers engage in undesirable activities. Hence, it is important for shareholders to check frequently on what the management is doing. Other tools include the use of debt contracts, which explains further the less frequent use of equity contract in capital raising and, as in the case of adverse selection, government regulation towards the increase of information and financial intermediation.

In debt contracts moral hazard exists due to borrowers' willingness to take on risky investments. A tool to help solve the moral hazard problem is net worth. Net worth makes the borrower to behave in a way desirable by the lender and thereby, aligns both counterparties' incentives. Creditors can be further protected by holding short- term debt. They can also be protected by using restrictive covenants, which encourage desirable behaviour and hence, points out the reasons why debt contracts are complicated legal documents. However, restrictive covenants require be monitored and enforced to be meaningful.

Furthermore, financial intermediation helps to solve moral hazard problems. Once more, financial intermediaries and in particular banks, may avoid the free- rider problem by providing no trading loans and thus, enjoy the benefits of monitoring and enforcement of restrictive covenants.

Increases in adverse selection and moral hazard problems can create major disruptions in financial markets, called financial crises. Four factors can set off a financial crisis: increases in interest rates, increases in uncertainty, asset market

effects on balance sheets and problems in the banking sector. Financial crises are characterized by sharp declines in investment, asset prices and corporations' net worth and lending. They are also characterized by deterioration of corporations' balance sheets, bankruptcy and multiple bank failures, a sequence named bank panic. Thus, financial crises lead to inability of financial markets to function efficiently and as a result aggregate economic activity contracts sharply.

2.3 Financial Intermediaries.

The role of screener and monitor that are required to cope with the problems of adverse selection and moral hazard cannot be served by individual investors due to high costs. Hence, this duty is undertaken by financial intermediaries and in particular banks which, as we saw, arise for that purpose and specialize in information processing, contract enforcement and cost minimization. Banks reduce transaction costs by exploiting scale and scope economies. An economy of scale refers to the decrease of transaction and information costs, as the volume of transactions increases and as the size of a bank grows. Banks, through the relatively newly developed transaction technologies, are able to deal efficiently with the risk of diversification and monitor better their customers. Economies of scope refer to the decrease of costs as common inputs, such as capital and labor, are shared in the production process of more than one product⁴.

In addition to the above, banks overcome adverse selection and moral hazard problems through entering a relational contract. Relationship banking highlights the informational benefits that banks achieve by developing close and long term relationships with borrowers. Such relationships improve the information flow between the bank and the borrower and thereby, are beneficial for both parties⁵.

However, asymmetric information exists on the side of depositors as well. Banks' portfolios cannot be easily assessed, as savers cannot easily confirm their quality. Two mechanisms though, limit bankers' incentives to misbehave: market-based discipline and regulatory discipline. The point of market-based discipline is fear of bank runs, that is, the simultaneous withdrawal of all deposits when negative

⁴ However, literature indicates that economies of scope are difficult to identify and measure.

⁵ However, in recent years, transaction banking, where banks act as "brokers" and there is no relationship between the parties, has gained great significance. A modern example of transaction banking is the process of securitization. I discuss the recently appeared banking activities and their implications in chapter 4.

rumors spread about a bank's capacity to pay depositors, which tends to keep banks from taking excessive risk. Regulatory discipline refers to the role of government itself as a screener and monitor of banks. This role becomes vivid through prudential regulations, such as capital requirements, that banks need to follow, but often fails to be effective.

Institutional investors, such as insurance companies and private equity funds, can also perform screening and monitoring functions. The rising shares of their financial assets lead to falling costs of public equity offerings and growth of private equity markets. This is possible because institutional investors buy in large quantities and thus, reduce information costs. Moreover, they work together with investment banks, making the market more effective and they provide protection against management's abuses⁶.

2.4 Transformations that Banks Perform.

In order to reconcile the needs and objectives of lenders and borrowers, banks perform three specific transformations: size transformation, maturity transformation and risk transformation⁷. Size transformation refers to the repackaging of small- size deposits into larger size loans. In general, savers are willing to lend smaller amounts of money than the amounts required by borrowers. Banks, due to economies of scale, enjoy access to a larger number of depositors than the individual borrower and thus, they are able to transform relatively small deposits into large loans.

Maturity transformation refers to converting short- term deposits (liabilities) into long- term loans (assets) and hence, banks are said to be "borrowing short and lending long". This mismatch, though, can create problem in terms of liquidity risk to the bank.

Risk transformation refers to the ability of banks to minimize risk of individual loans. Individual borrowers carry a risk of default, that is, the probability that they will not be able to repay the borrowed amount. Savers want to minimize that risk and

⁶ However, the need to monitor management and the large size of institutional investors' holdings, which are able to influence the policies of the firm in which they invest, has given rise to proper corporate governance issues. In short, models of corporate governance include state ownership, family ownership, bank- centered control and market- based control by dispersed shareholders.

⁷ (Barbara Casu, Claudia Girardone, Philip Molyneux, 2006)

prefer their money to be safe. Banks are able to provide safety via diversification, pooling risks, screening and monitoring borrowers and making loan loss provisions.

2.5 Theories on the Existence of Financial Intermediation.

There are five theories that explain why financial intermediaries and banks exist⁸. The first relates to delegated monitoring, which points out the role of banks as “monitors” of borrowers. Depositors delegate banks (which have expertise and enjoy economies of scale, greater diversification and thereby, cost reduction possibilities) the task of monitoring. Depositors would find it costly to undertake this activity alone.

The second theory relates to information production. Individual lenders could bear substantial search costs if they were to seek out borrowers directly. Banks build up information about their borrowers and hence, become experts in information processing and information cost decreasing through repeated dealings with the borrower.

The third theory relates to liquidity transformation and highlights banks' ability to finance illiquid and relatively high risk assets (loans) with liquid and low risk assets (deposits). Unlike depositors who hold relatively undiversified portfolios, banks are capable to hold diversified portfolios and thus, convert liquid liabilities to illiquid assets efficiently.

The fourth theory relates to consumption smoothing. This theory suggests that banks provide liquid assets, via lending, to satisfy uncertain expenditure patterns.

The fifth and last theory, which is recently developed, relates to commitment mechanisms and refers to the disciplinary role that demand deposits have on bankers. According to this theory, the changes in the supply and demand of demand deposits discipline banks to behave prudently and avoid excess risk taking.

2.6 Benefits of Financial Intermediation.

The significance of financial intermediation becomes more obvious if we consider the benefits to lenders, to borrowers and to society as a whole⁹. In short, the benefits to lenders include greater liquidity, risk reduction, possibility to trade

⁸ (Barbara Casu, Claudia Girardone, Philip Molyneux, 2006)

⁹ (Barbara Casu, Claudia Girardone, Philip Molyneux, 2006)

marketable securities issued by banks, reduction in transaction costs and simplification of the lending decision.

The benefits to borrowers include availability of long term loans, availability of greater amounts to be lent, reduction in transaction costs, lower interest rates and possibility to acquire loans when required.

The benefits to society as a whole include more efficient utilization of funds, higher level of borrowing and lending and improvement in the availability of funds to higher- risk ventures, which are considered to contribute significantly in economic growth.

3. The Value of a Bank¹⁰.

The value or net worth of a bank is the difference between the value of its assets and its debt liabilities. The assets of a bank, which are fixed in nominal and indexed terms, include securities and mainly, loans to businesses, households and government. Its liabilities, which are usually fixed in nominal terms, include securities issued by the bank and deposits. Since, there is always a probability that borrowers will not be able to serve their loans even in normal times, it is difficult to evaluate a bank's assets and consequently, its net worth. Uncertainty in evaluating banks' liabilities also occurs, but to a smaller extent and valuation becomes more problematic during depressions and in developing economies. Of course, valuation uncertainty should be regarded as a normal and acceptable property when accounting concepts are applied in a consistent and fair way. Similar to non-financial firms, which depreciate the value of their tangible assets, banks should classify their loans and create a loan-loss reserve, to cope with the decrease of net income and net worth, as loans default. Thereby, banks keep their capital intact in order to continue to generate income in the future.

There are four methods of valuation of assets, including loans, used in financial statements: historical cost or book value, which represents the price paid when the asset was acquired; current cost or market value, which represents the price that would be paid if acquired today; realizable value, which represents the revenue obtained by selling the asset in an orderly disposal; and present value, which represents the net present discounted value of the asset's future cash flows. The choice between these methods is a result of businesses' own preferences and their country's accounting rules and regulations, as banks supervisors issue accounting regulations that may override the methods that banks follow.

Some businesses, especially those which operate in a noninflationary environment and employ heavy fixed equipment, use book values to evaluate their assets. In normal times, also banks normally use book value to evaluate their loans and deposits. To other financial institutions that trade in volatile markets, such as investment banks, it is more appropriate to assess their investments using current values, which however, may be problematic in developing economies. In regard to banks, as interest rates affect loans and deposits, the largest items on a bank's balance sheet, and as interest rates change daily, using current values to evaluate

¹⁰ (Carl- Johan Lindgren, G. Garcia, Matthew I. Sall, 1996)

loans and deposits would not be applicable and permanent revaluation would be impracticable. Thus, proposals suggesting that banking institutions value their financial position with current values were not adopted. In practice, historical cost is used to value loans and deposits and market values are more meaningful in the evaluation process of traded securities.

To keep loan valuations contemporary, banks should employ depreciated historical cost when valuing loans and reduce loans' principal value in a way to reflect future cash flows. Thus, banks, as stated before, should classify their loans, according to this likelihood of default and size of expected loss and make provisions (loan-loss reserves) against impaired loans by reducing their principal value by the expected extent of default. Supervisors require banks to make specific provisions against impaired loans. Provisioning can take place either as in the German system, that is, by reducing directly the asset and the capital side of the bank's balance sheet or as in the English and American system, that is, by partly writing down an allowance for loan and lease losses that is treated as a balance sheet's contra asset. General provisioning also is required for the current loan portfolio of a bank and is estimated according to historical loss data for each category of loans. In this case, the value of the loan portfolio is left unadjusted on the balance sheet. The whole process keeps a bank's capital intact and does not overstate net income, which results to lower taxes and dividends. In addition, banks should not continue to accrue interest on loans that become nonperforming.

Although, securities that a bank issues and those that it holds, can be evaluated using market values, bank supervisors prefer book values, as legal obligations and claims on securities remain unchanged. If a bank doesn't face the possibility of bankruptcy, it is preferable to assess its securities using book values. A non-problematic bank will finally have to repay the face value of its bonds. Using market values just offers additional information to the managers of the bank and is appropriate in cases of purchase or liquidation. Conversely, the concept in evaluating securities that a bank holds is not similar. The evaluation method of securities appearing on the left side of the balance sheet depends on the purpose of their purchase. If a bank intends to hold them up to maturity, they should be evaluated at historical cost. If the bank intends to sell them before maturity and keep them as part of its trading portfolio, market values are more relevant. In the latter case, the adjustment in value has a direct impact on the bank's income statement. The accounting authorities' role is to set rules applicable in each case. Moreover, market values, as for securities issued by the bank, are more relevant in case of purchase or

liquidation of the bank or for generating additional information to managers. The evaluation process though, becomes more difficult if we consider asymmetric information. That implies that borrowers know more about their condition and might try to deceive the bank, turning repayment of their loans questionable, despite banks carefully evaluate their borrowers' condition before making a loan and monitor borrowers afterward.

Evaluation of off- balance sheet items also, can be proved difficult. Despite that off- balance sheet items, which can be very large, generate future income or cause losses to banks and businesses and despite the long effort of the Basel Committee to value them, only a rough approach has been realized so far in their valuation.

In addition to the above, valuation of a bank's assets and liabilities is affected by inflation and volatile market conditions. During inflationary periods, the depreciated book value of fixed assets tends to understate the market value of existing assets and their replacement costs. Similarly, a bank's general reserve may fail to keep up with inflation. Moreover, in an inflationary environment, the purchasing power of financial assets diminishes, unless interest rates increase, and collateral loses its marketable value, making full recovery of a defaulted loan doubtful and credit evaluation difficult. In volatile economies, depreciating book values can be proved misleading, market values meaningless or even unavailable and present and realizable values should be reassessed. These changes influence the assets of businesses and thus, result in uncertainty over their future prospects and ability to stay in business. Consequently, banks are unable to value their loan portfolio and create the adequate loan- loss reserve, which may lead banks to failure.

Depreciated book values and market values (where they are applicable) are usually adequate for strong, healthy banks operating in a stable economic environment. Realizable values or present values are more relevant when the bank's future is in doubt. Book values are not appropriate in such a case and if market values are not available, a better estimate of the bank's assets if sold can be obtained by using realizable or present values. In case of outright bank distress, assets' values should be estimated as ranges to express the degree of uncertainty. Also, difficulties in valuing banks' assets encourage bank managers to disguise the deteriorating state of their banks by continuing to book interest due but not received. Especially in inflationary and volatile environments, where the real value of capital and reserves depreciates and thus, the probability of bankruptcy is higher, bank managers are eager to avoid disciplinary action by keeping uncollected loans unclassified and not making the adequate provisions. Such policies allow banks to

pay higher taxes and dividends in accordance with the desires of tax regulators and owners.

From the above discussion is quite clear that on-site inspections of banks' must take place regularly. Bank managers are expected to prepare "true- and- fair" financial statements. Internal auditors have the task to check on managers' activities and external auditors are legitimized to assess banks' financial statements, check if management has taken advantage of the flexibility of the valuation rules and conclude over the genuineness and compliance with the accounting rules and state regulations of the financial statements and disclosure standards.

4. Financial Liberalization and Banking Strategies.

4.1 Introduction.

Banks make money in many different ways. Some banks adopt traditional banking strategies, collecting funds from various depositors in return for an interest payment and earning a profit by transferring those funds to lenders at higher interest rates. In addition, these banks earn money by providing traditional banking services, such as cash management and deposit account services. Other banks adopt nontraditional strategies, collecting fewer deposits and providing certain types of loans, such as credit cards and mortgages¹¹. These banks earn a substantial amount of money by charging fees on securitizing and servicing these loans and by offering nontraditional banking services, which include, among other, investment banking services, securities brokerage services and underwriting services.

Thus, banks may engage in traditional and nontraditional banking activities. Between these two edges of banking activity lies a variety of business strategies, which emerged, as we shall see, due to deregulation, advances in technology and financial innovation. Moreover, unlike the expectations of many economists, the amount of noninterest income generated from traditional and especially, nontraditional banking services has also increased substantially¹². Deregulation, new technologies and financial novelty account for this shift too. Nevertheless, academic research is not yet truly occupied with these shifts and their impact on banks' profitability, riskiness and viability, but there is growing evidence that the diversity of business strategies and the larger portion of noninterest income in total operating income entail significant implications for banks, which we will try to analyze in this chapter.

Hence, literature review will focus on banking strategies followed in the United States, as the empirical analysis also examines the American market. However, before I analyze what caused the emergence of new banking strategies and the underlying consequences on banks' financial performance, we discuss the worldwide

¹¹ The banks that offer certain types of loans exist mainly in the United States.

¹² In the United States, in the last twenty five years, the amount of noninterest income generated from both traditional and nontraditional banking services has more than doubled and accounts for nearly half of all operating income.

move from financial repression towards privatization, financial development and liberalization.

From the early 1970s, governments began gradually to remove exchange controls and restrictions on cross border bank activities, liberalize capital movements and favor international cooperation. Moreover, the economic environment promoted the reduction of distinctions between financial institutions and the creation of financial products that combine equity, debt and insurance. These tendencies resulted from inefficiencies of public intervention in finance and the belief that financial liberalization enhances economic growth. As public regulations distort the effective allocation of funds in the economy, supervisors adopt a more liberal approach and try to establish the proper incentives and intervene only when markets operate inefficiently, in a way that imitates market discipline¹³. In addition, recent financial crises helped free banking arguments to emerge¹⁴. Many observers questioned the very need of bank supervision and argued that the benefits of regulation in terms of the safety and the soundness of the banking system are outweighed by the costs to economic agents, savers and taxpayers. Thus, economic thinking tilted towards a less stringent and more market friendly approach, advocated a free banking environment, which created the preconditions for the changes in the way banks operate, and pointed the importance of financial liberalization as part of the development progress. And indissolubly related to financial liberalization and a healthy financial system is the existence of an efficient legal system. I discuss issues on legal foundations in this chapter too.

¹³ There are cases in which the emergence of a market is not feasible by private counterparties due to market imperfections and lack of cooperation. In such cases, regulators are required to act as market creators and introduce the necessary infrastructures.

¹⁴ Concurrently, the growth of an international financial market highlighted the need to supervise banks' cross border activities. The Basel Committee, encouraged by this need, tried to impose international banking supervisory standards. The Committee adopted a market friendly approach, harmonizing the different supervisory foundations in the minimal way and taking into consideration the opinions of market participants. Its primary tasks include effective supervision on all banks, capital adequacy and market discipline enhancement. In addition, the Basel Concordat, in order to ensure that no banks escape effective supervision, developed the concept of consolidated supervision. Consolidated supervision refers to the close cooperation between two international banking supervisory bodies, the host- country and the home- country authority and treats a banking group as a single entity. Of course, due to recent financial crises, there are arguments against, as well as in favor of regulation on financial intermediaries. Nevertheless, international collaboration on banks' supervision has operated in a market friendly framework and is considered to have positive results.

4.2 Financial Repression and Financial Development.

The term “Emerging financial markets (EFMs)” refers to economies that are moving from financial repression to financial development and implies the transition from government domination towards liberalization and privatization, a trend of the entire world economy in the 1990s. The attempt of freeing the financial system from governmental power is a long-lasting process and requires the creation of political democracy.

The main role of governments is to ensure public safety and act in the principle of public happiness. For that reason they need to monopolize the use of force. But, rulers tend to abuse their power in favor of their own interests rather than the interests of society. To avoid the abuse of power, laws enforceable to everyone, including government, that protect public interests, must be established and democratic procedures must be introduced. Surely, government intervention can favor financial markets' effectiveness and economic growth. However, it often favors particular industries or firms, resulting in slower economic growth and highlighting the necessity of separation between business and government.

The effectiveness of the financial system depends also on the effectiveness of financial intermediaries. But, financial intermediaries require strong state institutional foundations to operate effectively. In particular, the foundations of the financial system include a legal base that protects the rights of counterparties in a transaction; information production, which can be enhanced by state disclosure rules; a strong currency, which favors investments; limitation of taxation; and prudential regulation and supervision of the financial sector.

Moreover, governments repress their financial system in six distinct ways. By imposing interest rate ceilings on bank deposits and high bank reserve requirements and by lending to industry and directing bank credit, which decrease the quantity of loans outstanding and reduce interest rates offered to savers, especially in inflationary periods; by owning banks and/ or participating in the management of the banking sector, which results in insufficient allocation of funds; by restricting the entry into the financial system, especially to foreigners, which constrains competition and the effectiveness of the financial industry; and by restricting international capital flows, which makes the local market less attractive and thus, be relatively short of liquidity.

There are several tools we can use to measure the level of financial repression or development. In particular, reserve ratios are of the easiest tools to gauge, as we

simply divide reserves on bank deposit by bank deposits. Not surprisingly, industrial countries have lower reserve ratios than EFMs. Real interest rates, which are difficult to obtain, and liquid liabilities to GDP and stock market capitalization to GDP ratios also measure the depth of financial repression. Relative surveys indicate that EFMs have lower real interest rates (in many cases even negative), lower liquid liabilities to GDP and lower stock market capitalization to GDP ratios than developed economies do. Moreover, measurements of government involvement, which include the fraction of domestic credit channeled to private sector and the ratio of commercial bank assets to the total of commercial and central bank assets, provide insight into the level of financial repression. Once again, EFMs have low rates of these ratios. However, a combined index of the above six ratios would be more appropriate for evaluating the extent of financial development and its relationship with economic growth.

Specifically, recent studies indicate a positive correlation between financial development and economic development and financial development and economic growth. But, there are other factors accounting for economic growth and development that need to be taken into consideration.

Till recently, economical models suggested a contradictory role of finance in economic development. Classical economic and Keynesian models agreed on the unimportance of financial institutions over economic expansion. In addition, the Keynesian theory considered financial development as a hindrance of investments. However, many modern economists marked the significant role financial development can play in economic growth. Their theories underlined the importance of financial liberalization and the productive role of financial institutions, although they are often subject to criticism. Empirically, the question of whether financial development contributes to economic development remains still unanswered, but there are three approaches that indicate a strong causal role of financial development. The first approach tried to explore, using econometric analysis, the relation between growth measures and legal and financial variables. The results suggested a strong positive correlation between them. The second approach, called structural modeling, uses a model of economy constructed based on specific channels through which financial development operates on economic development and tries to estimate the effect of exogenous financial factors. The results obtained by this approach suggested a robust explanatory power of financial factors over economic growth. The third approach tried to examine the economic performance effects of institutional changes associated with financial liberalization. The results did

not support much financial liberalization, but suggested that it fosters an efficient allocation of investments and privatization of banks enhances economic growth.

Therefore, there is evidence that financial development contributes to economic development. However, as we shall see in the next section, the way financial liberalization occurs, is also important.

4.3 Privatization and Financial Liberalization.

From the 1930s till the 1980s, government control of economy reflected the trends of socialism, which favored the view that private ownership produces undesirable exploitation of workers and inequality of wealth. It also reflected "market failures" economics, which emphasized inefficiencies from private fund allocations and protectionism against global openness, which rejected the doctrine of relying on free trade and free private capital flows to promote economic growth. During this period, government control of economy enjoyed great acceptance in many parts of the world. In the 1990s, however, weaknesses in the public sector and inefficiencies of state- owned enterprises (hereafter SOEs) lead to a shift in thinking towards privatization and financial liberalization.

To understand why state- owned firms failed to perform efficiently and privatization came in light, we must first comprehend how economic growth is perceived by state- owned and private firms. State- owned firms conceive growth as size maximization, rather than value maximization, which constitutes the goal of private corporations. The socialist approach to growth was to get larger as rapidly as possible. Instead, corporate finance emphasizes to the maximization of shareholders' value through positive net present value (NPV) investments. In addition, modern corporate finance suggests that the pursuit of positive NPV investments, not only contributes largely to the rise in corporate value, but results in an efficient use of resources by the economy as a whole.

To deepen further in the reasons that make SOEs inefficient and privatization arise, we must consider four specific factors. The first and maybe most important factor is multiplicity of goals, which obligates public officials to face tradeoffs between conflicting goals. The goals of a government are various and include the maximization of employment, the promotion of regional development, the enhancement of national security and many more. Naturally, multiple goals are difficult to manage and often government officials must trade off one goal against another with no interest in efficiency or reconciliation of priorities. The second factor

is market structure. Usually SOEs operate in a monopolistic environment, resulting in underperformance through lack of competition and human effort. The absence of competition does not allow prices to be set naturally by the market and therefore, do not reflect real value. The absence of human effort, as can be easily conceived, distorts economic efficiency.

The third factor is weak incentives. Managers of private firms are often given incentives to maximize shareholders' value. In contrast, government employees often have incentives that align with personal benefits rather than benefits for society. Finally, the fourth factor why SOEs are insufficient is soft budget constraint. SOEs enjoy unconditioned access to capital, through direct outlays and subsidies or cheap loans from the central bank and furthermore, they are not required to earn a good return on those funds. Thus, the unconditioned access to capital, allows governments to channel funds in less productive and less efficient businesses.

It is not clear which of the above factors is more influential. However, it is quite clear that privatization can be beneficiary for firms and society as a whole. Notably, recent empirical studies in many countries indicated that privatizations resulted in increases in profitability, efficiency, investments and total output. As these results have become better understood, many governments have tried to organize their SOEs in a way that imitates the structure of private firms.

In Central and Eastern Europe the fall of communism that took place in 1989-1991 lead to massive privatizations. In this region, the totally state- own system required shifts in other sectors, before introducing privatizations. These shifts included the creation of legal foundations about property rights, corporations and contracts, the restructure of SOEs in corporate form, the allowing of competition, the removal of government price settings and the introduction of modern accounting. An ambiguous feature of the region also was spontaneous privatization by SOEs' managers that resulted from freedom in decision making and exploitation of the new economic opportunities, as the communist regimes collapsed. Furthermore, the privatization in the financial sector was realized in a slow pace, in a large degree because monitoring of firms by financial intermediaries was inefficient. Nevertheless, each of the transition countries had its own special circumstances, finding it hard to enjoy the benefits of privatization.

From the above analysis, it becomes clear that financial liberalization requires a previous fiscal reform and set of bank regulations. These reforms and regulations include abolishment of interest rates control, lowering of bank reserve requirements, greater independence of the private financial sector in lending decisions, privatization

of state- owned banks, allowing of foreign bank competition and encouragement of foreign capital inflows.

In general, financial liberalization takes hold more slowly than privatization. This is due to the fact that financial liberalization is a more complex process than privatization and politicians are reluctant to give up their control over the powerful financial sector. Moreover, elements of financial repression, such as interest rate ceilings and bank reserve requirements, enhance the state budget, while most SOEs exhaust it. Finally, there are arguments that financial liberalization can be destabilizing. These arguments can be laid out against the above stated reforms and regulations needed to boost financial liberalization. In particular, they suggest that controls on deposit interest rates makes banks more profitable and less vulnerable to failure, bank reserves promotes stability in the banking sector, less government interference give banks incentives to take excessive risks and privatization of nationalized banks creates the conditions that enables banks to gain enough power to become industrial empires through the acquisition of other companies. In addition, these arguments suggest that foreign competition may damage domestic banking companies and capital inflows, when go into reverse, can create a liquidity crisis¹⁵.

However, the arguments against the destabilizing role of financial liberalization, though logical, were overcome by its substantial benefits. Financial liberalization contributes to economic growth as it succeeds to impose hard budget constraints on firms and to push them toward value creation. In addition, it sends funds to value

¹⁵ To illustrate the potentially destabilizing role of financial liberalization, I can refer to two contradicting examples, Chile and Korea. In Chile, in the early 1970s, the socialist government was overthrown by a military coup. The new authoritarian regime introduced major shifts in financial markets, focusing in liberalization through interest rates and credit decontrol, less bank and insurance regulation, facilitating competition and privatizations. However, a major economic contraction begun in the mid 1970s, resulted from a severe decrease in copper price, the country's major export and the rapid and excessive financial liberalization. By the late 1970s, the government encountered large deficits, GDP growth and Chilean peso fell sharply and a banking crisis emerged. As a result in the early 1980s, the government, in its effort for stabilization, ended up in a pre- reform state, controlling 60 percent of bank deposits.

In Korea, in the early 1980s, corporate inefficiency, high inflation, rising debt service and current account deficit forced government to take a more liberal attitude in finance. But in Korea, financial liberalization took place in a milder way, than in Chile, via allowing some entries in the financial industry (even foreign) and relaxing state supervision, interest rates, capital movements and restrictions in exchange rates. This cautious approach towards liberalization was greatly hailed, as private savings, domestic credit and stock market capitalization rose substantially. However, capital flows, banks and major conglomerates remained under strong governmental guidance and protection, resulting in corruption, bad incentives, poor investment and bank inefficiency, making Korea finally incapable to escape the Asian crisis in the late 1990s.

adding firms and projects and denies funds from firms that destroy value. Important also is the monitoring function of private financial institutions. Financial institutions have the incentives to select "good" borrowers and monitor their progress otherwise they will bear the costs of failing to do so.

Thus, although economic progress can occur in a state-controlled environment, it is more connected with a liberalized financial system. As we saw, a liberalized financial system has substantial beneficial results for firms and the economy as a whole. But we must keep in mind that these beneficial results presuppose economic reforms and strong legal foundations posed by the government which ultimately has the mandate to monitor the financial system itself.

4.4 Legal Foundations.

The legal system of a country is the most important set of institutions for the well functioning of its financial system. Investors offer their funds to firms and instead they get certain rights over the firm's future cash flows. Those rights, in order to be meaningful, must enjoy the protection of the law otherwise investors will be unwilling to finance firms, resulting in slower economic growth.

The legal system effects financial system in four general ways: defining property rights to assets, which state who legally owns property and determine the relative priority over a firms' cash flows; specifying the contracts that are permissible and means for punishing failure of contractual promises; defining the rights and obligations of companies and their managers; and regulating specific aspects of the financial system, such as the bankruptcy procedure. The existence of the above features implies a reliable legal structure, where the rule of law is upheld and consequently, the base of an effective financial system is introduced.

The rule of law, fundamental idea of a constitution, means that all people are governed by the same rules and no one, including government, can be exempted from these rules. Upholding the rule of law restrains the arbitrary exercise of power by government, but it should be done in an extent that does not eliminate government completely. The rule of law requires a complete judiciary system, which results to increased confidence to the system. Recent surveys indicated a connection between rule of law, confidence in government and economic development. They

showed that enforceable rules are required for the encouragement of dealings in the market place and economic well-being depends on government credibility¹⁶.

The rule of law is deeply undermined by corruption. Corruption occurs in all countries in a smaller or bigger extent, results from the interaction between private and public sector and damages government credibility and hinders economic growth. Some emerging market countries used to have such an extensive level of corruption, that bribes were a usual characteristic of doing business and activating in daily life, undermining the well functioning of the financial system. Moreover, recent surveys indicate the negative correlation between corruption and GDP growth and between corruption and foreign direct investments¹⁷.

By the 90s, great steps have been made towards anticorruption rules. Many institutions took initiatives against corruption and in some countries bribery of foreign government officials is considered illegal. Nevertheless, a recent study found that greater corruption is rewarded by foreign aid from developed countries and that this aid makes corrupt governments even more corrupt, implying that a reform in foreign aid should take place. This reform is, nowadays, favored by the increased global competition.

Legal regulations though, can be applied to protect the rights of minority shareholders of firms, who can be damaged by the self-interested actions of majority shareholders and managers. "Insiders" have more information and control over the firm and thus, may take actions against "outsiders" interest. The most important legal protection against "insiders" undesirable behavior is the disclosure of genuine financial statements. Another tool of shareholder protection is antifraud regulation, which punishes fraud actions, such as the disclosure of misleading information. Still, with the existence of the above legal protection, antidirector rights, which include votes and takeovers, are necessary to protect shareholders against management's bad performance. Typical issues of voting are the principal of one share- one vote, proxy and other voting processes, cumulative voting, extraordinary meetings and redress of grievances.

Creditor protection deals with the problem of specific debts to creditors and the problem of failure of entire companies. Specific debt can be secured by specific

¹⁶ These surveys also indicate that there are four basic legal traditions: the British; the German; the French; and the Scandinavian.

¹⁷ Characteristic are also two recent studies which concluded that political connections affected in a relatively significant level the market value of firms on the Indonesian stock exchange and that increase in bribe expenses in Uganda, resulted to a proportionally lower sales growth for local firms.

collateral, which is used to compensate lenders, in case of payment failure, without necessarily leading the firm into bankruptcy. However, secured lending requires an effective legal framework that supports it. In some emerging market economies, the absence of this legal framework makes value of collateral ambiguous and thus, credit difficult to obtain. This problem becomes even greater in mortgages, as the enforcement problems of real estate interests are more difficult to be overcome.

Bankruptcy is one of the two possible outcomes of debt default; the other is voluntary renegotiation, and is a legal procedure for sorting out companies that cannot pay their debt and leads to the liquidation of nonviable firms or the restructuring of viable firms. In a liquidation process the firm's assets are sold and the enterprise is terminated. Conversely, in a restructuring process the capital suppliers exchange their claims with new ones of lower value and the firm continues to operate. A balance needs to be imposed between protecting creditors' rights and protecting viable firms in order to maintain economic welfare. In the United States bankruptcy system operates in favor of debtors, although it recognizes the rights of secured credits. In Sweden, in Germany and in Great Britain bankruptcy procedure tilts towards creditors, especially those that have obtained secured credit and in France it tilts strongly towards debtors.

Several recent papers tried to examine the impact of legal variables on external finance. They found that raising legal determinants has an important positive effect on market capitalization, number of listed companies and number of initial public offerings. Other recent papers concluded that legal variables are also positively correlated with increase in banking depth, which is believed to be caused by economic growth and that legal protection for shareholders and creditors matters for economic performance by improving the effectiveness of the financial system. Hence, it becomes evident that the financial system needs strong legal foundations to protect investors, so that they will be willing to invest.

4.5 Banks and Government Regulation.

In the late 20th century, as we saw previously, there was a movement towards financial liberalization, privatization and foreign competition. However, at the same time banks in both developing and developed countries found themselves in a stressed position and banking crises became a common event.

The banking crises that occurred in the 1980- 2000 period, in terms of number of countries, percentage of banks involved and cost of resolution were greater than in

preceding years. During that period banking crises spread as epidemic mainly because of poor lending decisions and large loan losses that resulted from connected lending, moral hazard and overcapacity. Connected lending occurs when a bank directs loans to parties connected to the bank: its owners, its board of directors or people related to them, and companies in which the bank owns equity stake or participates in its governance. From the above, connected lending seems to be a normal occurrence as it is about private information flows and relationship-based banking. Such a practice, however, favors looting of the bank and allows the owners of the bank to abuse the bank capital and assist themselves to buy other companies. In this way banks become the center of industrial empires and, instead of engaging in arm's-length lending, they channel funds to favored enterprises. The final outcome is usually the failure of the bank. To prevent bad intended connected lending, disclosure of connected loans information and monitoring of banks practices by state supervisors are essential. In addition, a boundary on the total percentage of assets that any bank can channel to each industry, to ensure risk diversification, is needed to be imposed.

Moral hazard in banking occurs when the bank has low or negative net worth and therefore, the owners or managers of the bank have incentives to engage in high risk projects. If the project's outcome is good, they end up with substantial gains. If the project's outcome is bad, they lose little. Normally, the outcome is bad and the bank incurs great losses. The problem of moral hazard becomes even greater when the government, in its effort to promote certain favored industries and projects, guarantees bank deposits and provides protection to banks and private firms even if they operate in insolvency. This policy distorts incentives and creates overconfidence, overinvestment and excessive risk taking.

Overcapacity is the result of the emergence of more efficient and competitive financial markets. As financial information becomes less expensive and more widely and easily available, banks' services become less needed and borrowers decide to draw funds directly from investors, overriding banks and thus, decreasing banks' turnovers and profits. Consequently, fewer banks are necessary. This process is called "disintermediation". However, bankers and, in many times politicians, want banks to maintain their market share and sustain their profit margins. To fight disintermediation, banks are forced to either enter in the securities business, which is not often attainable, or take more risk. The former implies that banks engage in nontraditional banking activities, which may contribute to banks' revenue volatility and entail a significant lower risk-adjusted return to shareholders, as recent studies

suggest¹⁸. The latter implies that banks have to ease off their credit standards and give mispriced loans to bad credits, in many cases with the blessing of the government. Naturally, such a practice increases banks' risk of default. Finally, rapid financial liberalization combined with poor foundations, distorts incentives, as banks lose some of their state- offered privileges, leading one more time to excessive risk taking.

The problems of insider lending, moral hazard and overcapacity become greater by the protective interference of the government. Governmental measures relieve banks from pressures posed by depositors and other bank creditors. In particular, if depositors sense that a bank has a liquidity problem, market discipline will function and they will all might start to withdraw their deposits from the bank, provoking a bank run. Instead, the existence of a protective government would drive the bank run away.

In previous times the number of bank failures and the associated cost were relatively small. In modern times, however, bank panics resulted in greater losses. Among other factors, this is due to the governmental protective role. In many countries the government initiated programs that had the scope to protect banks, especially deposits. Although, as stated before, such initiatives minimize the number of bank runs, they also enhance moral hazard. Depositors, now, have no incentives to monitor the activities and the risk undertaken by their banks and relay on the state to perform this duty. Moreover, banks have more incentives to adopt risky projects. Unless bank regulators monitor carefully banks and move on to close insolvent banks, government's safety nets will be inefficient.

Furthermore, to minimize moral hazard, capital adequacy requirements can be applied, much like those posed by the Basel Committee. In a situation in which a bank has to have a minimum capital to keep on giving loans, the owners of the bank will have many to lose in case of default and thus, be less willing to take excessive risk. Loan loss reserves are also important. Higher loss reserves imply lower capital. Lower loss reserves give the false impression that the bank with massive loan losses has more capital. Once more bank regulators should monitor carefully banks' practices and make sure that banks form adequate loss provisions.

It is politically difficult to discipline banks due to their significant role in times of distress and the large cash amount needed to close them. In addition, protective

¹⁸ I discuss the potential implications of nontraditional banking activities on banks' profitability and riskiness later on this chapter.

bank policies seem to contribute to banking crises, as recent studies suggest. Nonetheless, safety and growth is ensured only with efficient monitoring and promotion of good incentives and market discipline.

4.6 The Variety of Banking Strategies.

As mentioned in the introduction of this chapter, nowadays, banks are much more different in terms of size, geographic and customer orientation, organizational structure, product variety, service quality and financing. Before the 1990s, banks employed more or less similar banking strategies. A study by DeYoung, Hunter and Udell (2004) suggested that there are two general banking strategies developed in the last twenty five years in the United States. The first is a traditional banking strategy, where banks, usually small ones operating in local markets, implement close- less information focused relationships with their customers, succeed high spreads on loans and large fees from deposit account charges and suffer relatively large unit costs. The second is a nontraditional banking strategy usually followed by large impersonal banks, which rely much on customers' information quality, receive small spreads on loans, generate large amounts of noninterest income and enjoy low unit costs due to economies of scale in production, marketing, securitization and servicing loans, such as credit cards and home mortgages.

From the above discussion it can be observed that the differences between the two banking strategies refer to size and moreover to customer preferences, information quality, pricing structures and production techniques. Consequently, there is a significant diversity of potentially profitable banking strategies and it can be concluded that banking companies that follow these strategies have grown less alike each other than in the past. Indeed, in the U.S. fee income has become more significant for large banks than for small banks. In addition, some banks rely less on deposits to fund their activities than other banks.

4.7 The Increase of Noninterest Income.

The emergence of new nontraditional banking strategies created new sources of fee income. Nontraditional banking activities, such as insurance agency and investment banking, allowed banks to increase substantially fee income. These fees are uneven across banks. Investment banking fits better to large banks, while

insurance agency is a good fit for banks of all size. Furthermore, banks were able to offer traditional services more efficiently, develop new production methods, economize on costs and increase fee income further. Examples of the new production methods include securitization and new deposit account services, such as on-line bill pay. Similar to the fees generated by nontraditional activities, the fee generated by these new production methods is also uneven across banks.

DeYoung and Rice (2003) showed this increasing presence of noninterest income in U.S. banks and stated that according to other studies this is not just an American phenomenon. They suggested that noninterest income has grown more rapidly and comprises a larger portion of total income in large banks than in small banks. Moreover, they found that the composition of noninterest income has changed in large banks, while remains unchanged in small banks and the lion's share of total noninterest income is being generated by just a small number of banks. However, they concluded that intermediation activities, which generate interest income, probably co-exist with the increased noninterest income rather than replacing it¹⁹.

4.8 Why New Banking Strategies Developed.

To illustrate the changes taken place in the banking system in the last twenty five years, a closer look in deregulation and technological advance would be illuminating. Deregulation enhanced competition, market and banking operating efficiency and technological innovation and allowed banks to grow larger and take

¹⁹ At this point it is worthwhile refer to payment services. Payment services are highly related to fee income, although, only recently there has been a realization of their importance. They are primarily provided by banks, due to banks' "monopoly" in providing settlement activities and cross-selling payment related or nonpayment related products to depositors, and, according to recent empirical studies, account for a significant percentage of total operating income of U.S. banks. Thus, unlike the belief of many, banks earn larger fees from payment services, a traditional banking activity, than from fees generated from nontraditional banking activities. Banks use two different kind of strategy to enhance profits with payment activities. A stand-alone product strategy which is highly specialized and independent from other banking activities and a product-bundling strategy, which relates payment services to other banking products. Moreover, payment revenues can be separated in four categories: the traditional service charges on deposit accounts, composed by the explicit fees and the foregone interest implicitly charged to depositors, which are the banks' principal payment revenues; the trust and investment services income, mainly related to non portfolio management fees; the credit card; and the ATM fees. Payment-related fees are considered to be twice as large as payment-unrelated fees for an average bank, although payment-unrelated income appears more significant for large banks. Large banks do not rely on deposit accounts as much as small banks do to fund their activities.

advantage of economies of scale and risk reduction via diversification. Though, the necessity for deregulation emerged by banks' tendency to avoid restrictions. Regulatory restrictions had long constrained the evolution of the banking industry and the efficiency of financial markets. Hence, banks were routinely trying to circumvent constraints on geographic and product expansion and when the benefits from abolition became larger than the cost of maintenance, these constraints were removed. Thus, deregulation fostered competition between financial institutions. To respond to these competitive challenges, banks expanded geographically and in size, altered their business strategies, became more cost and revenue-efficient and adopted new technologies which now could be used more efficiently. As a result, many banks engaged in nontraditional activities and developed new products which generated large amounts of noninterest income. In contrast, many other banks continued to engage in traditional banking activities and rely on interest income.

In particular, in the United States, deregulation has been ongoing since the mid-1970s. However, the first major step towards deregulation was the *Depository Institutions Deregulation and Monetary Control Act* of 1980, which, among other things, increased deposit insurance coverage up to \$100,000, granted lending powers to thrift institutions and permitted the market determination of interest rates paid on bank deposits by gradually eliminating *Regulation Q*. Since the 1930s, *Regulation Q* has suppressed the competition on interest rates that banks could pay on deposits, resulting in market inefficiencies. The next major step was the *Riegle-Neal Act* of 1994, which eliminated geographical restrictions and allowed banks to enter new states. This change led to the creation of large banking companies, through interstate mergers and acquisitions. Large banks adopted less relationship-based strategies, reduced costs and powered their operating efficiency. Small banks profited as well by exploiting their advantage to offer personal services to their customers. The final major step was the *Gramm-Leach-Bliley Act* of 1999, which, by eliminating most of the *Glass-Steagall Act* (1933) prohibitions, allowed banks to engage in investment banking activities and provide a full range of traditional and nontraditional banking products.

Technological changes also enhanced competition and operating efficiency of banks. This was realized through improvements in data processing and communication technologies, which permitted financial information to flow more quickly and cheaply, and through the development of new financial products and production procedures, which were the result of this more accurate and cheap information flow. Certainly, technological changes were further actuated by

deregulation which allowed banks to achieve the size necessary to use efficiently these new technologies, and by increased competition that gave banks the incentives to adopt them. However, technological advance enhanced deregulation too. New technologies increased the efficiency of large-scale banking and thus, pressures on loosening constraints on geographical expansion emerged dynamically. As examples of the application of the new technologies, we can refer to the more efficient payment services, such as electronic payments with credit cards or through ATMs, which were possible due to the faster information flows and online brokerage, which reduced banking production costs. However, technological advance led to “disintermediation”, that is the weakening of banks’ comparative advantage of intermediation. New technologies prompted banks to focus on earning fees on securitizing and servicing loans rather than earning high interest rate margins from these loans. In addition, businesses enjoyed an increased access to new financial products offered from equity and securities markets and thus, moved away from indirect finance.

4.9 Nontraditional Banking Strategies, Noninterest Income and Banks’ Financial Performance.

As mentioned before, the above changes resulted in a variety of banking business strategies in the United States. Based on relevant studies, we will try to explore the impact that nontraditional banking strategies and increased noninterest income have on banks’ financial performance. In particular, DeYoung and Rice (2004b) categorized the banking business strategies, in terms of product mix, location, production techniques and other characteristics, in eight distinct groups: traditional banking, nontraditional banking, private banking, agricultural banking, corporate banking, local community focus, transaction services and diversified banking. They also defined five size-based groups, two asset growth rates-based groups- the mergers group and the growers group- and a no strategy group. Taking data from the period 1993- 2003, DeYoung and Rice tried to correspond U.S. banks in these groups and explore their financial performance.

Based on accounting, they concluded, in accordance with financial theory, that these strategies vary in profitability and risk, but achieve higher returns, though diminishing, for higher risk taking and accept lower returns for lower risk taking. Higher returns and higher risk are generated by banks that grew rapidly. Lower returns do not necessarily doom a banking strategy. They also concluded that increasing size tends to increase returns for smaller banks rather than for larger banks

and banks that do not adopt new efficient production methods tend to perform poorly. Finally, all of these banking strategies, on a risk-adjusted basis, are financially viable, if the bank is sizably sufficient. Based on stock market performance, they found, as by using accounting-based analysis, a positive risk-expected return tradeoff across three banking strategy groups: growers, diversified and nontraditional. The above conclusions, though enlightening, should be treated with judgment as the authors suggest.

Turning our concentration on noninterest income, it was generally believed during the 1990s, that it improves earnings and reduces interest rate risk and banks' income volatility, through diversification effects. But, recent empirical studies suggested that increased noninterest income may entail not only increased profitability, but increased risk as well. In particular, these studies stated that the increases of fee income came along with changes on banks' balance sheets. Average-size banks decreased investment in low-yielding assets, like cash and state bonds and doubled their investments in loans, relying still on their traditional intermediation role. In contrast, larger banks give fewer loans and invest more in assets that generate fee income, such as derivatives. As regards banks' financing, average-size banks rely still much on deposits, but they have increased debt and equity financing. Large banks decreased the level of deposits and expanded debt and equity financing.

Moreover, DeYoung and Roland (2001) proposed that noninterest income may increase banks' income volatility due to three reasons. First, interest income is less volatile than noninterest income because loans are relationship based and thus, have high switching costs. Second, fee-based products require higher fixed costs and operating leverage than loans and thus, fee income is more sensitive to bank revenue declines. Third, fee-based activities allow more financial leverage than loans because require banks to hold less fixed assets and hence, little regulatory capital. Moreover, DeYoung and Roland pointed out that interest income from loans, interest income from securities and service charges from deposits, all are less volatile than income from fee-based activities and non relationship fee-based activities are those affected more by changes of the business cycle. Furthermore, they found that banks' intermediation role is still the core activity of most banks and well-run banks engage in relatively few fee-based activities.

In addition, DeYoung and Rice (2003) attempted to identify the bank characteristics, market conditions and technological developments that are most closely related to the increased noninterest income and determine, as DeYoung and

Roland did, whether and how noninterest income is related to bank financial performance.

As regards the recognition of variables closely related to noninterest income, DeYoung and Rice principally concluded that well managed banks tend not to engage in activities which generate high volumes of noninterest income, close depositor relationships are appropriate to increase fee income and banks following traditional intermediation strategies rely more on interest income. Moreover, the results suggest that large banks generate large amounts of fee income by expanding in nontraditional activities and embracing advances in technology. In addition, it is pointed out that noninterest income is positively related to market power and an economically strong environment, service charges on deposit accounts are related negatively with bank asset growth and credit card and commercial loans are less sensitive to macroeconomic fluctuations, whereas, banks, as they get larger, rely less on core depositor relationships and multibank holding company affiliates rely more on lending and off- balance sheet activities rather than activities more closely related to depositors.

As regards the results about the relation between noninterest income and bank financial performance, they are consistent with DeYoung and Roland's suggestions. Noninterest income increases banks' profitability, but alongside, increases banks' earnings volatility and thus, entails a significant lower risk- adjusted return to shareholders. In addition, service charges on deposit accounts seem to have a relatively small contribution to the increase in earnings variability, but are associated with a decline in profits.

Additional studies enhance the above suggestions and indicate that noninterest income activities are associated with declines in risk- adjusted performance and efficient banks should generate more fee income, though Staikouras and Wood (2003) suggested that in Europe noninterest income may stabilize bank earnings. European banks are larger in size, on average, than American banks, have better expertise and more experience on fee- based activities and enjoy structural and regulatory advantages.

5. Bank Financial Ratios.

5.1 Introduction.

As discussed in chapter 3, it is difficult to evaluate a bank's assets and therefore, its net worth. This is a fact for all interest parties in the bank's current financial position and its future prospects. Bank managers, although possess better information than the other parties, still face great difficulties in evaluating the bank's loan portfolio and the value of its other investments which depend on the general economic conditions. Bank regulators, although supposed to have access to all available information, still have to deal with moral hazard problems and the "cooking" of the bank's financial statements by the bank managers. Bank creditors and its investors possess information of relatively lower quality than bank managers and regulators. Depositors lack the expertise and even the basic information to evaluate a bank's value.

However, all the above parties are interested in the bank's value for their own reasons. Banks managers are eager to satisfy shareholders and thus, hold their positions or even gain a better compensation. Bank regulators are interested in the viability of the bank and the stability and effectiveness of the financial system. Investors are interest not to lose their initial investment and earn a satisfying return from it. Depositors are interested to be able to withdraw their money in times of need.

Thus, a set of bank financial ratios based on quantitative and qualitative information has been developed for the evaluation of a bank's financial position and its prospects. In particular, analysts are interested in the diachronic change of each ratio and its comparison with the ratios of similar or rival companies. Below I quote the bank financial ratios most used. I do it according to the categorization followed in the United States, namely the so called CAMELS system, its letter of which stands for each category: Capital, Assets, Management, Earnings, Liquidity, Sensitivity.

5.2 Capital Ratios.

The ratios of this category provide indication about the adequacy of the bank capital. It includes:

1. The *Capital Adequacy Directive Ratio* or *CAD* (namely *Tier I* and *Tier II Capital*). This ratio is developed by the *Basel Committee* and is computed as the ratio

of the bank's equity capital to its credit risk, market risk and operational risk-weighted assets. It indicates the capital that a banking institution should possess in order to be able to absorb potential losses.

2. Loan loss reserves to assets. High value of this ratio indicates a strong ability to absorb losses from defaulted loans.

5.3 Asset Ratios.

The ratios of this category measure how effectively the bank is managing its assets and provide intuition about their quality. It includes:

1. Loans past due 30- 89 (or 90 plus) days to assets.
2. Non- performing loans to total loans.

Increase of the above ratios might indicate poor lending decisions.

3. Non- performing loans minus provisions to capital. Increase of this ratio indicates a lower ability to absorb loan losses.

4. Foreclosed real estate to assets. Indicates the current loans level.

5. Safe investment securities to assets. High value of this ratio indicates lower risk or poor management.

6. Rate of asset growth. Indicates the rate with which the total assets of the bank are growing.

7. Loans to assets.

8. Loans to capital.

High value of these ratios indicates increased credit and default risk.

9. Sectoral loans to capital.

10. Large exposures to capital.

High value of these ratios indicates increased credit risk due to poor diversification.

5.4 Management Ratios.

The ratios of this category indicate the ability of the bank managers to run their bank. It includes:

1. Expenses to total revenue.

2. Non- interest expenses to gross income.

High values of these ratios indicate poor management.

5.5 Earnings Ratios.

The ratios of this category provide intuition about profitability. It includes:

1. Return on assets (*ROA*). It is computed as the fraction of net income to total assets.
2. Return on equity (*ROE*). It is computed as the fraction of net income to equity.
3. Total revenues to total assets.

High value of the above ratios indicates increased profitability.

4. Interest margin to total assets. Indicates the effectiveness of the pricing policy of the bank.
5. Revenue to safe assets to total revenue. High value of this ratio indicates lower risk or poor management.

5.6 Liquidity Ratios.

The ratios of this category examine the banks' ability to meet its obligations. It includes:

1. Liquid assets to total assets.
2. Liquid assets to short- term liabilities.

Both ratios examine the degree of liquidity risk the bank is exposed.

5.7 Sensitivity to Market Risk Ratios.

The ratios of this category measure the sensitivity of assets and liabilities to market risk. It includes:

1. Duration of assets
2. Duration of liabilities.
3. Interest sensitive funds to total funds.

The examination of these ratios give insight about the interest rate risk faced by the bank and is used in the computation of the Duration Gap²⁰.

²⁰ The Duration Gap is computed as $D_A - k \cdot D_L$, where D_A the duration of assets, D_L the duration of liabilities and k the ratio of liabilities to assets. If the Duration Gap is positive, then an interest rate increase increases the interest rate risk the bank faces.

Analyzing the above ratios is not an easy duty. Bank analysts must always keep in mind that bank managers might have “cooked” (and they have many incentives to do so) their bank’s financial data. Moreover, some ratios have contradicting interpretations, in the sense that an increase (or decrease) might indicate something bad for the bank and something good as well. Furthermore, one ratio might indicate to one direction and another ratio to another. Nevertheless, estimating a bank’s financial position is a mixture of quantitative and qualitative analysis and should be based on personal judgment.

6. Measuring Bank Opacity and Asymmetric Information.

6.1 Introduction.

We saw in previous chapters that asymmetric information is the condition in which one party in a transaction has insufficient knowledge about the other party. Before the transaction takes place, asymmetric information takes the form of adverse selection, which implies that bad credits are the ones most likely to seek loans. After the transaction occurs, asymmetric information takes the form of moral hazard which highlights the lender's risk that the borrower will engage in undesirable activities. Literature suggests that asymmetric information accounts for the relative unimportance of capital markets and the subsequent significant role of bank lending as external source of funds for corporations, as banks have the comparative advantage in information production through close relationships with the costumers and the employment of effective monitoring systems. Also, it underlines the need for public information about firms' activities in order for those firms to obtain the funds they need and it indicates that strong legal foundations are essential for the protection of investors and hence, for the decrease of asymmetric information and the development of a healthy and effective financial system.

Thus, asymmetric information and its problems play a significant role in modern finance and banks, due to asymmetric information, have an important role in contemporary financial systems. But still, banks' financial statements and especially, bank loans are considered to be informationally opaque, as bankers may possess undisclosed information over the quality of these loans or even further, as no one actually knows their "true" value. Moreover, banks enjoy greater ability to smooth-out earnings and thereby, may "cook" further their financial statements²¹. Market discipline and mainly, government regulation is thought to be helpful in the effort to resolve these opacity problems, although regulators and bank managers need to understand the opacity of banks to reduce it.

Furthermore, quantifying the opacity of banking firms, a qualitative item, is difficult by definition. Similarly, asymmetric information is not observed directly and there are great difficulties of quantifying its degree too. However, empiricists rely on proxies to measure the degree of bank opacity and asymmetric information and

²¹ See previous chapter for a quotation of bank financial ratios.

an interested reader may come across several approaches concerning such proxy measures in financial literature.

6.2 Proxies for Bank Opacity.

Regarding proxies for bank opacity, we can refer to three relevant papers. In particular, Flannery, Kwan, and Nimalendran (1998) tried to examine whether U.S. banking firms show greater or smaller evidence of asset opacity than otherwise similar U.S. nonbanking firms, by assessing whether bank stocks' trading properties are difficult to value, that is whether analysts encounter greater difficulties to forecast banks' earnings than nonbanks' earnings. To do so, Flannery, Kwan, and Nimalendran compared several market microstructure variables, such as market value, number of trades per month and monthly return standard deviation for a matched by size sample of banks and nonbank firms.

Hirtle in 2002 to test for bank opacity, investigated whether U.S. Bank Holding Company (BHC) CEOs' certification of their financial statements, which was mandated by the Securities and Exchange Commission (SEC) in the same year for first time, had a measurable effect on their companies' stock market return.

Finally, Krainer and Lopez (2008), in order to investigate the relationship between securities market information and the BOPEC ratings²² assigned in BHCs by U.S. bank supervisors, developed an econometric model combining information from securities market, separated between debt and equity market, and supervisory variables.

6.3 Proxies for Asymmetric Information.

There are two general approaches of how to measure the degree of asymmetric information. The first relies on the statement that asymmetric information is more severe for fast growing companies. Researchers that adopt the above statement use variables of a firm's investment opportunity set as proxies that

²² The most comprehensive tool for banking supervision in the United States is the on-site inspection, where a team of supervisors visits an institution and analyzes its operations in detail. For BHCs, Federal Reserve examiners, up through 2004, assigned the institution a rating at the conclusion of an inspection. The rating summarizes the examiners' opinion of the BHC's overall financial condition. This rating is known as a BOPEC rating.

measure asymmetric information. The second approach relies on the conclusion that an increase in the informational level about a firm tends to result in a convergence of opinions regarding the firm's expected future earnings.

However, the market microstructure of a firm's stock is also used as a measure of asymmetric information in several papers that examine various issues in corporate finance. The idea is that information costs could affect prices and the quote process. Some related studies concluded that the adverse selection component of the bid-ask spread of a stock accounts for a relatively significant proportion of the total spread.

Thereby, measures of information asymmetry come under three categories: investment opportunity set measures, market microstructure measures and measures based on analysts' forecasts. Each of the aforementioned categories has advantages and disadvantages which are discussed below.

6.3.1 Investment Opportunity Set Measures.

Studies that have used investment opportunity set proxies of asymmetric information base their preference on the argument that managers of firms with high growth potentials have superior information about the firm's investment opportunities and expected future cash flows from its assets. Such proxies include the market value to book value of equity (MV/BV), the market to book asset ratio and the earnings-price ratio (E/P)²³. It is argued that the E/P ratio is larger for firms with lower growth opportunities. Conversely, it is noted that the market to book ratio is larger for firms with a higher future earnings growth.

But investment opportunity set measures are faced as indirect measures of information asymmetry. In particular, the market to book asset ratio is also used as a measure of corporate performance and is thought to be subject to considerable measurement error when firms have long-lived assets. Moreover, it is argued that lending distorts its usefulness as an earnings growth index. In addition, the E/P ratio is treated as a risk measure or an earnings growth indicator. Another problem with these measures is that they are computed from accounting data that is available on a quarterly basis. Investment opportunities for high growth firms can change significantly across quarters and thus, such measures are rendered inadequate. Finally, a high market to book value of equity or asset ratio may simply result from monopoly power.

²³ (Jonathan Clarke, Kuldeep Shastri, 2000)

6.3.2 Market Microstructure Measures.

The next category of asymmetric information proxies we discuss is the market microstructure measures. Market microstructure measures rely on indications that the bid-ask spread consists of three main components: an order processing component, an inventory component and an adverse selection component, which compensates the market maker for transacting with better informed traders. Some papers developed models in which the spread is decomposed into two components: a part related with asymmetric information and a part related with inventory costs, monopoly rents and risk aversion. These models can be estimated around the event of interest and do not require long data. However, they are not treated as a good indication of the level of asymmetric information. This is because they measure the costs of trading from a small number of shares, produce a very large number of estimations of the adverse selection component of the spread and are considered to be mis-specified.

6.3.3 Measures Based on Analysts' Forecasts.

The theoretical foundations recommend the use of analysts' forecasts as measures of information asymmetry. It is believed that these forecasts tend to converge as information about a firm's prospects increases. Based on this belief several researchers used analysts' forecasts of earnings per share (EPS) as proxies of asymmetric information. Forecast errors decrease as estimates get closer to the end of the fiscal year. Moreover, a large portion of the forecast error is ascribed on incorrect estimates of firm specific characteristics. However, it was showed that the consensus, defined as the ratio of common analysts' uncertainty to overall uncertainty and the dispersion among these forecasts are better proxies of asymmetric information.

Shortcomings appear on measures based on analysts' forecasts as well. The primary drawback is that forecast errors are typically biased. Financial analysts, for whom management access is more important, are thought to be related with more optimistic forecasts and willing to trade off bias to improve this management access and forecast accuracy and hence, minimize forecast error. This statement is based on the argument that analysts face conflicting incentives which do not align with the production of accurate forecasts. Analysts employed by brokerage firms that have underwriting relationships with the firm being analyzed, have the incentive to issue

favorable forecasts for this firm. In addition, some analysts take into consideration their careers when reporting earnings forecasts and thus, issue estimates closer to analysts' consensus. Furthermore, it is documented that analysts over react to positive information and under react to negative information and, in their effort to cultivate management access, issue forecasts that are more positively biased for companies with greater historical earnings variability. Finally, it is indicated that the effect of private information on analysts' diversity of opinion depends on the relative amounts of private and public information in the market and that lead analysts have more price impact than follower analysts and analysts overweight private information.

In verification of the above, Antia and Pantzalis (2006) found strong evidence that analysts' incentives influence the quality of analyst information and concluded that it would serve investors well to distinguish between high quality and low quality analyst forecasts and recommendations. Antzoulatos, Tsoumas and Kyriazis (forthcoming), in a paper in which they examined the relationship between asymmetric information and financial development, to overcome the weaknesses related to the use of consensus derived from analysts' forecasts as a proxy of information asymmetry, developed an econometric model which corresponds to the argument that analysts produce their forecasts in two stages. In the first, their forecasts reflect their informational environment. In the second, they adjust their first-stage unbiased forecasts based on the above weaknesses and those biased forecasts consist their final reports to the market. That is to say, there is a difference in what analysts believe and in what they report. First-stage unbiased forecasts correspond to the point where funds flow from financial markets to borrowers directly. The second-stage biased forecasts correspond to the point where savers and lenders provide funds to the financial markets. Antzoulatos, Tsoumas and Kyriazis focused on the first point.

However, Lim (2001) argued that optimal forecasts with minimum expected error are optimistically biased and thereby, positive and predictable bias may be a rational property of optimal earnings forecast. That is, rational analysts who try to produce accurate forecasts may optimally report optimistically biased forecasts. The extent of positive bias is larger for firms with greater uncertainty and information shortage and for analysts that most rely on management access to produce their future estimates. In addition, Lim notes that forecast bias is greater for small companies or companies that have greater earnings volatility, negative profitability or poor stock returns and analysts with less experience tend to produce more optimistic forecasts.

Another drawback of the use of analysts' forecasts as measures of asymmetric information is that forecast errors may come from volatile earnings and not of greater asymmetric information. Volatile earnings, as discussed in chapter 4, may be a result of engaging in on traditional banking activities. Also, analyst coverage may be positively related to the level of asymmetric information of a firm and hence, the number of analysts following the firm's stock market performance may not be a good proxy of the supply of information about that firm.

Clarke and Shastri, in 2000, published a paper in which they compared the above proxy variables of information asymmetry. As proxy variables constructed from analysts' forecasts they used a measure of the accuracy of consensus forecasts and a measure of the standard deviation of forecasts. As proxy variables derived from a firm's investment opportunity set they used the three relevant foresaid measures. They obtained their data from I/B/E/S (the 'Institutional Brokers' Estimate System'), which is a service that collects U.S. and international company earnings estimates data. Clarke and Shastri found that the market microstructure measures tend to be highly correlated with each other, with firm characteristics associated with information asymmetry and with large firms' forecast errors.

7. Empirical Analysis.

7.1 Data

I use data from the *I/B/E/S Global Aggregates* database to test for bank opaqueness in the United States. This database does the aggregation for each industry index and provides the total earnings per share (hereafter EPS) earnings, the total earnings per share earnings forecasts and the weighted average standard deviation of earnings per share forecasts²⁴. For each industry index, these variables are computed by the relevant variables of each element of the index. Total EPS earnings and total EPS earnings forecasts are computed as the sum of each element's number of shares times its EPS. The weighted average standard deviation of EPS forecasts is computed as the weighted average of each element's standard deviation of EPS forecasts with weight its number of shares as a fraction to the total number of shares of the index.

I/B/E/S Global Aggregates reports total EPS earnings for the calendarized fiscal period 0 (FY_0). Total EPS earnings forecasts and weighted average standard deviation of EPS forecasts are reported for the calendarized fiscal period 1 (FY_1). Both calendarized fiscal periods FY_0 and FY_1 correspond to the current calendar year. Calendarization takes place before aggregation. *I/B/E/S Global Aggregates* uses the "Compustat rule" when sorting fiscal year data into calendar years:

- Data for fiscal years ending between January and May of the current calendar year is included in the aggregate for the prior calendar year.
- Data for fiscal years ending between June and December of the current calendar year is included in the current calendar year aggregate.

Aggregates for United States are calendarized to a calendar year ending in December.

Although, *I/B/E/S* data is available for a much longer period, the sample period is restricted to the ten years from 1999 to 2008 (due to data unavailability, 2001 data of weighted average standard deviation of EPS forecasts of the Insurance industry was replaced by 1998 data). This is because the analysis on this sample period is sufficient to obtain useful conclusions and also, because banks in 1999, through the *Gramm- Leach- Biley Act*, were allowed to engage in investment banking activities

²⁴ Data available upon request.

and provide a full range of traditional and nontraditional banking products. Before 1999, banks adopted different strategies and operated in a different economic and legal environment than during the recent years.

The data frequency of the total EPS earnings is annual. Each year represents the last reported figure of the year. The two forecasts variables, though available on a daily basis, here are reported on a quarterly basis, due to the chosen method of the analysis. Once more, each quarter represents the reported figure of the last day of the quarter.

Finally, to obtain a by industry differentiation of the American economy, the *Dow Jones* categorization was followed. The main industries in the *Dow Jones* categorization are the following:

- I. Oil & Gas
- II. Basic Materials
- III. Industrials
- IV. Consumer Goods
- V. Health Care
- VI. Consumer Services
- VII. Telecommunications
- VIII. Utilities
- IX. Financials
- X. Technology.

The Financials industry, for the purposes of our analysis, is separated into Banks, Insurance, Financial Services and Real Estate (according to the *Dow Jones* categorization).

For almost all the above industries, FTSE indexes provided by the *I/B/E/S Global Aggregates* database were used, with the exceptions of the industries of Financial Services and Insurance. Without degrading the results, for these two industries an S&P index was used, due to the absence of a FTSE index.

7.2 Methodology.

The purpose of this paper is to test, using analysts' forecasts, whether there is greater opaqueness in the financial statements of the banking firms than of the firms of the other industries. General notion suggests that there should be greater

opacity in banks. Banks are considered to be relatively opaque, as compared to other financial and nonfinancial firms and thus, difficult to monitor and value. This is because banks' are better in smoothing- out earnings and misquoting their financial statements' data, mainly because they may possess undisclosed information over the quality of their loan portfolio. That is, there is information asymmetry between bank managers and people interested in banks' financial performance (bank regulators, investors, bank creditors and depositors).

As mentioned in the chapter 6, the most widely used proxy for information asymmetry is the dispersion of analysts' earnings forecasts. This choice is strongly supported by the theoretical foundations. However, analysts' consensus is considered to be a better proxy. Nevertheless, readers must take into consideration that quantifying the degree of bank opacity and information asymmetry, using quantitative measures, is a difficult task due to their qualitative nature and the results we obtain with such proxy measures might not describe reality completely. In addition, analysts face conflicting incentives and their forecasts are affected by bias and herding (we discussed the drawbacks of the measures based on analysts' forecasts in chapter 6).

Proceeding to the methodology followed, the first method I use, to test for bank opacity, is to estimate the forecast error of the total EPS earnings for the ten year sample period. Thus, I estimate the differences between the quarterly total EPS earnings forecasts and the corresponding fiscal year end total EPS earnings for each industry of the American economy. Mathematically, these differences can be written as:

$$QEPS_{ij} - EPS_j$$

, where $QEPS_{ij}$ is the total EPS earnings forecast of the i^{th} quarter of the j^{th} year, as given by the *I/B/E/S Global Aggregates* database. Similarly, EPS_j is the total EPS earnings of the j^{th} year ($i= 1,2,3,4, j= 1999,\dots,2008$).

Next, I calculate the average and standard deviation of the forecast error of each quarter and I divide each quarter's standard deviation by the standard deviation of the first quarter, in order to obtain results at the same scale. Thus, I extract as percentages the following fractions:

$$\frac{Q2_{st.dev.}}{Q1_{st.dev.}}, \frac{Q3_{st.dev.}}{Q1_{st.dev.}}, \frac{Q4_{st.dev.}}{Q1_{st.dev.}}$$

The final step is to compare the retrieved fractions of the banking industry with those of the other industries.

In the second method, I use the weighted average standard deviation of EPS forecasts (henceforth DEPSF) of each industry. Again to eliminate problems of scale, I estimate the ratio of each quarter's DEPSF as a proportion to the corresponding first quarter's report. That is, for each year of the sample period, I calculate the following ratios:

$$\frac{DEPSF_{ij}}{DEPSF_{1j}}$$

, where $DEPSF_{ij}$ is the weighted average standard deviation of EPS forecasts of the i^{th} quarter of the j^{th} year ($i= 1,2,3,4, j= 1999,\dots,2008$).

Then, I calculate the mean of each quarter's ratios and I compare the results of the banking industry with those of the other industries.

7.3 Results.

7.3.1 Forecast Error.

The average forecast error of all industries is declining in each quarter, apart from Consumer Goods, Industrials and Real Estate. These industries have an upward moving average forecast error. Table 1 summarizes the computed standard deviation of forecast error of each quarter for each industry. The ranking is done from the highest forecast error of the 4th quarter to the lowest.

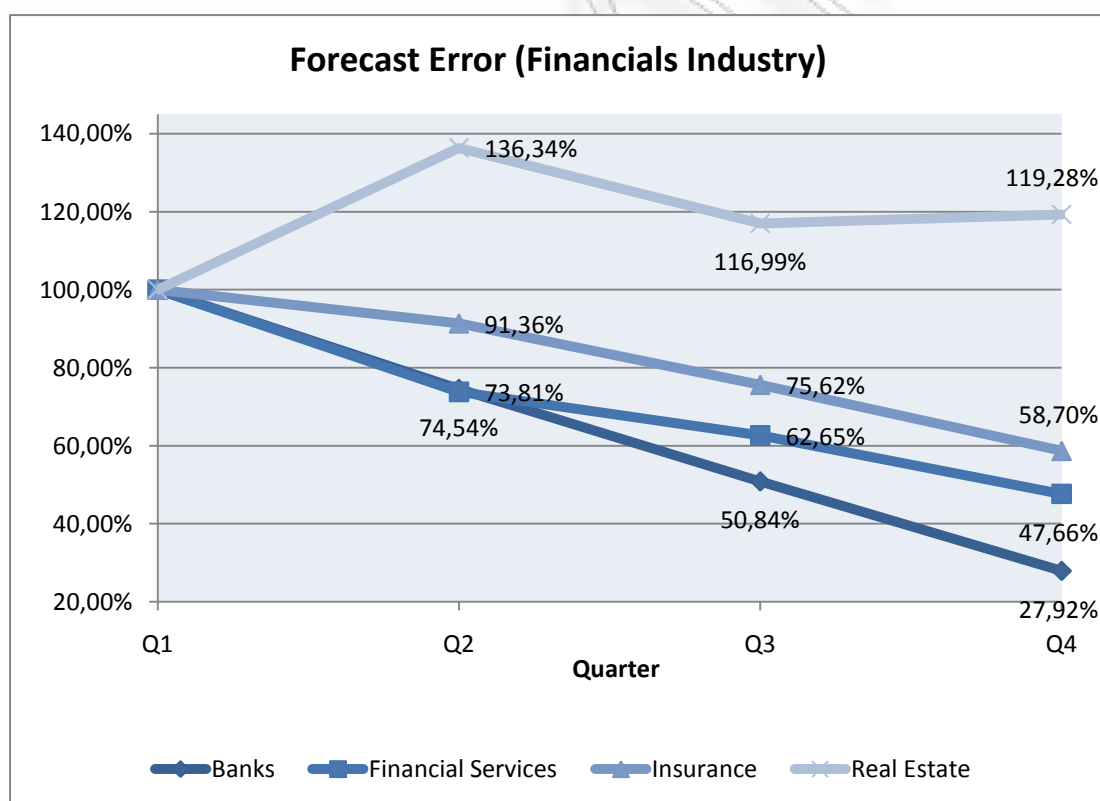
**Table 1. Forecast Error of all industries in the United states
(data from 1999 to 2008)**

Industry	Q1	Q2	Q3	Q4
Real Estate	100,00%	136,34%	116,99%	119,28%
Health Care	100,00%	99,35%	101,34%	100,32%
Consumer Goods	100,00%	97,24%	92,88%	84,78%
Industrials	100,00%	86,46%	80,75%	77,78%
Basic Materials	100,00%	95,05%	82,75%	60,24%
Telecommunications	100,00%	66,23%	65,40%	58,83%
Insurance	100,00%	91,36%	75,62%	58,70%
Consumer Services	100,00%	94,50%	77,36%	57,15%
Financial Services	100,00%	73,81%	62,65%	47,66%
Utilities	100,00%	89,01%	68,27%	31,66%
Banks	100,00%	74,54%	50,84%	27,92%
Oil & Gas	100,00%	91,76%	64,89%	19,92%
Technology	100,00%	51,24%	30,64%	14,16%

Almost every sector has a declining standard deviation of forecast error. However, in summary, the results are not consistent with expectations. Banks seem not exhibit the highest forecast error. Instead, the banking sector seem to demonstrate a lowest forecast error than the other sectors included in the Financials industry and mainly, than the majority of the other industries in the U.S. economy. The only exceptions are Oil & Gas and Technology. This lower forecast error implies a lowest degree of opaqueness for banks relative to the other industries with the exceptions mentioned above. However, we must always keep in mind that we are using a quantitative method to proxy for a qualitative item.

To display the above results in a graph, I separate all industries in four groups according to their 4th quarter forecast error (from the highest to lowest). The banking sector is shown in every graph. Financials industry enters in one graph, Graph 1.

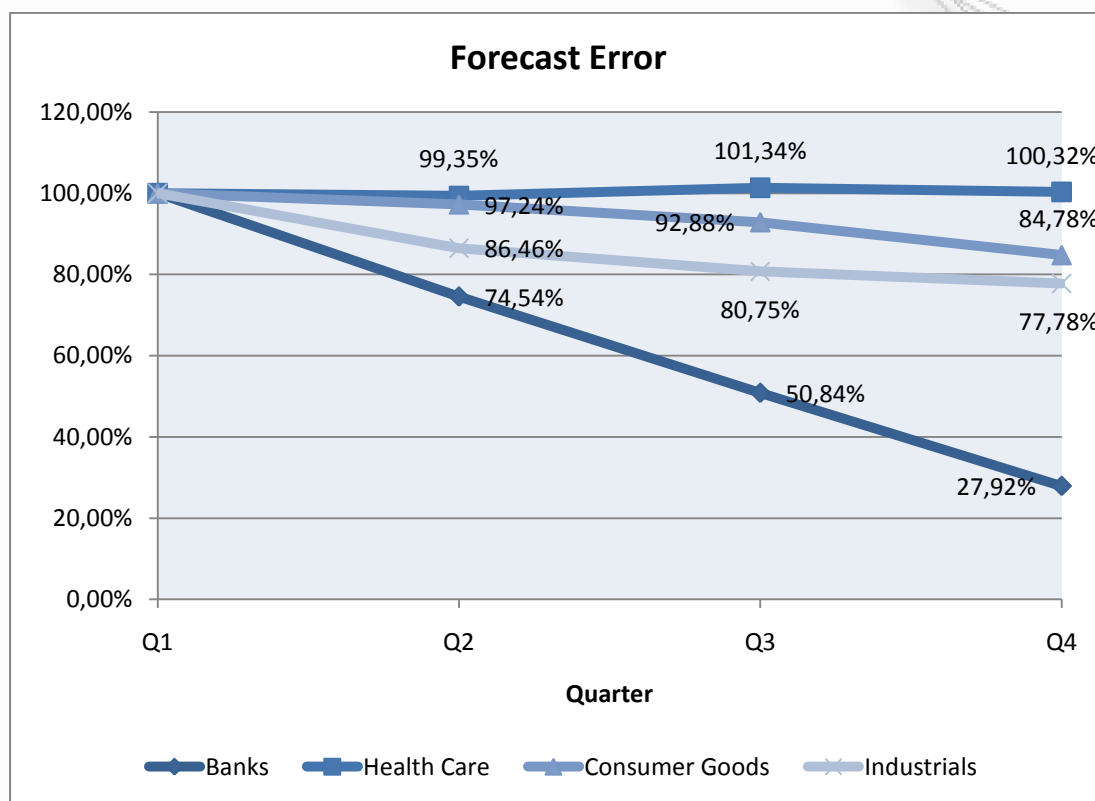
Graph 1.



Banks have the lowest forecast error of all financial sectors. This suggests that analysts are able to make better estimations on banking earnings than on the earnings of the other financial sectors. Financial Services and Insurance's forecast error decline as well, but with a smaller pace. Real Estate demonstrates a huge forecast error with significant variability. However, the estimated results for this sector are considered rather dubious, due to incomplete data.

Graph 2 displays the banking industry and the three nonfinancial industries with the highest quarter 4ths forecast error, Health Care, Consumer Goods and Industrials.

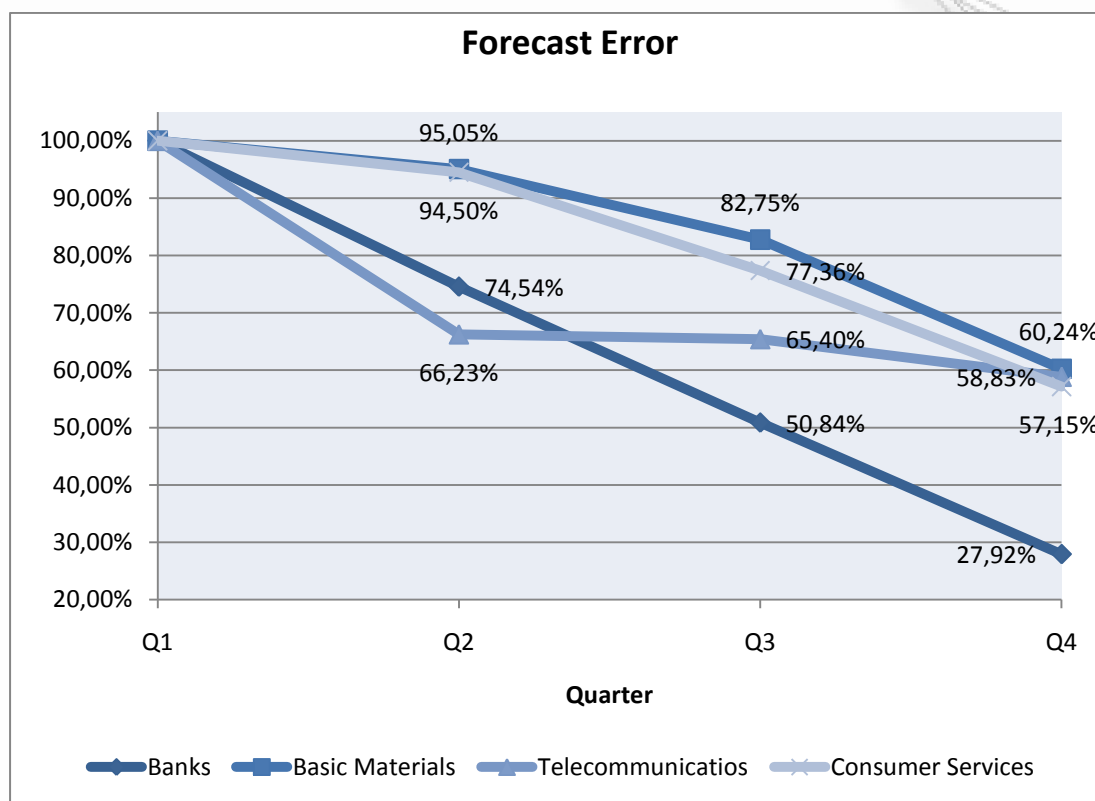
Graph 2.



There is significant difference between the computed forecast error of banks and the forecast error of the other three industries. Analysts seem to have produced more accurate forecasts on banks. The forecast error of the Consumer Goods industry and the Industrials industry declines with a very small pace and remains on high levels. The forecast error of Health Care industry does not seem to follow a specific trend.

Graph 3 displays Banks, Basic Materials, Telecommunications and Consumer Services.

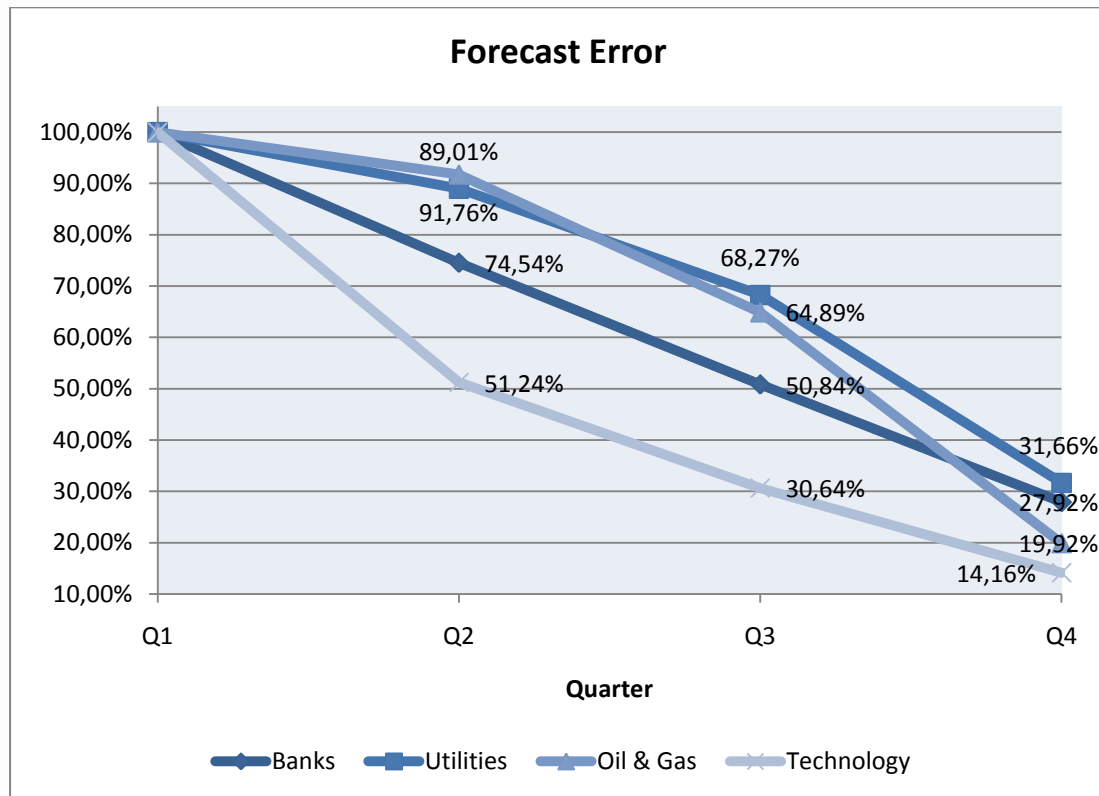
Graph 3.



Again the banking industry has a lower forecast error than the other industries in the graph especially in the 4th quarter. However, the other industries have a declining forecast error as well.

Graph 4 displays Banks, Utilities, Oil & Gas and Technology.

Graph 4.



Banks have a lower forecast error only than Utilities in this graph. The other two industries exhibit lower forecast error than banks. Technology has the smallest forecast error of all industries in the American economy, using the previously described first method.

Additionally, it would be interesting to do the same analysis excluding the last two years of the sample period. In 2007, in the United States, the real estate bubble burst and the first signs of the current crisis became evident. In 2008 the crisis entered deeply in real economy too. During those two years financial institutions mainly and many firms of other industries faced deterioration of their financial position and a sharp downfall of their stock price. In contrast, during the period 1999-2007 the American (and World) economy was in the path of development and analysts were producing information on firms operating in a normal economic environment.

Table 2 summarizes the computed forecast error of each quarter from 1999 to 2006 for each industry.

**Table 2. Forecast Error of all industries in the United states
(data from 1999 to 2006)**

Industry	Q1	Q2	Q3	Q4
Real Estate	100,00%	131,82%	126,76%	123,32%
Consumer Goods	100,00%	103,63%	104,95%	103,06%
Health Care	100,00%	100,50%	101,96%	100,72%
Industrials	100,00%	93,16%	85,71%	87,20%
Basic Materials	100,00%	88,48%	80,31%	66,00%
Financial Services	100,00%	70,51%	62,86%	61,41%
Consumer Services	100,00%	92,53%	76,85%	56,97%
Telecommunications	100,00%	64,52%	58,09%	56,65%
Insurance	100,00%	94,17%	88,09%	37,05%
Utilities	100,00%	88,16%	62,98%	29,31%
Banks	100,00%	88,11%	52,45%	20,14%
Oil & Gas	100,00%	74,36%	39,30%	17,35%
Technology	100,00%	47,07%	23,65%	11,28%

Comparing Table 1 with Table 2 we observe that Banks in the period 1999-2006 had a lower forecast error than in the period 1999-2008 and still, the only two industries that had a lower forecast error than Banks remain Oil & Gas and Technology. Real Estate, Telecommunications, Utilities, Oil & Gas, Technology, Health Care and Consumer Services maintain relatively the same levels of forecast error. Insurance demonstrates a lower forecast error and Basic Materials, Consumer Goods, Industrials and Financial Services a higher.

7.3.2 Mean of EPS Forecasts' Weighted Average Standard Deviation.

Table 3 summarizes the estimated DEPSF mean of each quarter. I remind that with the 2nd method I calculate the ratio of each quarter's DEPSF as a proportion to the DEPSF of the 1st quarter of the same year. Then, the ratios of each quarter are averaged. Similar to table 1, the ranking is done from the highest mean of the 4th quarter to the lowest.

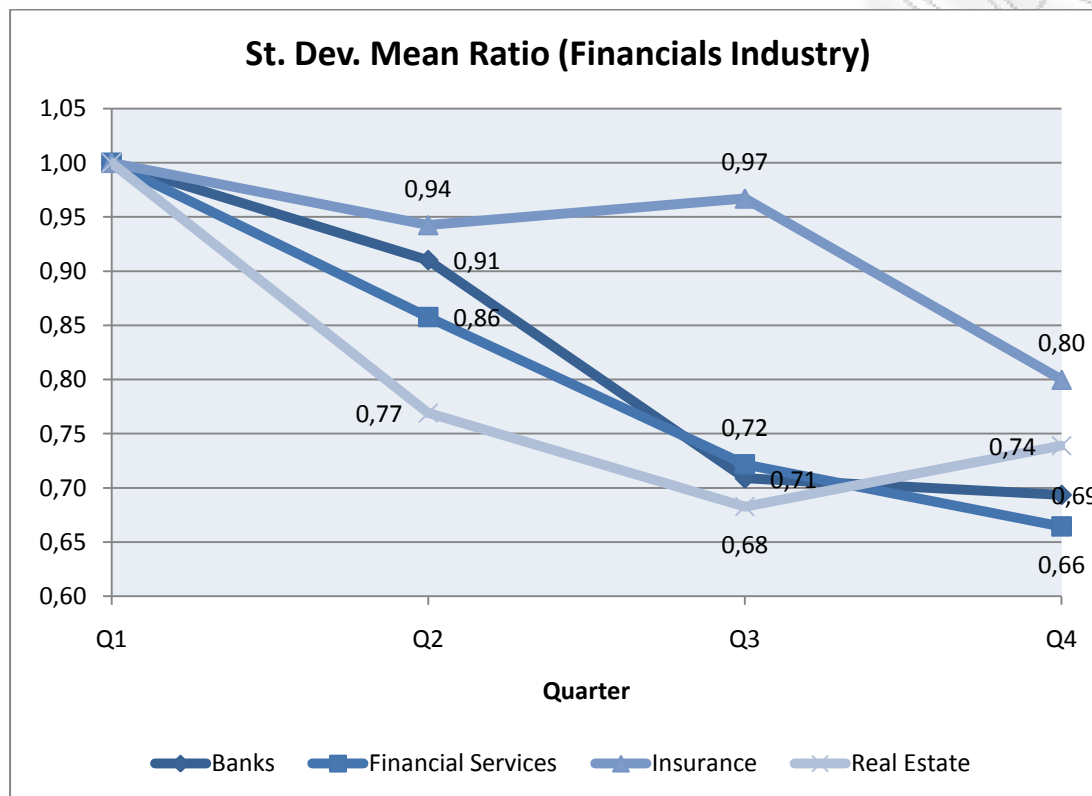
Table 3. Average of EPS Forecasts' Weighted Average Standard Deviation of all industries in the United states (data from 1999 to 2008)

Industry	Q1	Q2	Q3	Q4
Utilities	1,00	0,88	0,91	0,83
Insurance	1,00	0,94	0,97	0,80
Real Estate	1,00	0,77	0,68	0,74
Banks	1,00	0,91	0,71	0,69
Financial Services	1,00	0,86	0,72	0,66
Consumer Goods	1,00	0,94	0,84	0,65
Consumer Services	1,00	0,86	0,80	0,54
Health Care	1,00	0,82	0,69	0,52
Telecommunications	1,00	0,76	0,64	0,51
Technology	1,00	0,76	0,67	0,49
Industrials	1,00	0,82	0,73	0,46
Oil & Gas	1,00	0,92	0,70	0,43
Basic Materials	1,00	0,73	0,53	0,37

In summary, the mean of all industries is declining as it reaches the end of the fiscal period. Banks have a higher mean than the majority of the other industries. This outcome implies that analysts' forecasts on banks' fiscal year end EPS vary more than on other industries. Only Utilities, Insurance and Real Estate have a higher mean than Banks (I remind that in the case of Insurance the incomplete data of year 2001 was replaced by data of year 1998).

Below I display the above results in graphs. To obtain comparable graphs, I group industries as in the previous section and Banks are again shown in every graph. Graph 5 refers to the Financials industry.

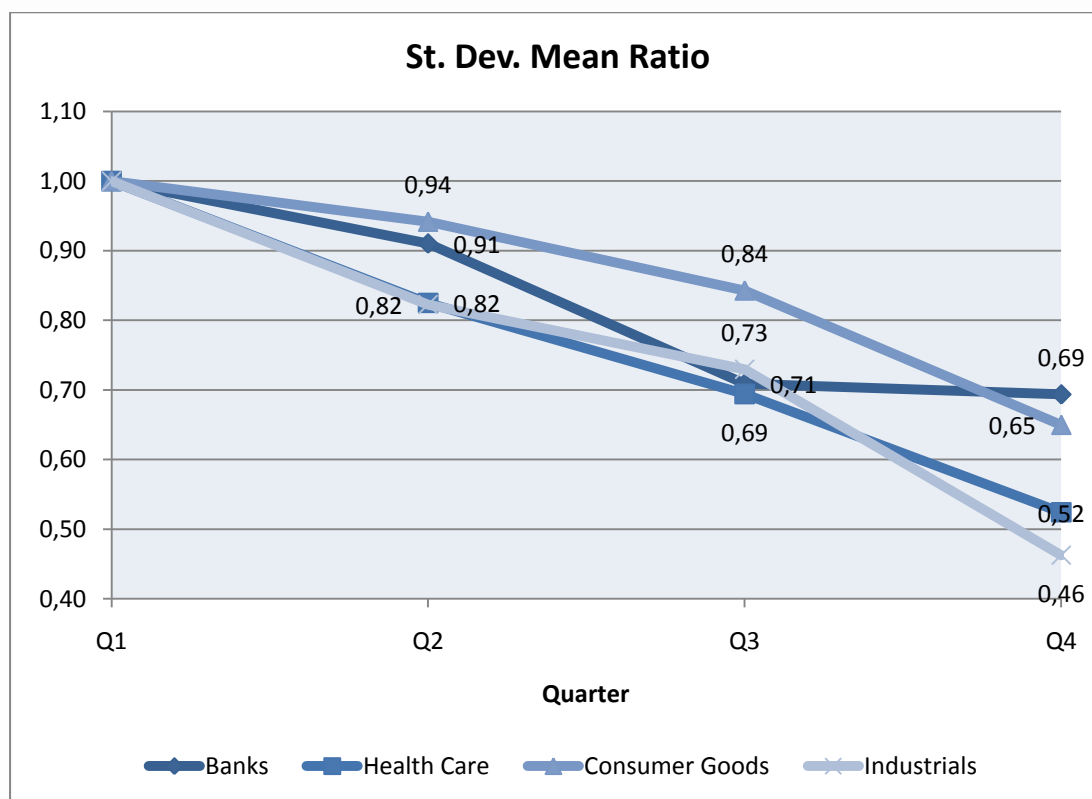
Graph 5.



Only Financial Services exhibit a (slightly) lower DEPSF mean than Banks and in general the Financials industry's mean is rather high. To remind the results obtained in the previous section, Banks had the lower forecast error in the Financials industry (see graph 1).

Graph 6 displays Banks, Health Care, Consumer Goods and Industrials.

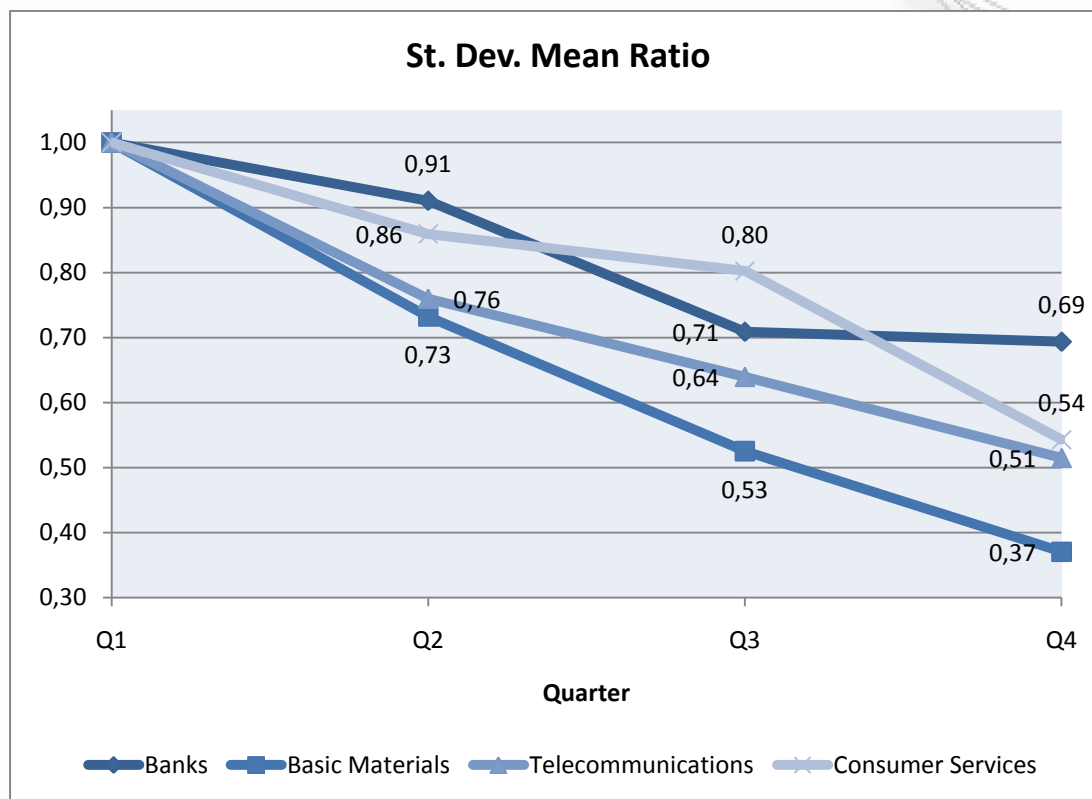
Graph 6.



Banks have the highest DEPSF mean than all other industries in this graph. Only the Consumer Goods industry has almost the same mean. In contrast, Banks' forecast error was the lowest (see graph 2).

Graph 7 displays Banks, Basic Materials, Telecommunications and Consumer Services.

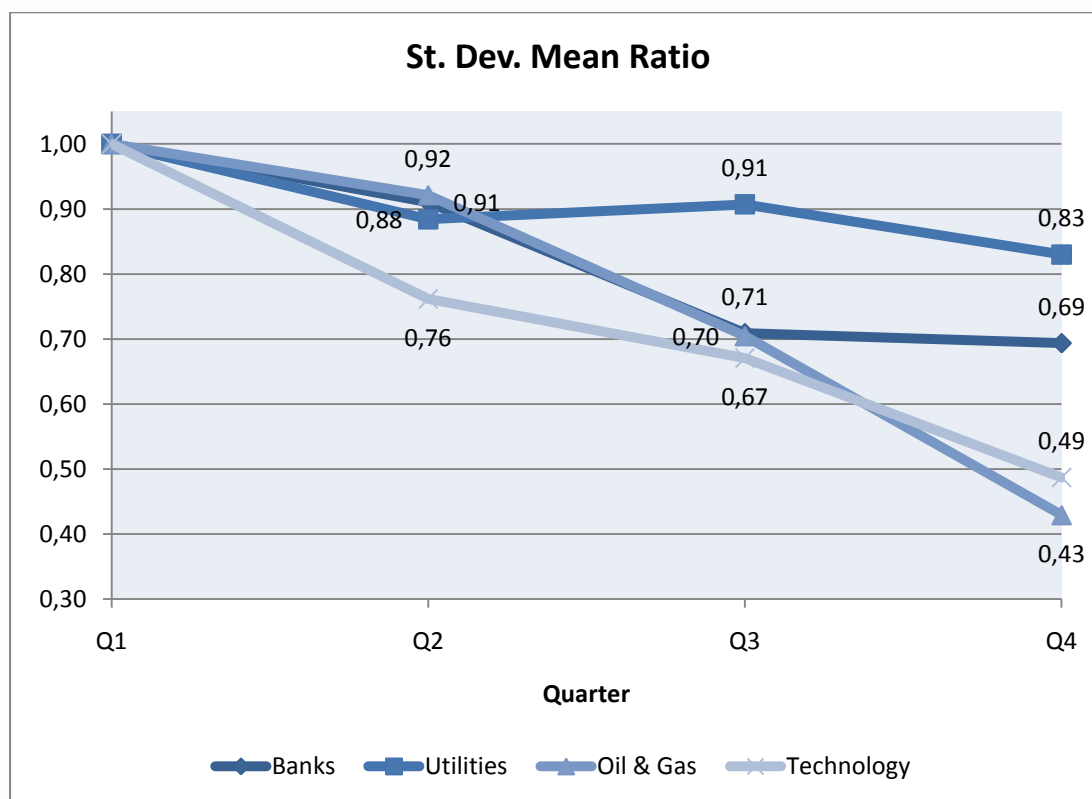
Graph 7.



Again, Banks have the highest DEPSF mean than all other industries in this graph. In contrary, Banks' forecast error was the lowest (see graph 3).

Graph 8 displays Banks, Utilities, Oil & Gas and Technology.

Graph 8.



In this graph Banks have a lower DEPSF mean only than Utilities. This is in accordance with the results found in graph 4. Technology has the lowest mean, suggesting that analysts produced relatively similar forecasts on companies operating in this industry.

I now estimate the DEPSF mean excluding year 2007 and year 2008. The results are shown in table 4.

Table 4. Average of EPS Forecasts' Weighted Average Standard Deviation of all industries in the United states (data from 1999 to 2006)

Industry	Q1	Q2	Q3	Q4
Real Estate	1,00	0,85	0,71	0,88
Utilities	1,00	0,84	0,90	0,78
Insurance	1,00	0,99	1,01	0,73
Consumer Services	1,00	0,88	0,84	0,55
Health Care	1,00	0,82	0,71	0,54
Telecommunications	1,00	0,74	0,65	0,53
Technology	1,00	0,78	0,69	0,44
Consumer Goods	1,00	0,95	0,76	0,43
Banks	1,00	0,93	0,68	0,43
Financial Services	1,00	0,87	0,72	0,42
Oil & Gas	1,00	0,86	0,72	0,42
Industrials	1,00	0,81	0,69	0,36
Basic Materials	1,00	0,72	0,50	0,31

Comparing table 3 with table 4 we observe that analysts' forecasts about banks' EPS varied less in the period 1999- 2008 than in the period 1999- 2006. Moreover, Banks seem to improve their position against other industries. Now the industries that have a lower DEPSF mean are the Industrials industry and the Basic Materials industry, while Consumer Goods, Financial Services and Oil & Gas have the same or almost the same mean (I remind that these industries had a lower mean than Banks when using data from 1999 to 2008). In general, the only industry with a higher mean ratio is Real Estate. Consumer Services, Health Care, Oil & Gas and Telecommunications have almost the same mean. Utilities, Insurance, Financial services, Consumer Goods, Technology, Industrials and Basic Materials exhibit a lower DEPSF mean when using data from 1999 to 2006.

8. Conclusions.

By using analysts' forecasts as a proxy measure, I developed two methods to test for bank opacity in the United States. With the first method I estimated the forecast error of the total EPS earnings for the period 1999- 2008. With the second method I estimated, for the same sample period, the mean of EPS forecasts' weighted standard deviation. These two methods were applied on all industries in the U.S. economy.

Intuition suggests that banks should demonstrate greater opacity than the other industries. However, using the first method, the results are not consistent with expectations. The forecast error of U.S. banks, using data from 1999 to 2008, is lower than the forecast error of the majority of the other industries. Using data from 1999 to 2006, the forecast error of U.S. banks decreases. This fact implies that in 2007 and 2008, years which were characterized by financial institutions' collapses and a severe recession in U.S. real economy, analysts seem to have been less accurate when producing banks' EPS forecasts. However, banks still have a relatively lower forecast error than most U.S. industries.

With the second method, using data from 1999 to 2008, the results are consistent with expectations. Banks have one of the highest mean of EPS forecasts' weighted average standard deviation (only three industries have higher mean than banks, Utilities and two Financials industry subsectors, Insurance and Real Estate). The above implies that analysts' EPS forecasts vary more for banks than for most other industries. However, it is interesting that, using data from 1999 to 2006, banks' mean of EPS forecasts' weighted average standard deviation decreases significantly and the decrease rate is relatively higher for banks than all other industries. This suggests a higher dispersion in analysts' EPS forecasts and thus, greater bank opacity in 2007 and 2008, years in which the American economy went into a recession.

Thus, the two methods provide relatively concordant results when using data from 1999 to 2006 and contradicting results when using data from 1999 to 2008, suggesting, in accordance with the theoretical foundations, that the valuation of a bank becomes even more difficult during an economic downturn. However, in overall, the results provide little evidence that banks are relatively opaque in contrary to what conventional wisdom indicates. This entails that bank disclosure standards are enforced and followed, indicating the effectiveness of the regulatory and supervisory system or simply the lower necessity for bank supervision in the United States.

Moreover, the results suggest that investors are able to have more confidence on analysts' forecasts, although they should deal with these forecasts with judgment. Moral hazard is still present and bank managers might try to manipulate their banks' financial data. Finally, the results are not consistent with the hypothesis that non-traditional banking activities increase earnings volatility. As non-traditional banking strategies are becoming more common, bank opacity does not seem to get larger.

Yet, the reader must keep in mind that proxy measures based on analysts' forecasts appear to have significant shortcomings as discussed in chapter 6. In addition, a firm to firm analysis might provide more accurate results than an industry to industry analysis.

Nevertheless, further research should take place on examining the degree of bank opacity. Examinations between large banks and small banks, such as that realized by Flannery, Kwan, and Nimalendran (1998) (see Introduction), would be enlightening. Moreover, research exploring the degree of bank opacity between banks that follow different business strategies can take place. Finally, research should be expanded in other countries. In EFMs, financial liberalization and legal reforms are still in progress. In many European countries and Japan, large scale banking is the norm for a longer time period than in the United States and their financial system could be characterised as bank-based. Moreover, European countries follow different accounting rules, regulatory principles and legal practices. These differences may imply a different degree of bank opacity.

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