

## 1. INTRODUCTION

Banks have always played an important role in the economic development. Their success as institutions is impressive throughout the years. This is because their role in financial intermediation is very important. What is really impressive though, is that they are successful no matter what the time in history, no matter what the economic environment, no matter what the political environment, no matter what the intentions of the governments. Over the following pages of this essay we will be able to consider the role of the banks in the financial markets and their heading to play the role of the key player in financial intermediation. We will also have a look at the economic and political environments that they operate in, and what are the conditions that they have to overcome in their - at times - highly regulated environment. While trying to study their way of doing business, we will also have a close look at their sources of income and pay close attention to income diversification and their tendency towards **non interest income**.

There are intrinsic advantages on how banks work as financial institutions and how they operate in the markets. With their day to day operations and their “friction” with their customers they can give indirect but very effective solutions to important problems like *asymmetric information*, *adverse selection* and *moral hazard*. They are also very good at meeting both the loan takers (large amounts-long tenors) and depositors (usually small amounts-available on demand). Effectively, they are able to transform maturities and liquidities, in a way that is both effective and direct.

The aforementioned advantages are, among others some of the important reasons that have made banks so successful as financial intermediaries. Governments have eventually recognized the appeal of the banks to the public and have tried to use them directly or indirectly in order to promote their monetary and fiscal policies. As we will be able to see in detail, this can be accomplished by regulating the environment in which a bank operates, or even by outright intervention in the bank's practices.

## The determinant of banks' non interest income

Throughout the years, and by scanning through the banks' financial statements, we may observe a positive turn towards the diversification of a bank's sources of income. This is evident on a bank's balance sheet by the increasing volume of non interest income over total income. This would be this essay's primary field of interest and at first we will attempt to locate and investigate the sources of non interest income.

While doing so we will also take under consideration the role of institutional framework. We will try to measure its effect on our field of interest, and also examine the effect that any future possible changes will have.

Since the primary purpose of this essay is to examine the determinants of banks' non interest income, we will try to prepare a formula that takes under consideration data which we deem play an important role to this respect. We will make a presentation of the collected data and provide with explanation on the variables used in the formula.

We will then evaluate and try to analyze the results generated from our formula. We will make an empirical analysis of these results and try to find commons with what we can actually observe. This will help us reach our conclusions, which we will be able to present, also in context to the information presented in any other part of this essay.

The subject that we have chosen to work on is interesting, contemporary and totally relevant to strategic decisions for the years to come. We hope that we will contribute to the already existing knowledge and maybe take it a bit further so that the picture is made somewhat clearer. This remains to be seen...

## 2. LITERATURE OVERVIEW

### 2.1 FINANCIAL INTERMEDIATION THEORY

#### *Overview of intermediation theory.*

The one thing that mostly distinguishes banks from other financial institutions is the provision of loans and deposit products. Deposits are liabilities while loans are assets for a Bank. Correct management of assets and liabilities maximizes a Bank's profits.

A bank's core activity is to act as financial intermediary. It pays interest to depositors, while it receives income from the borrowers. The interest income received from the borrowers is higher than that paid to depositors, since the bank has to be remunerated for services rendered (monitoring, screening, provision of information etc that we will mention in detail) but also for the risk it is taking in order to lend money to third parties. This margin also remunerates the Bank for its overhead expenses.

As we are to see, the banks are the most efficient financial intermediaries, since they effectively reduce the cost of intermediation using economies of scale and scope.

Another core banking activity is to provide its customers with liquidity. Depositors and borrowers have different and unmatched liquidity needs. However if a bank is capable of amassing sufficient numbers of borrowers and depositors as customers and be able to manage their needs effectively, it will be in a position to meet both parties' needs. The fact that banks have usually large numbers of customers means that they have potential buyers of other bank or non-bank related services like insurance, bank assurance, stock brokerage, factoring, asset management and other services.

Since the bank acts as an intermediary and sometimes an agent between borrowers and depositors, asymmetric information, principal / agent and moral hazard

problems (also to be reviewed in detail) arise. However, the banks are in a good position in order to successfully face these problems. The relation that is created between the bank and its client plays an important part in that respect. Relationship banking is a way of keeping good clients. A good credit history may allow the bank to offer better terms to a given customer or be more flexible in abiding by the terms of a loan, as opposed to contract Banking where the terms are somewhat negotiated at the beginning but are followed throughout maturity.

The banks offer another important service. Due to their large network they can become an agent for payments and receipts (transfer of funds) even in remote locations. In order for this to operate effectively, payment systems have to be introduced. Throughout the years there has been a turn towards more automated systems of payments, the ones that banks control, hence making their role even more important. However these systems heavily rely in technology, so while they eliminate some of the transaction – related risks, operational risk is still considerable.

Over the years, and according to different needs and conditions, several types of banking institutions have evolved:

1. **Commercial / Universal Banking.** Commercial banks offer the core banking activities, which are financial intermediation and the offering of liquidity. However some banks offer nearly any service of the financial spectrum. Apart from intermediation and liquidity, they offer insurance services, investment management, securities brokerage services, advisory services etc. Such banks can be considered Universal Banks. Commercial banking can be categorized as wholesale and retail, the main factor being the magnitude of the client.

2. **Investment Banks.** Investment banks offer underwriting services, fund management, services on mergers and acquisitions, and consultancy services. Due to the fact that their occupation with investments has given them a prominent role in the market as trend setters, they are often in the position to manipulate the market in certain ways and direct investments towards their clients. To this respect they are highly regulated by statutory authorities.

3. **Merchant Banks.** Originally these banks were charging a fee in order to guarantee for a clients bills of exchange. This way they provided their clients with

liquidity. In time these Banks evolved in a way that they – themselves can be considered Investment Banks.

Some argue that investment banks are not actually banking institutions. As explained above, the two core banking activities in financial intermediation between depositors and borrowers, and offering liquidity. In a strict way, investment banks do not offer any of the above services. However they do offer services very close to the above and in most cases are regulated by the same bodies. Under this respect one can argue that, they too can be considered banks.

If a banking group is big enough in order to be able render a wider spectrum of financial services it can be considered to be a financial conglomerate. These institutions benefit from economies of scale and scope, as well as from their vast amount of customers to which they can sell a lot of different services. They also diversify their sources of income in many thus making them less prone to slowdown due to the down turn of one economy. Additionally, they are big enough in order to play an important role in any economy in which they operate, so they feel secure in case of financial trouble, because the local governments will probably run to the rescue. Due to their significance in any market in which they operate, these conglomerates are heavily regulated. This is an important factor, since it increases compliance costs.

The Central Bank (which usually itself started as a commercial Bank) plays a most important role in every economy. It does not compete with commercial banks of the private sector. Its main functions are:

1. **Monetary control.** By the exercise of a monetary policy the Central Bank can control the amount of money in circulation, thus stabilizing price levels. Another very important tool in this respect is the setting of interest rates.

2. **Prudential control.** As explained the banking system plays a very important role in every economy. If the banking system collapses, then there will be no liquidity and no financial intermediation and payment services, with severe adverse effects in the economy. The problem is that there is high contagion on the banking system. Financial trouble in one bank can create a “bank run” also affecting healthier banks. The Central Bank cannot let that happen, and takes measures accordingly.

3. **Government debt placement.** The central Bank may also have the responsibility to place government with the best terms possible.

In recent years and in financially advanced countries, Central Banks do not perform all three functions, since they are somewhat contradicting. There is a tendency to separate the above functions since, if we deprive the Central Bank of the obligation to control financial stability, it can proceed more freely to controlling price levels.

*Focus on intermediation problems.*

One of the objectives of a vibrant economy is that it ensures the flow of funds from the people who save to the people who have the opportunity to invest. Strangely, and opposite to what many people believe, the primary source of funds is not the stock market or the bonds market, but loans. This is only an indication of the very important role of financial intermediaries in modern economies.

Their rise to this important position was due to necessity and not opportunity. One important reason is transaction costs. Transaction costs are that much higher per money unit as low is the amount for investment. The intermediation of the bank helps lower the amount of transaction cost due to economies of scale. Another important factor is the gain of expertise. Their continuous presence in the market makes them experts in further reducing transaction costs and providing their clients with more services.

However, the use of financial intermediaries, although efficient is not without its problems, some of the most important ones being *Asymmetric Information* and its effects, *a) Adverse selection* and *b) Moral Hazard*.

*Asymmetric information* occurs when one party does not have sufficient information on the other party involved in the transaction. This way the “informational impaired” party will not be in the position to make the best decision. This will probably lead to *a) Adverse selection*. This happens because, in some cases, the parties who are most likely to seek a loan are the ones that are the least likely to pay it back. This by turn leads to

**b) Moral hazard.** The borrowers after having received the loan, may take great risks with money that is not even their own. This will decrease the likelihood to repay the loan and will eventually make the lenders less willing to lend money.

There have been made attempts to lessen these problems, some of these being private production and sale of information (where some third party firms produce and sell information on the credibility of a possible borrower), and stricter government regulation. As these problems are also present in many ways and variations, other ways of preventing them are also the introduction of equity (collateral) on debt contracts and the use of monitoring and restrictive covenants.

In most cases the most effective way around these problems is the use of financial intermediaries. The fact that they will require information on the borrower before transferring any funds towards their part lessens the problem on asymmetric information. The information they require from the borrower makes their choice on whether to transfer funds or not, easier. There will be no grounds for adverse selection, since they will (ideally) only transfer funds to creditworthy borrowers, which will be most likely able to repay their dues. The latter leaves no room for moral hazard.

It should be made sure that the financial system through the use of financial intermediaries operates in a healthy way. That is why the financial system is one of the most heavily regulated sectors of a country's economy. It should be also made sure that no endemic problems of the system (ie principal agent problem – where managers “agents” of a firm know more and may take advantage of stockholders “principals”) contaminate firms that operate as financial intermediaries.

Another proof of the importance of the financial intermediaries is their importance on an economy's growth. Countries with no (or even underdeveloped) financial system, experience low rates of growth as a consequence of the above. Funds are not transferred effectively to those that deserve it best. Additionally, no legal or accounting systems are there to support the financial sector. This might lead to asymmetric information and - therefore – moral hazard.

## The determinant of banks' non interest income

Sharp increases in asymmetric information and moral hazard as described above, might lead to disruptions in the financial system. This in turn might lead to financial crises. Financial crises are mostly triggered and fueled by the following factors.

- Increases in interest rates, which occurs because mostly bad borrowers are willing to pay the higher interest rates in order to get funds
- Increases in uncertainty, which could be triggered by a possible stock market crash
- Asset market effect on financial statements, where both the previous two factors might have adverse effects on a company's results or financial condition
- Problems in the banking sector. The bad condition of a bank will limit its ability to operate effectively as a financial intermediary therefore worsening the situation in a country's economy.

All factors leading to financial crises should be thoroughly examined and their possible interactions should be carefully checked so that one day financial crises might be effectively avoided.

The best way to avoid a financial crisis though is to take preemptive actions, and try to closely monitor triggering events. As described above, such events might be increases in asymmetric information and its effect. Since this can be partly held at bay through the operation of a healthy system of financial intermediation, this is just another proof of its importance in the economy.

In real life, even in high communicative environments, financial markets are not fully efficient. This is a result of market frictions, whose source we need to find and examine. One source might be the Principal-Agent problem. An investor does not know whether the management acts in its best interest. Given that in the real world the principal and its actions are not easily observable, the collection of such information (in order to effectively control the agent) is costly. Information and control problems are the analogue of friction in the financial system, however both are very important because without them managers might have a motive not to invest in the optimum



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way. They may also herd in order to avoid individual punishment, so funds would not be invested in the best way.

### *Intermediation problems in emerging markets*

Problems also exist in Emerging Markets. Although good opportunities exist, markets find it hard to mobilize funds to finance the activity. The central information problem is that of *asymmetric information* (as described above), where users of borrowed funds know more about their companies than the providers of the funds. Even if there is information, it is of little value if no or limited control and rules of corporate governance are in place.

There are several effects of asymmetric information on Emerging Markets like: - asymmetric information pushes the market towards debt and not equity instruments, - asymmetric information pushes the debt markets towards banks rather than bonds and Tbills, - asymmetric information pushes the debt market towards short maturities rather than longer ones, - asymmetric information pushes the market towards secured loans rather than unsecured ones.

### *Possible solutions – Screening and Monitoring*

Screening and monitoring are two different types of information related tasks. The first is subject to the problem of adverse selection where the possible lender is not able to distinguish the possible credible borrowers. One way around this is collateralized debt. Screening should also be made before a possible decision of an equity investment. However the problem of adverse selection is also present. One could think that a company is willing to sell its equity only in case of problems.

Monitoring is the task of following an investment after it is made. This is very useful since it might prevent managers from taking excessive risks with borrowed funds. If lender cannot monitor the borrowers, they will ask for higher interest rates so that they can be compensated for the possible loss of their capital. That is why borrowers may agree in disclosing information on their financial situation, so that they can achieve better interest rates.

## The determinant of banks' non interest income

Banks are well suited to perform both screening and monitoring processes and that is why they have a very important role, especially in Emerging Markets. However banks themselves are not a panacea to the systems' inefficiencies. They also have debtors and the biggest category of their debtors is their depositors. How can depositors be sure that a bank's portfolio of loans is healthy? They too want to monitor the bank. In case that they have indications of bad loans which will diminish the bank's net worth they may withdraw their deposits in fear that the healthy part of the bank's assets will not be sufficient to repay the bank's debt. The withdrawal of the deposits may initiate a "bank run" with devastating effects. As already discussed, governments want to prevent this, and that is why they insure deposits up to a certain level. That is also why governments heavily screen and monitor (in other words regulate) banks.

As the markets mature, the role of Institutional Investors become bigger and bigger. These are investors that have access to large amount of funds and due to their size, they are able to screen and monitor possible investments. They mostly buy big stakes in equity so that they are able to affect management decisions.

Another structure that provides ample information and good screening and monitoring is the formation of Business Groups. This has not proven to be the best approach since some (or most) of the group companies are found to under perform in their relevant markets. Also the central Company that might take the role of the bank within the group cannot uphold that role as efficiently as a real Bank.

However information is not only provided internally. There are also external (third party) sources and providers of information. These might be *independent accountants* who provide accounting, consulting or audit services and issue relative reports, *credit rating agencies* that study the companies and issue reports on their creditworthiness, *stock analysts* that issue analyses and recommendation reports and *financial press* that issue all business and financial related information. All this information can be available to possible investors so that it may support their future decisions.

*Actual value of a bank*

## The determinant of banks' non interest income

A Bank's net worth is the value of its assets minus its liabilities. Liabilities (being mostly deposits and debt instruments) are easier to value under any circumstances. On the other hand, a bank's assets are of numerous categories, and their correct valuation is dependant of different and sometimes contradicting accounting principles and even external factors like inflation or the general state of the economy.

There is a constant risk that a bank may not be able to receive in full the money plus interest that it has lent to its customers. That is the possibility of a loan default, which is existent even in normal times. In that case the bank should provide for the impairment of its financial assets (such as loans) by making a contra - asset account and by such affecting its profitability. The possibility of default is even higher at times of economic turbulence so the bank should also take such aspect under consideration.

As per the accounting standards, there are many ways with which a company can value its assets. These include Historical Cost, Current Cost, Present Value and Fair Value (Realizable Value). In some cases the bank can choose to use (but continue to do so consistently) any of these techniques. This changes the valuation of its assets and - given the above described equation - the bank's net worth.

The same apply, not only for banks, but for any other company. In this way any Bank could encounter asymmetric information problems, due to the fact that a borrower will know more about the situation of the Company than the Bank ever will.

It is useful to examine valuation problems for every class of assets.

-Loans. As discussed, a bank should keep the balance of its loans close to the recoverable amount. That is not very easy because the bank should correctly calculate the possibility that some loans might default. Usually loans are classified according to their possibility of default and accurate percentages for provisions should be calculated.

-Securities. Securities are usually valued at their fair value (mark to market). However, at some cases a deep and liquid market with numerous transactions is not available, at which time it is better to resort to historical cost.

## The determinant of banks' non interest income

-Bonds or other debt instruments. These instruments are also usually valued at fair value. There is also another point of interest. If these debt instruments are to be held to maturity and not for trading, then they are to be valued at amortized cost.

As is known in accounting, assets are the primary source of income and liabilities are the primary source of expenses. However some times there is income generated from contracts that are not presented in assets and there are expenses generated from contracts not presented in liabilities. These are called off balance sheet items. An example of the above might be Letters of Guarantee. There are also some other off balance sheet items that may cause difficulties to an entity or may require an outflow of assets so that they can be settled. These are contingent liabilities, like an open court case against the entity.

Liabilities are easier to value. Deposits are valued at historic cost plus any interest expense accruals. Other debt instruments borrowed are valued at amortized cost since a bank is not likely to repay them at a time other than maturity. Other payables are valued at historic cost.

There are also other cases that worsen the valuation problems, were assets and liabilities are more difficult to evaluate is such instances. For example, as the purchasing power of money is diminished throughout the years the actual cost of replacing a bank's assets held at historic cost will be higher than presented. Another valuation problem could also arise in case that the bank has borrowed (or has disbursed funds in Foreign Currency).

It is known that for big loans (i.e. mortgage loans or business loans) the Bank holds collateral for the borrowed amount. At certain cases like the recent real estate crisis in the United States, loans may default and a bank may make a loss of out of the sale of the collateral, or may not be able to sell the collateral at all. Such crises are difficult to foresee, so as to take counter measures.

Another very important accounting principal is that of "going concern". This implies that a bank wishes to continue and is able to continue its operations in the foreseeable future. If a bank is at risk of default, all liabilities should be valued at

face value and all assets should be valued at realizable value. Any difference - if at all - is the Bank's net worth.

By using certain accounting practices that are not easy to decipher, the Bank may cover its deteriorating situation. This might happen by recognizing income upfront and not on an accrued basis, by continuing to calculate interest income on loans characterized as written off, or by classifying assets as held to maturity in order not to recognize losses by their falling prices. A bank may also be encouraged to do so by tax authorities that like to see large profits. (Large profits equals large tax basis)

In order to minimize any adverse effects, banks should be subject to regular inspection and very tight regulation. Any flexibility provided by accounting policies should not lead to dishonesty and to generating misleading financial statements.

## 2.2 THE ROLE OF INSTITUTIONAL FRAMEWORK

### *The importance of the legal system*

A strong legal system is needed in order to back up economic growth. It should be credible so as to promote the trust that the possible investors have in it. At the end of the day, the only thing that the investor has is a piece of paper that gives him rights to the possible future inflows of his investment. He would like to see that these rights are backed up by the system and are not in doubt in any way, otherwise he would have little or no motive to invest.

The financial markets depend on the legal system in certain ways. For the safekeeping of *property rights*, the enforcement of *contracts*, the implementation of rules for *companies* and company law, and the creation of a background and rules for *finance* and financial activity.

In essence, the legal system is a framework of laws. In order for the legal system to be efficient it must have certain qualities. Its laws have to be respected by everyone. It should leave little room for inconsistency and inequality, and all that are subject to it should be treated as equal. The legal system should also produce people

who serve it, people who should be ample in quantity and without vice in quality. Any sign of corruption within the servants of the law will greatly impair the legal system's authority. Even in cases where corruption seems endemic in the system and tends to be the norm rather than the exception, they should be an example by not giving in.

There have been studies that have tried to find the connection between corruption and the levels of growth. As expected instances of high corruption have proven to be a burden for growth, however the effect and breadth of this connection is not equal in all places. In countries with long history of corruption, its adverse effects on growth were lower than expected, because people would find ways around it. Since these negative effects were known to people, it was a matter of time until the system would take measures in order to protect itself. Specific organizations were developed in order to help counter the problem.

Apart from laws and regulations against corruption, there are specific elements of law that protect the shareholders of a given company. It should be made sure that every shareholder has the same rights with the next one. Minority shareholders should have equal rights for information and dividends. They should also be protected against the possible unlawful or unjust governance of majority shareholders. A measure to ensure access to information is the use of uniform accounting standards and the obligation of the company's management to publish (or make publicly available) financial statements. Additionally, a measure against unruly management and fraud is the financial audit of a company, where a third party performs certain procedure in order to provide the shareholders with assurance that there is no mismanagement and that the financial statements give a true and fair view of the Company's financial condition.

In previous chapters we examined that debt (through creditors) and not equity (through shareholders) is the most used source of funds for a Company. In order to promote stability and economic growth, laws that protect creditors should also be in place. Unlike shareholders who take stakes in a Company in order to benefit from its future economic growth, creditors are entitled to certain flows of assets embodying economic benefits (in most cases, cash) in order for the debt to be repaid. One easy - and obvious - way to ensure the repayment of the debt is collateral. If the loan is

pledged with an underlying asset, the debtor would have less motive in risking not to repay the loan. Of course substantial legal background has to be in place in order to ensure solid and burden-free transactions.

*Background for bankruptcy, and its importance*

In certain cases outright bankruptcy can occur. In these cases it is important to specify the legal background for possible liquidation and repayment of debtors to the extent possible. Bankruptcy laws may lean towards debtors or creditors, depending on the market conditions or the intentions of the market. Paying more attention to debtors protects the Companies, thus preserving entrepreneurship and job positions. However creditors might not feel secure, so they could refrain from providing debt. This would increase the cost of money, with adverse consequences on growth. Looking only in the "Equity and Liabilities" side of the balance sheet, a bankruptcy system may choose to protect the creditors rather than shareholders or vice versa. This would dearly affect the means with which companies are funded.

Bankruptcy can be initiated by debtors or creditors. Debtors might seek protection from their creditors so that they can be in a position to renegotiate their debt, and creditors might ask for the liquidation of a company before its situation and condition further deteriorates

All in all, both empirically and through research it was proven that the legal system really matters, and plays an important role in a country's financial growth. It is up to the legislators to make just laws, and up to the citizens to endorse them.

## 2.3 FINANCIAL LIBERALIZATION AND BANK STRATEGY.

*The role of governments in emerging markets*

We made numerous references to "emergence" and "emerging market". To our view, and for the purposes of this essay, "emergence" can be defined as countries liberating the energy of their private sectors. It will therefore mean the transition from government control to privatization. This is an uneasy and time consuming task, for reasons that we will understand during our study.

## The determinant of banks' non interest income

There is a close relation between government and the economy, which we will have to examine and understand. In past years, governments were authoritarian in almost every aspect of life. However as years passed there was a turn towards democracy. Historically, political democracy and liberalization / privatization of the economy are closely related. Whichever comes first tends to make way for the convergence of the other. However this is a long process.

We will have a further look to the effects of government in the economy. As a prerequisite and in order to enforce its rule, government has the control over the use of force. However, since the government monopolizes the use of force, it may use it for its own benefits. In this case it might be the extraction of wealth through taxation and “rents” (rents are the premium above market value that someone has to pay for government controlled goods or services)

In order for the government to “enjoy” those privileges it must apply and enforce laws and - above all - there must be the rule of law. As foretold there is a tendency towards more liberal political systems. This is a timely process. Governments are not giving away any privileges without a fight. The middle class is almost always the most important agent for this transition. After their rise to economic prominence, they would like to have a saying in government matters (like taxation) which affects them. So it is in their best interest to ask for control over government. Eventually democracy evolves, because even governments want to negotiate a new prominent class, since they are the new holders of wealth.

Some intervention from the government might be in everyone's interest, like the intervention in order to create the legal foundations for the markets to function (the importance of these factors were already highlighted within our survey). However government should not intervene by attempting direct economic functions that can be handled by the market more effectively. While government intervention is not welcomed by businesses, they are more than happy to accept what the government has to offer. These privileges might not be distributed fairly, if some people within government have interests in certain businesses. That is why in general modern democracies try to separate business from government.



### *Historical overview of government control*

Since all times Governments have owned property, however 1930-1980 was an era of excessive (compared to other points in time over history) Government control on the economy. This mostly happened due to three reasons: 1) Socialism, 2) The economies of "market failures" and 3) Protectionism / critique of global openness. We are to examine the effects of each of the reasons separately.

- **Socialism.** Socialism has its sources in Western Europe of mid 19<sup>th</sup> century. Its goal is to take the means of production away from capitalists and give them to the working class. It rose to prominence in early 20<sup>th</sup> century, but after World War II it did not prevail outside of Soviet (better even "Warsaw pact") controlled territories.

- **Economies of "market failures".** The great depression and its grave effects fuelled the talks on the inefficiency of the market economy and especially its indifference to the needs of society and to the waste of resources. Unrestraint growth and pursue of profit could lead to side effects like pollution and congestion. The above are arguments of the supporters of market failures theories, who believe that Governments could do a better job on controlling the economy.

- **Protectionism.** Before World War I there was a boom in world trade, with several factors leading to this effect. Some are the removal of trade barriers, the adoption of the gold standard, the private banks and the respect of sovereign debt. The developing countries relied heavily on developed countries, as these were the primary users of their exports. The great depression and its side effects on consumption and employment had a devastating effect on developing countries. Hence, there was fertile ground for some Neo Marxist theories that argued that free trade was a means of exploitation.

Following WWII there was an increasing wave of state ownership both in Western Europe and in socialist countries. This fact, along with the rejection of global openness in developing economies was also facilitated by the World Bank. Developing countries started having problems funding their development. They could not generate enough funds from their exports, while developed countries were not eager to fund them at this point of time. This left room for new institutions that could help fund these economies. These institutions (along with the World Bank) mostly funded infrastructure, so they played an important part in development.

*The role of banks in government control*

The banks are the first institutions to evolve in an emerging market. If banks perform their role effectively, funds from the savers will successfully and sufficiently flow towards the best uses. Apart from banks, funds can also be channeled through money markets. In order both for banks and money markets to work efficiently, there must strong foundation which governments should establish and safeguard.

As aforementioned, the first and most basic foundational element is the law. Financial intermediation creates contractual claims between parties. This will work effectively when all parties are confident that these obligations will be honored. Especially banks rely on the law to protect their rights as creditors.

Another very important foundational element is information. Banks have broad access to information, and that is one of the reasons for their being an affective financial intermediary. For money markets to function fully and effectively, information is of outmost importance. That is why businesses have an incentive to disclose information. Government is in a position to regulate disclosure of information in a way that is accessible and understandable to anyone.

The two foundational elements mentioned above (law and information) along with a stable currency can provide solid grounds for economic growth. However, since these elements are widely known, why do governments fail to provide these foundations? Sometimes it is due to legal restrictions, but in other occasions is due to governments' hesitance to lead to the liberalization of the economy. They might even try to undermine the liberalization process by implementing restrictions such us:

1. Interest rate ceilings on deposits. By doing so, it helps the profitability of banks, but in order to achieve that, it should undermine the growth of money markets and monitor the flow of funds abroad. Imposing Interest rate ceilings on deposits effectively raises the spread of the Banks but lowers the volume of the loans given.

2. High bank reserve requirements. The reserve requirement is the percentage on deposits that the banks have to keep with the Central Bank without interest income. This element increases the cost of funding of the banks. This is eventually suffered by the loan takers, and in part by the savers. It is also a way for the government to have source to cheap funding.

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3. Direct government lending / Direction of bank credit. Governments find it hard to leave the flow of funds solely to the hands of banks and money markets. Politicians tend to believe that some state Banks are needed in order to stabilize the system in the long term.

4. Government ownership and micromanagement of banks. As a consequence of the above, in many cases, governments either own Banks or control them, although this might be a result of a bank crisis. Government control over the financial sector may lead to impressive short or medium term growth, however this cannot be sustained in the long run.

5. Governments that repress local banks also often restrict foreign banks from entering the local market, although letting international players will help the local system grow. Not all governments want to let that materialize, since they want to control and manipulate the local system. In order to achieve that they also manipulate local money markets.

6. Restrictions of capital flows. Emerging markets offer attractive investment opportunities, so investors have motives to bypass, or even overlook any of the pre-mentioned restrictions. However governments may also impose restrictions on cash inflows in the country. This is mostly achieved by imposing taxes on inflows. These measures can be camouflaged under the pretext of "local currency protection". Eventually these restrictions are lifted, except in cases of lower-income developing countries.

The above restrictions were used in different ways and with varying causes and effects by nearly all developing countries. However we can observe a tendency towards liberalization, since financial development is positively correlated with economic growth (although in some cases the latter can be achieved without the first).

### *The beginning of change. Turn towards privatization.*

At times, Western governments were also willing to promote state controlled economy. However in the 60s and 70s there were voices of disapproval of the above approach. It was in this era that the Chicago school of economists emerged, a school that criticized the growing control of Government on the economy. They compared the costs of the inequalities caused by market economies to the magnitude of social

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loss from Government involvement. This loss is due to inefficient management of state controlled enterprises, or due to outright interventions of politicians in the economy.

The '80s started an era of privatization of state owned enterprises. Most of Western Europe followed England's successful example, however it was after the fall of communism that this trend accelerated. The privatizations in Eastern Europe (but also in Asia and Latin America who had a head start) coincided with the turn towards more democratic systems, and the building and creation of bases for robust economic growth.

How can we explain this turn towards privatization? A company's growth is not free, but is in need of resources, funded by capital. If the company will not be able to pay returns at least as much as the cost of capital, the market will eventually stop funding the company. That is why private companies make detailed research on which project to invest, and follow the most efficient and promising ones so as to maximize future profits and be able to keep finding investors. On the other hand State Owned Enterprises do not find difficulties in funding their projects so they do not always choose the best ones. Some reasons for their inefficiency is 1) *Multiplicity of goals* were a state owned enterprise has lots of goals which are not clear, are complicated and even sometimes contradicting to one-another. 2) *Market structure*. Most state owned enterprises are monopolies. Most monopolies are by default inefficient because they lack competition. 3) *Weak incentives*. Contrary to the strong incentives given by a private firm to its managers, no such incentives are present in state owned enterprises. 4) *Soft Budget constraint*. State owned enterprises do not have budget limitations since they are backed up by governments, nor do they have any "obligation" to present returns at least as high as the cost of funds they received.

Since it was somewhat proven by evidence and circumstances that private companies operate more efficiently than state owned enterprises, a mass wave of privatization started in central and eastern Europe after the fall of the socialist regimes. This could not have material effect unless the basics for such changes were set. This would be things such as basic as the *creation of legal structures for contracts and property rights*, the *restructure of state owned enterprises in corporate*

*form, the introduction of competition, the elimination of government intervention and the introduction of proper accounting and auditing standards.*

*Mass privatizations – Banks do not follow.*

This wave of mass privatization was not that significant in the financial sector. Governments tended to keep state banks as a possible means of exercising financial repression on the economy. Another reason probably was that without the monitoring of the government and with proper screening mechanisms paced on the market, managers had the motive and opportunity to act on their own interest.

Past experience has indicated that, in most cases, the liberalization and privatization of the financial sector should follow that of the rest of the economy; it is not wise to happen at the same time. A strong basis should be on place mostly in the form of law and regulation. This would guarantee a much smoother turn towards the liberalization of the economy since, if it works efficiently, it will leave little room for fraudulent acts and instances of malfunction of the market.

*Following privatization, how can banks make money? Varieties of strategies*

Banks can make money in a variety of ways. A bank can choose to focus in the traditional ways of gathering deposits at a given rate, and then lend these funds at higher rates. They can also choose to make big volumes of loans and then dispose them so that they acquire liquidity. In this case they make money from fees for managing and originating the loans that they have sold and use the acquired liquidity to give further loans. In between those two strategies, there are infinite approaches. A bank can choose whatever suits its profitability and business structure.

Due to the nearly endless choices between the two “extremes” above, banks are becoming less and less alike with one-another. If one should try to find reasons for the above, he will discover that it is more due to outside business factors (like deregulation and technological progress).

The most important parameters which affect the strategies that a bank will follow are the *size*, the *unit costs*, the *product differentiation* and the *information quality*. Large banks can achieve lower unit costs due to economies of scale. However

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smaller banks have better knowledge of their clients, and can better furnish their needs.

Small banks may choose to give “cheap” loans to some good loyal clients and take advantage of their better knowledge and ask for higher spreads for other loans. They also earn fees from servicing the deposit accounts.

Larger banks have the choice of securitization, or else reselling of loans. These banks can resell portfolios of their loans (mostly credit cards, mortgage loans and some business loans) and then make profits for servicing these loans. This source of (non-interest) income was made available only after deregulation (which has allowed banks to grow in size) and technological progress.

As described, all banks have a variety of choices on the way to do business, however it is the large banks that have access to more advanced products that deviate from traditional banking activities, from which non interest income derives. Therefore, while in recent years there is an increase of non interest income in all banks, it is really in the bigger banks that this increase is more notable.

### *Deregulation and its effects*

We have previously mentioned deregulation and its effect on the way the banks have progressed. In fact it has transformed every aspect of the banking industry in the last years. It has allowed the banks to grow in size by offering more products and services (even products previously offered and services previously rendered by non banking institutions) and by offering their services to neighbouring areas (whereas in the past US banks could only operate in their native state). Deregulation has increased competition, since more banks compete over the same area, and has also increased efficiency, because the banks will have to make full use of their resources in order to gain an advantage over the competition.

A highly regulated environment gives the banks little room to compete, and little room to develop new products. In the recent years, as an end effect of deregulation, many new products have evolved, for which banks charge fees to their users. These fees increase a bank's non-interest income.

As discussed above, another factor that conceded in the banks' progress over the last years in technological innovation. This has helped banks in lowering transaction costs, produce and distribute information more quickly and more efficiently.

*Strategies categorized. Which ones work?*

The fact that nowadays banks have a choice of different strategies to follow in order to reach their goal, makes it difficult to measure each strategy's success. There was a recent research which attempted to measure the effects of each strategy. The first step was to sort the banks in different categories, according to some given criteria. The categories are 1)Traditional banking group, 2)Non traditional banking group, 3)Private banking group, 4)Agricultural banking group, 5)Corporate banking group, 6)Community focus banking group, 7)Transaction services banking group and, finally, 8)the diversified banking group. There was also a “no-strategy” group for banks that could not fall to any of the above categories.

For these banks, the researchers used such ratios per category, in order to quantify return over risk. As expected, the lowest risk was observed in the diversified banking group. From there on, the researchers could observe increases in risk, which was not always followed by increase in returns. For example while non traditional, corporate, and private banking groups offer a good return for the risk taken, the rest banking strategies offer less return for the same amount of risk. In the long run it would be inefficient to follow such strategies. However it was observed that banking groups that did not perform well was mostly smaller in size, so they could have a lot to gain when growing larger.

It is kind of imperative to be able to grow in size so as to take advantage of possible economies of scale and scope. Although smaller banks are more versatile, the bigger groups have access to cheaper funds and therefore they generate bigger profitability spreads. It is not easy to specify how big a bank should be in order to be able to get some of the benefits of economies of scale, since it is very much dependant on the strategy that the bank intends to follow.

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Since the small banks will try to grow in size in order to be able to achieve some of the benefits of economies of scale, they will probably have to take higher risks in order to achieve it. Otherwise they will be left with a disadvantage compared to the bigger banks, which will leave them with a burden that they will no longer be able to bear. And since there is no longer the benefit of the protection of regulation (no geographic restrictions) the number of small banks is expected to decline.

### 2.4 NON INTEREST INCOME.

Even well in the 21<sup>st</sup> century, the banks still hold an important position in the well developed financial markets. They have developed and are offering services far beyond the traditional loans and deposits. Some of them have specialized in offering the new services (like investment banks) and there are also others that have entered this new market, without leaving their traditional banking business. In this respect they have expanded and diversified their income generating structures.

#### *First view of diversification of income*

Nearly all banks have proceeded in diversifying and expanding their sources of income. Apart from loans and deposits, they also offer insurance services, investment banking services, factoring, appraisals and real estate services, stock brokerage, mutual funds, asset management and numerous more financial services. The banks have the advantage to be able to promote these services to their already existing vast clientele. They also resort to off-balance sheet products in order to enhance their profitability. Such products are derivatives. The derivatives can be used for hedging FX, cash flow or interest rate risks, or even just to enhance a bank's profitability through speculation and trading. A derivative requires minimum initial capital, it is settled at a future date and its valuation is dependent on the value of the underlying assets. The key derivatives are futures, options, swaps and forwards. There are specific markets where these derivatives are traded. They also offer the opportunity to generate income without initial investment. However until they are settled, the effect of their valuation is presented on balance sheet, as a derivative asset or liability.

The banks have been able to improve their profitability through their role in securitization and money and debt markets. In some cases the banks are the issuers,



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but in most cases, and according to the instrument, they are the originators and the underwriters. In the case of bonds, a bank or a group of banks underwrites the placement of the bond on the market. Of course they do that for a certain fee. In the case of Asset Backed Securities, the banks originate loans sell them to another entity which sells them as securities. The bank gains liquidity since it gets funds for the loans sold, and it also gets fees for originating and servicing the loans. The same mechanism (with minimum differences) is also behind Collateralized Mortgage Obligations.

The above are all sources of non interest income for a bank, thus enhancing its income diversification. In periods of low interest rates and, therefore reduced spreads, the banks could turn their attention to other more profitable activities in order to make up for the reduced net interest income. This should be a well thought after choice, since there has been proven to exist a negative correlation between non interest income and net interest income. In periods of falling margins, a decision to promote non interest income will most probably further decrease net interest income.

### *New challenges – choices on how to meet them*

In more modern economies the banks face new challenges. The progress in information technology and deregulation has not only helped banks offer a wider range of financial services, but has also let other financial institutions offer services very close to core banking services. Also the increase of the existing level of information, has lead people to invest and to offer funds in money markets. Banks are no longer the obvious and only solution.

In order to face and overcome any new challenges and threats the banks will have to evolve. They will have to do so, since compared to other sectors of the economy the banks did not present equal growth. This means that the banking sector has not grown as much as the rest of the economy, which by itself also means that there is room for improvement. The advancement in technology, offers many such opportunities for improvement.

By developing e-banking services, a given bank will be able to offer most of its product to an nearly endless clientele. It does not have to maintain an extensive

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branch network in order to reach all customers. Its costs will decrease and profitability will therefore increase. It can even charge extra fees for these technologically advanced services, since it does offers more flexibility and ease of use for the customers. It has been proven that Internet banking is the cheapest and more efficient and cost effective way of transactions. There is much potential and no bank should be left behind in its development.

This way, along with the correct management of their key advantages, the banks will continue to have the edge as financial intermediaries, and will continue to play an important role in all modern economies' financial sector.

A lot of research has been made on why the banks are the more efficient financial intermediary, on what do they do and on how they generate income. It is widely known that banks attract deposits offering an interest rate and then lend these funds asking for a higher rate. This difference (spread) is a remuneration for services provided (screening, monitoring, debt transformation etc) and for the risks that they take (liquidity risk, credit risk etc). It is also their means of funding their own overhead expenses.

Some globally known and easily observable outcomes is that 1) Non interest income has increased as a percentage on total income over time, 2) This increase is bigger and more easily observable in larger banks and 3) The larger amount of non-interest income was generated by a small number of banks.

As a result of the research it was evident that although non-interest income has grown, intermediation activities are still very important for a bank. So non-interest income coexists with a bank's ordinary line of business rather than replacing it.

While banks are still interested in developing their traditional business of intermediating in the market between depositors and borrowers, they also try to widen their other sources of income so that they are not left out in the game of profitability. Non interest income is a good source of profitability, since it does not require the presence of underlying assets. In that case no extra resources in the form of liabilities

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are needed in order to fund that what produces non-interest income. In this case the banks are able to achieve higher profitability and efficiency ratios.

It is also known from previous surveys that the two most important factors that can explain this increase in non-interest income are *technological progress* and banking *deregulation*. In short technological progress has allowed the banks to develop new products and services (now invaluable to its customers) for which they can charge fee income. Deregulation has widened the field of services that the banks can now provide, so they can get extra fee income from there also.

As we have seen there are two ways for the banks to take advantage of these new opportunities. They can either choose to grow so that they can offer their services to a large volume of customers or they can choose the market that they want to pay attention to and grow in significance within it, so that they can somewhat be necessary to specific clients.

Both ways have advantages and disadvantages. In the first way, the banks do not earn big spreads from their products, since they operate in a very antagonistic environment. However they benefit from economies of scale, and they also have a very big base of clients to which they can offer services and earn fees from.

On the other hand, smaller banks can chose to give benefits to a loyal base of clients (mostly depositors) and charge bigger spreads to these borrowers that they know that are in need of funds and that they are in the position to repay them. Their expert knowledge of the market and their customers allows them to do exactly that.

The latter approach is that of traditional banking. The new approach brings higher efficiency ratios. However it is argued that non-interest income is more volatile. This can be explained in the following ways. Unlike traditional banking income from loans, it is not relationship based. There is no solid ground underlying this fee so a client can easily leave if they find better opportunities. This cannot easily happen with a i.e. a loan. Also, while the produce of new interest income need the existence of new loans, the existence of non-interest income needs the existence of

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new expenses (i.e. labour). This will make the profitability of a bank very vulnerable, since in case of a decrease in fee income, it will be left with the extra expenses.

A well managed bank should not neglect core banking activities. It will be also able to render fee generating service to a wide range of its clientele, so it will be able to produce bigger amounts of income.

### *Diversification of activities, new sources of interest & non interest income in detail*

We will now proceed in examining in detail the new activities that banks use in order to diversify their sources of income. We will present the new businesses and try to classify any outcome as interest or non interest income.

**Insurance companies.** Nearly all banking groups have insurance company subsidiaries. These companies collect premiums, and sell life and property insurance products. They also work as agents by selling insurance products from other insurance companies. The insurance premiums collected are considered non interest income for a group. Every insurance company is required by law and regulation to hold reserves so that it can be able to remunerate its clients in case of an insured event. The level of these reserves is determined by special statistical analyses, and by individuals performing actuarial evaluations of the insured risks. These reserves should be kept at risk free, highly liquid investments, such as bank deposits or treasury bonds. The yield of such investments contributes to the interest income of the group.

**Factoring Companies.** These companies have little difference from an actual bank. They provide their customers (mostly small businesses) with liquidity by taking as collateral rights on trade receivables or Post Dated Cheques. The customers provide the bank with rights to receivables of ie 100 after 1 year, and receives now liquidity of ie 95. This difference of 5 is accrued over the period of the deal (in our case 1 year) and is recognized as interest income. Since the loan is backed up by collateral (any uncollectible PDC's are replaced by others, the offered rate is lower than a standard loan. These companies would provide a group with new sources of income, however they do not contribute dearly to non interest income, other than collecting small fees and commissions for the rendered services.

**Leasing Companies.** Every banking group has leasing companies, which provide new sources of income. The leasing business has two counter parties, the lessor and the lessee. The lessor is the one that gives the leased item to the lessee, for which it receives payments. According to International Accounting Standards, there are two types of contracts. These are “operating lease” contracts and “financial lease”. Their difference in accounting is significant, and it plays an important role in non interest income.

-Operating lease contracts are simple lease contracts, for which the lessee pays a “rent” for the use of the leased item. All the risks and the rewards of the leased item stay with the lessor, that is why the lessor keeps the leased item in its financial statements. The rents that the lessor receives is its source of income from this business, and in the consolidated financial statements it is classified as non interest income. An example would be the following. The lessor buys the leased item (ie a car). The lessor now owns the car, and presents it in its financial statements. The lessor then rents the car to the lessee, from which he receives lease payments. For each of the lease payments the lessor receives cash as income (Dr Cash – Cr Lease income). By the time the lease contract expires, the leased item in the lessor's books is usually fully depreciated, and tries to sell it for a price close to its fair value. Because the fair value (sale price) is higher than the book value, the difference is recognized as (non interest) income.

-Financial lease contracts. These contracts are a lot more complicated. In this case, the lessor operates as a bank. All the risks and rewards of the leased items stay with its user (the lessee). Although legally the owner is still the lessor, accounting wise the lessee keeps the leased item in its financial statements also calculating depreciation. With the use of an example we may understand better how a financial lease contract works. The lessor first purchases the leased item (ie an office building). The lessor then transfers the leased item to the lessee and instead the lessor recognizes a financial receivable. The receivable is at least as high as the value of the asset or as high as the present value of the lease payments to maturity. They also agree upon a program according to which the payments will be made. For each of the payments the lessor increases its cash. The lessor also reduces the financial receivable with the applicable amount and the difference is recognized as interest income. (Dr cash – Cr financial receivable, Cr Interest income). At the end of the lease contract, the leased item is transferred legally to the lessor, usually for a predefined small price. We can see that

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in the case of the financial lease contracts the lease company operates as a bank. It provides the lessee with the funds to purchase the leased item and for this it recognizes interest income.

Overall, the definitive difference is which of the counter parties keeps the risk and rewards. Other than that, operating lease contracts are a source of non interest income, while financial lease contracts are a source of interest income. Usually financial lease are used for assets of high value which the company would buy by itself if it had the funds.

**Securities Companies.** These are also a type of companies that each banking group has. They work as agents for the buying and sale of stocks in the local and also on foreign stock exchanges. Their source of profit is the commissions they receive from the sale and the purchase of stocks for the part of their clients. Due to the fact that they have good knowledge of the market, they also keep a portfolio of stocks for trading of their own, which they manage at will. All these sources of income are recognized as non interest income.

**Mutual funds Companies.** These companies use the Group's vast sources of funds in order to purchase vast portfolios of stocks, securities and bonds. They then sell the rights to the proceeds of these portfolios to their customers. These companies make profits from fees and commissions for managing these portfolios. These fees are recognized as non interest income in the Group's books.

**Asset Management Companies.** These are comparatively new additions to a bank's group. They provide investment advice and information to some of the best customers of a bank's group. They also prepare investment and consulting proposals for some company-clients which they manage to sell. Using the bank's vast clientele they also have access to vast amounts of funds, which they use as collateral in order to perform underwritings of other firms when entering a stock exchange. Underwriting fees are vast, and when the stock exchange does well and companies proceed in capital increases by issuance of new stocks, this is a good source of non interest income. Asset management companies also intervene in the market of debt issuance. They get fees for underwriting possible bonds issuing, which is also a lucrative business. In all, asset management companies provide income diversification, and at

certain times, they are a good source of non interest income. They do not need large amounts of funds since they only employ specialized personnel. They present a very good return on investment, since the initial investment is minimal compared to the amounts of revenue they generate. If such a company turns out to be successful, they contribute a lot to a banking group's Return On Asset and Return On Equity.

**Real Estate Companies.** Banking groups are active in multiple markets and multiple countries, so they tend to be able to find and recognize possible opportunities in the real estate sector. Apart from that, they also have access to cheaper funds (ie their base of depositors), so they can be more competitive and profitable compared to old fashioned real estate enterprises. In order to be able to make profit from the aforementioned advantages, most of the bigger banking groups have their own real estate companies. Such companies proceed in the purchase of pieces of land or complete buildings, which they either hold as stock in order to profit from possible rises in value, or they rent to individuals and enterprises. Any rental income is recognized on an accrued basis as non interest income. They also have another source of income, which we will examine in the following lines.

When accounting for fixed assets such as land and buildings, most normal companies use the historic cost principle for their valuation. However, some use the choice given by accounting standards, and proceed in paying specialized valuers in order to find the Fair Value of their land and buildings. (Fair Value accounting for fixed assets). If the result is higher than the value in their books (and it usually is), they proceed in updating the value of their assets to the new value. The amount of the revaluation is kept as a separate reserve in equity (it is recognized in equity and not profit and loss, because it is not realized income, but a result of valuation). All real estate companies use fair value accounting for their fixed assets. The difference between such companies and any other company is that the result of the revaluation is not recognized in equity but directly in Profit and Loss. The reasoning behind this is that taking advantage of such volatility in the price of land and buildings is their primary sector of business and it would be fair to present differences in valuations in Profit and Loss, even if it is not yet realized. Of course we may understand that this source of income is recognized as non interest income. In periods of rapid growth in the prices of land and buildings the income that is generated from such activities is vast, and it contributes dearly to a group's profitability.

**Business / Consulting services Companies.** These companies provide their customers with supporting services, mostly financially related. As discussed the banks have a vast number of customers, both enterprises and individuals. It can approach businesses and try to promote its business services. Such services would be of outsource nature, like keeping the accounting records of a company or calculate payroll or other HR related expenses. This type of companies do not generate much income, however they also do not need big investment. All the income they generate is classified as non interest income.

The banks are financial institutions and as such, they employ many professionals with experience in the financial sector. They have access to a lot of products that can potentially take advantage of any situation of the market. They keep an eye for arbitrage opportunities, and also use derivatives in order to hedge their risks, or even to take advantage from opportune situations in the market. These derivative instruments do not require initial investments since the outcome will be settled in cash at the end of the contract. However, according to new accounting standards, these instruments should be valued at each Balance Sheet date. One part of their mark to market valuation affects the Balance Sheet (derivative asset or derivative liability), while the other part affects P&L. This income is classified as Trading income, which is non interest income.

Another important source of non interest income for a banking group would be profit from its trading and investment portfolios. With trading portfolio, it is easy and straight forward. Assets classified as held for trading, or as held at fair value through Profit and Loss are revaluated and kept at fair value through P&L. If this results in valuation profit, it is recognized as non interest income. Also, apart from the valuation profit, any resulting P&L on the actual sale of these assets (difference of sale price when compared to book value) is also recognized as non interest income. In fact on the Profit and Loss account as presented in the financial statements, this would be classified as "Trading income".

With the investment portfolio, the recognition of income is a lot different and happens only at the actual sale or derecognition of the asset. These assets are



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classified as Available For Sale because the company has not decided at their purchase if it is to keep them to maturity or sell them at an opportune point in time. These assets are held at fair value, not through P&L but through equity. We can see that this way their revaluation does not affect P&L, but a special reserve in equity called AFS revaluation reserve. When an asset is sold or derecognized, any amount held in equity is going to be recycled through P&L. From this we can understand that at the end, any revaluation amount held in equity is going to affect the company's results along with any profit or loss from the actual sale of the asset. Thus, this category of asset clearly affects non interest income. This income would be classified as "Gains less losses from investment securities"

Finally, another source of non interest income would be "other operating income" This does not contribute clearly to total income because it is mostly consisted from one off items that are not part of a bank's day to day business. Such income would be gains from sales of Fixed assets or gains from sale of subsidiaries and other extraordinary items like back dated remuneration from insurance companies, or possible income tax returns

Another source of income, well mentioned before in this essay is also non interest income that comes from commissions related to securitizations. A securitization works as follows; a banking group categorizes loans per classes (i.e. mortgage loans, small business loans etc) and sells them to another company build for that exact cause. Such companies are called special purpose entities (SPEs). These Companies find the funds to purchase these portfolios of loans, by issuing bonds. The bonds stakes are purchased by other companies, by investment funds or even by private individuals. As long as the original loan takers pay their instalments, the SPE will have enough funds to repay interest and capital to the bond holders.

As this deal is set up, with the SPE as a median, the bank sells some loans to other banks or individuals. By doing so, it receives liquidity so that it is capable of disbursing even more loans. As the loans are sold, all the risks and rewards are transferred to the bond holders, and the loans are derecognized from the Bank's Balance Sheet. The bank however continues to service these loans, and for there it receives commissions and servicer's fees from the SPE. These commissions are calculated as a percentage on the volume of the loans sold, so given that these

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volumes are massive, one may understand that this is an important source of non interest income.

(This non interest income is only recognized in a bank's stand alone financial statements. Although usually the banking groups do not hold stakes at the SPE's share capital, however they exert dominance and control over them, that is why they include them in their consolidated financial statements. In this case the fees and commissions paid from the SPE to the banks are considered intercompany transactions and are netted off, since for one party it is an income, while for the other it is an expense. However the fact remains that additional fees and commissions are created and the final bearer is the bond holder).

### 3. DATA

Throughout this essay so far, we have studied the background of financial intermediation, and the reasons that have made Banks so successful. We have also studied their course throughout the years, their relations with governments and have caught a glimpse on how they can be used to become means of fiscal and financial policies. We have also seen how they add value to the economic environment just by their existence, and how they give solutions (outright or indirectly) to basic economic drawbacks, or informational limitations.

Over the last years, and by looking at banks' income statements, we can observe that there is a substantial rise of the amount of non interest income that they generate. Some reasons for that is the diversification of Banking activities and the offering of novel products, as well as technological advancement which has made the offering of new services possible and available to numerous potential clients.

Whatever the reasons, the fact remains that non interest income is an important part of total income. We are to further examine this relation and hopefully we will be able to reach useful conclusions on the possible interactions of non interest income to total income, the relation of non interest income to the way the bank is managed, and whether this increase in non interest income is inherent on how the banking system proceeds or it is a choice on each bank's strategy.

Since there have been studies in the past that have examined the connection of non interest income over total income, we found it intriguing to explore the connection of non interest income over total assets with the same group of selected variables. Non interest income over total assets itself, connects a P&L item to a B/S item and it is a useful tool to explore interrelations between non interest income and the size of a bank, since have mentioned time and again within this essay that big banks have the edge in generating non interest income.

We were able to collect data that will help us construct the variables that we want to study, and then use a statistical program to run regressions, and discover any

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connections between the variables that we have created and the dependent variable that we want to examine.

The data that we were able to collect expanded over a period of 21 years. We focused on American Banks. In some ways, the American market could be considered to be the most interesting. They were the first to benefit from deregulation, and data is somewhat easier to reach, given the size of the market. Also the American market is well regulated in terms of audits and disclosures, so financial information is considered accurate and well available. Additionally, it is a modern and up to date market which is usually the first that launches new and novel products, so this makes it even more interesting when trying to reach conclusions. Additionally it will make our results comparable to other surveys on the subject, so that we maybe able to contribute even a slightest bit to the knowledge on this issue.

We have selected a sample of a total of 1508 American Banks. However within the period of 21 years (1988-2008 included) that we were examining, some were newly created, others ceased to exist, others merged, others changed name, and for some of them data were just not available to us, or out of reach. We focused on 97 banks which consistently presented data for the whole period under examination.

The Banks that we chose for our sample existed before the beginning of the time period under consideration, and continued to exist even after the end of our time span. No new banks or defaults and mergers were taken under consideration. We focused on consistency of data and strategies.

In order to reach the financial information we mainly used two databases. We used Datastream to locate the American Banks, and we then used Thomson Financial in order to be able to locate all other financial information.

The Banks that we focused on in order to examine and collect evidence are:

#	Name of Bank	#	Name of Bank
1	AmcoreFinancialInc	50	MerchantsBancsharesInc
2	ArrowFinancialCorp.	51	NationalPennBancsharesInc
3	AssociatedBanc-Corp	52	BankOfAmericaCorp.
4	BB&TCorp.	53	NorthernTrustCorp.

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5	BokFinancialCorp.	54	WellsFargo&Co
6	BancfirstCorp.	55	OldNationalBancorp(Indiana)
7	BancorpsouthInc	56	PNCFinancialServicesGroupInc
8	BankOfGraniteCorp.	57	BankOfHawaiiCorp.
9	BankatlanticBancorpInc	58	PopularInc
10	BrynMawrBankCorp.	59	PacificCapitalBancorp
11	CentralPacificFinancialCorp.	60	SeacoastBankingCorp.Florida
12	CVBFinancialCorp.	61	SVBFinancialGroup
13	CapitalCityBankGroupInc	62	SimmonsFirstNationalCorp.
14	SouthFinancialGroupInc	63	USBancorp
15	ChemicalFinancialCorp.	64	SterlingBancorp
16	CitizensRepublicBancorpInc	65	SuffolkBancorp
17	CityNationalCorp.	66	SuntrustBanksInc
18	TheColonialBancgroupInc	67	SusquehannaBancsharesInc
19	Comericalnc	68	SynovusFinancialCorp.
20	CommerceBancsharesInc	69	TCCFinancialCorp.
21	CommunityBankSystemInc	70	TompkinsFinancialCorp.
22	CommunityTrustBancorpInc	71	TrustcoBankCorp.NY
23	CullenFrostBankersInc	72	TrustmarkCorp.
24	DowneyFinancialCorp.	73	UMBFinancialCorp.
25	FNBCorp.	74	UnitedBanksharesInc
26	FarmersCapitalBankCorp.	75	AmeriservFinancialInc
27	FifthThirdBancorp	76	ValleyNationalBancorp
28	FirstCommonwealthFinancialCorp.	77	WSFSFinancialCorp.
29	M&TBankCorp.	78	WashingtonFederalInc
30	FirstFinancialBanksharesInc	79	WebsterFinancialCorp.
31	FirstFinancialBancorp	80	WesbancoInc
32	FirstFinancialCorp.	81	WestCoastBancorp
33	FirstFinancialHoldingsInc	82	WestamericaBancorporation
34	FirstMidwestBancorpInc	83	WHoldingCompanyInc
35	1stSourceCorp.	84	WhitneyHoldingCorp.
36	FirstHorizonNationalCorp.	85	WilmingtonTrustCorp.
37	FirstBancorp	86	ZionsBancorporation
38	FirstfedFinancialCorp.	87	BankunitedFinancialCorp.
39	FirstmeritCorp.	88	CityHoldingCompany
40	FultonFinancialCorp.	89	FirstMerchantsCorp.
41	HancockHoldingCompany	90	NBTBancorpInc
42	HarleysvilleNationalCorp.	91	WashingtonTrustBancorpInc
43	HuntingtonBancsharesInc	92	InternationalBancsharesCorp.
44	IndymacBancorpInc	93	FirstBuseyCorp.
45	IndependentBankCorp.	94	FrontierFinancialCorp.
46	IrwinFinancialCorp.	95	FirstCitizensBancsharesInc
47	Keycorp	96	RegionsFinancialCorp.
48	NewbridgeBancorp	97	JPMorganChase&Company
49	Marshall&IlsleyCorp.		

The data that we were able to collect, gave us a lot of information on the banks that we uses as specimens. The information that we collected, which became the basis for constructing the variables that we were able to use, was as follows:

<b>Data</b>	<b>Type</b>
Non interest income	P&L Item - Income
Interest income from financial services	P&L Item - Income

## The determinant of banks' non interest income

Total Assets	B/S Item - Asset
Total loans	B/S Item - Asset
Total deposits	B/S Item - Liability
Real Estate loans	B/S Item - Asset, part of total loans
Commercial & Industrial loans	B/S Item - Asset, part of total loans
Consumer loans	B/S Item - Asset, part of total loans
Equity	B/S Item - Liability towards the shareholders
Money & Capital market financing	B/S Item - Liability. Any liability other than equity or deposits
Other investments	B/S Item - Asset. Any Asset that is neither loan nor cash
Number of employees	Off B/S information - Qualitative factor, Readily available
Return on Asset	Off B/S information - Readily available
Return on Equity	Off B/S information - Readily available

We were able to collect all the above required information for all of the Companies within the sample, and for all years from 1988 until (and including) 2008. It would be useful to mention that the currency that the volumes are expressed in is the US Dollar, and that the volumes are expressed in millions. This is not an important factor within this essay since we will mostly have to do with ratios, however it is good to know for someone that would try to regenerate the results.

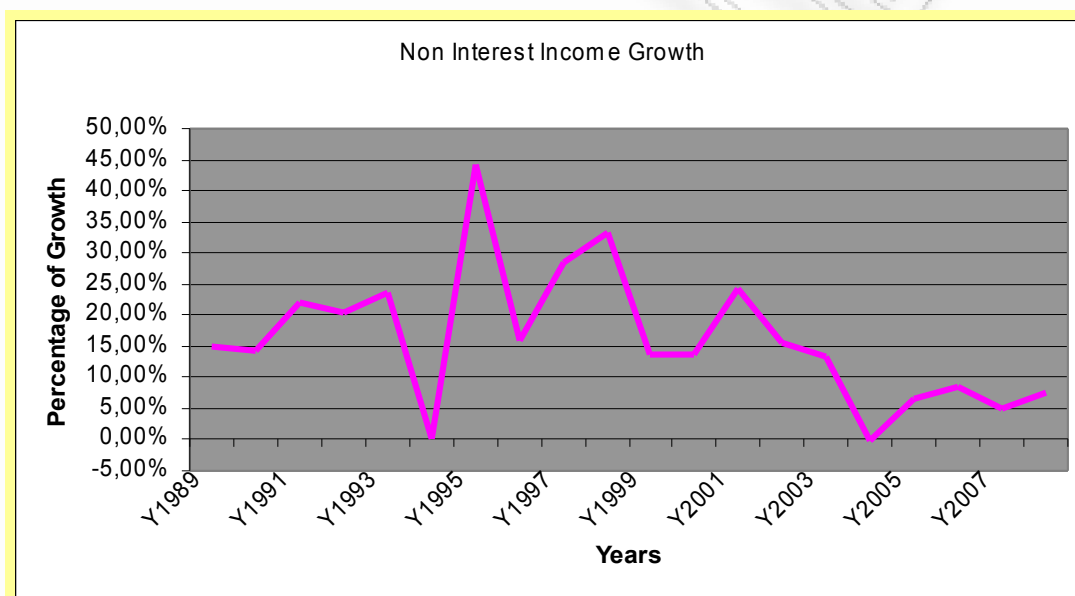
We should also note that we trusted our sources and tried to approach reality the best way we could. In some cases we faced values for some of our sample companies that were considered extreme when compared to others in the business. We chose not to alter these values in any way i.e. by excluding them) since our sample can be considered satisfactory in size, and any extreme values (which would already be lessened when used in a ratio) would not play that much of a difference in total.

Using the information gathered, we were able to examine the course of non interest income over the years. At first we calculated its growth. It seems that nearly for every bank, throughout the years, the amount of non interest income is ever growing. With the data available, we performed the required calculations and ended up with the Average Growth in non interest income for every year. As expected, we could not calculate growth for 1988, because we did not have non interest income data for 1987. The results are as such:

Year	Average Growth in non interest income (for all 97 Banks)
Y1989	14,88%
Y1990	14,26%
Y1991	22,12%
Y1992	20,38%

## The determinant of banks' non interest income

Y1993	23,73%
Y1994	0,20%
Y1995	44,10%
Y1996	15,84%
Y1997	28,54%
Y1998	33,42%
Y1999	13,69%
Y2000	13,72%
Y2001	24,22%
Y2002	15,65%
Y2003	13,24%
Y2004	-0,22%
Y2005	6,44%
Y2006	8,63%
Y2007	5,02%
Y2008	7,61%



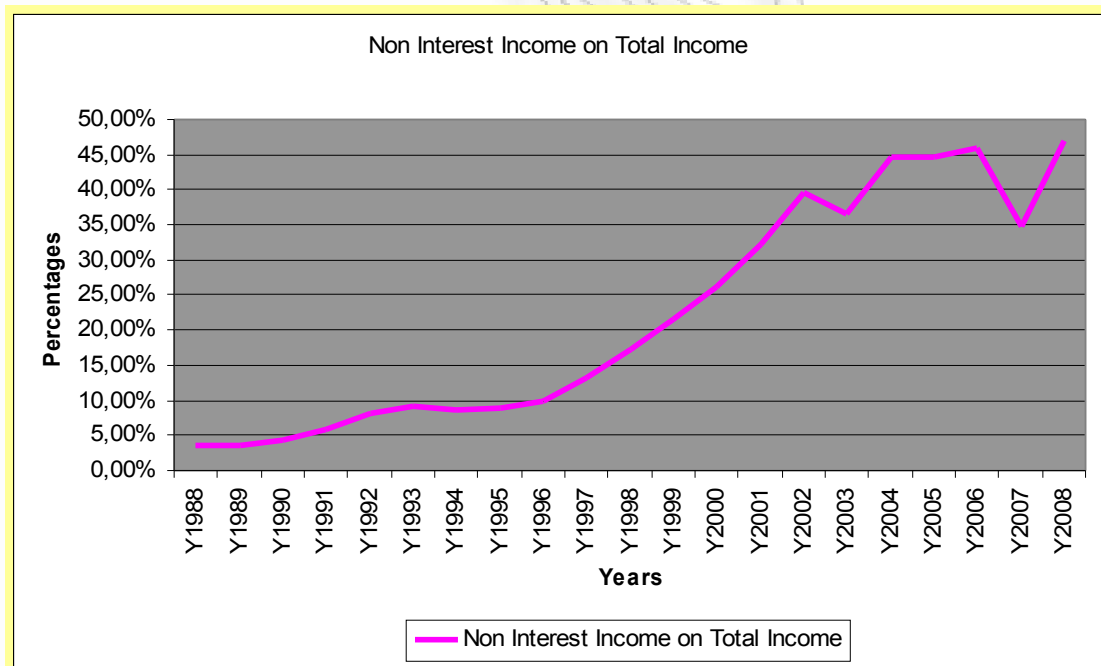
We can note that, although there are big fluctuations on how much non interest income grows each year, we can see that there is constant growth.

In the above analysis, we did not take under consideration the possible increase in total income itself. If for example total income increases with a higher rate, then non interest income is not growing as a percentage on total income. In order to verify the increasing significance of non interest income on total income (approximation), we have proceeded in calculating the average ratio for all 97 banks over the years. The results are as such:

Year	Percentage of Non Interest income to Total Income (Aproximation)
------	--

## The determinant of banks' non interest income

Y1988	3,63%
Y1989	3,57%
Y1990	4,29%
Y1991	5,91%
Y1992	8,04%
Y1993	9,22%
Y1994	8,52%
Y1995	8,86%
Y1996	9,93%
Y1997	13,18%
Y1998	17,28%
Y1999	21,61%
Y2000	26,22%
Y2001	32,13%
Y2002	39,60%
Y2003	36,45%
Y2004	44,58%
Y2005	44,57%
Y2006	45,97%
Y2007	34,70%
Y2008	46,90%



It would be also very useful to examine the progress of non interest income over total assets throughout the year for all the companies of our sample. We find this ratio very useful and informative, since it combines a P&L and a B/S item that are very much related.

Year	All 97 sample Banks	
	Non interest income on Total	Non interest income on Total assets

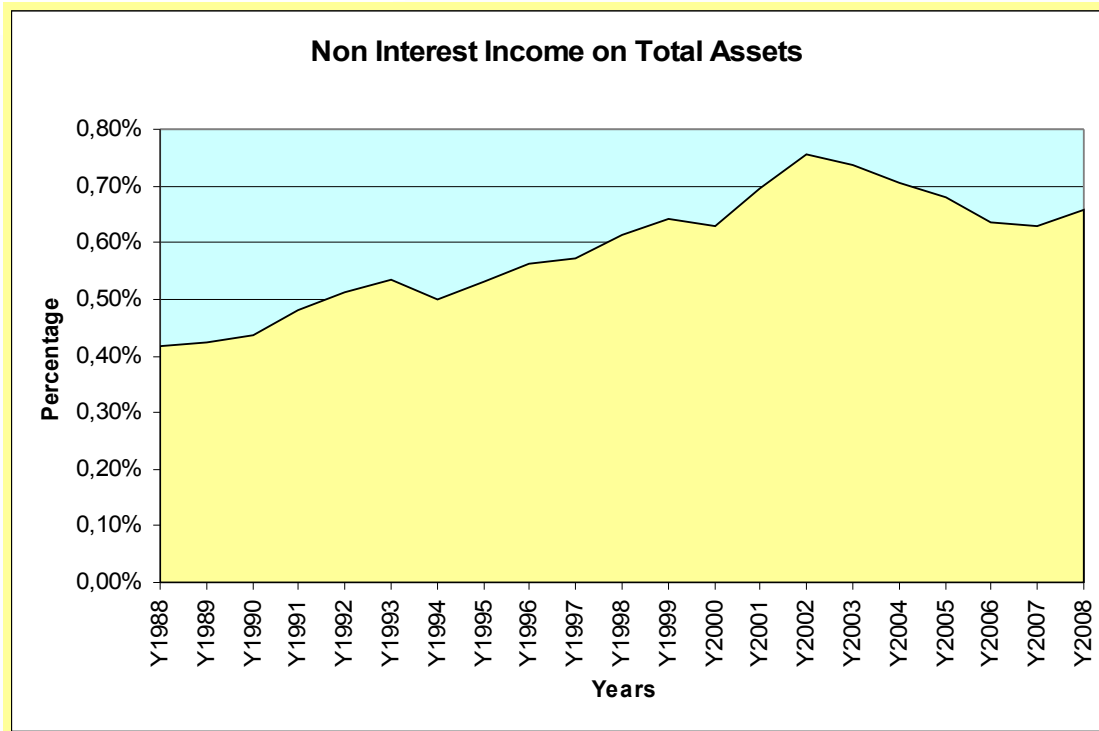


## The determinant of banks' non interest income

	<b>assets</b>	<b>Growth</b>
Y1988	0,42%	-
Y1989	0,43%	1,57%
Y1990	0,44%	3,04%
Y1991	0,48%	9,78%
Y1992	0,51%	6,40%
Y1993	0,54%	4,65%
Y1994	0,50%	-6,67%
Y1995	0,53%	6,01%
Y1996	0,56%	6,02%
Y1997	0,57%	1,95%
Y1998	0,61%	7,39%
Y1999	0,64%	4,45%
Y2000	0,63%	-2,08%
Y2001	0,69%	10,38%
Y2002	0,76%	9,07%
Y2003	0,74%	-2,59%
Y2004	0,71%	-4,35%
Y2005	0,68%	-3,53%
Y2006	0,64%	-6,46%
Y2007	0,63%	-1,11%
Y2008	0,66%	4,64%

We can note that the percentages are not impressive but we have to bear in mind that banks have very big balance sheets making the total assets factor disproportionately bigger than non interest income, If (for example sake) the above ratio would be close to 50%, this would mean that total income on total assets would be close to 100%, ROA would be 100%, ROE would be a lot bigger even than that and the total assets would double every year (assuming that no dividends were paid). Taking these under consideration, we may conclude that the above ratio is satisfactory, and we also may note that from 1988 to 2008 there is an increase of more than 50% in total.

## The determinant of banks' non interest income



We can see that by examining the data that we have managed to collect, the result were more or less as were expected. In general, there was an increase of non interest income on total income, as well as an increase of non interest income over total assets.

#### 4. EMPIRICAL ANALYSIS

As aforementioned, we chose to focus our effort on non interest income over total assets, since it is a variable not examined in full attention before, and also since it combines P&L with B/S items. These items are well connected, since increased positive P&L is mostly achieved by increasing assets (only in some rare cases it is achieved by decreasing liabilities).

The variables that we chose on order to describe our dependent variable (non interest income over total assets) are:

##### *Presentation of variables*

**Full time employees / Total Deposits.** This parameter was created by dividing the number of full time employees for each bank, to the volume of deposits. We could suppose that a bank has at least the number of employees that are necessary for its day to day core business. We could also suppose that any more employees are there to attend to other needs of the customers, like the rendering of services that are a source of non interest income. These being said, we could easily come to the conclusion that, the higher the number of employees (maybe also in conjunction to the bank's size), the higher the likelihood of increased non interest income. This variable will be used in order to approach possible personalized service.

As a result of the above described, we would expect that this parameter would be positively correlated to Non Interest Income / Total Assets. If there is an increased number of employees, this could also be an indication that the bank is not managed efficiently compared to its competitors, however it could also mean that more employees are working on fields other than core banking, and this would be a clear indication of increased non interest income.

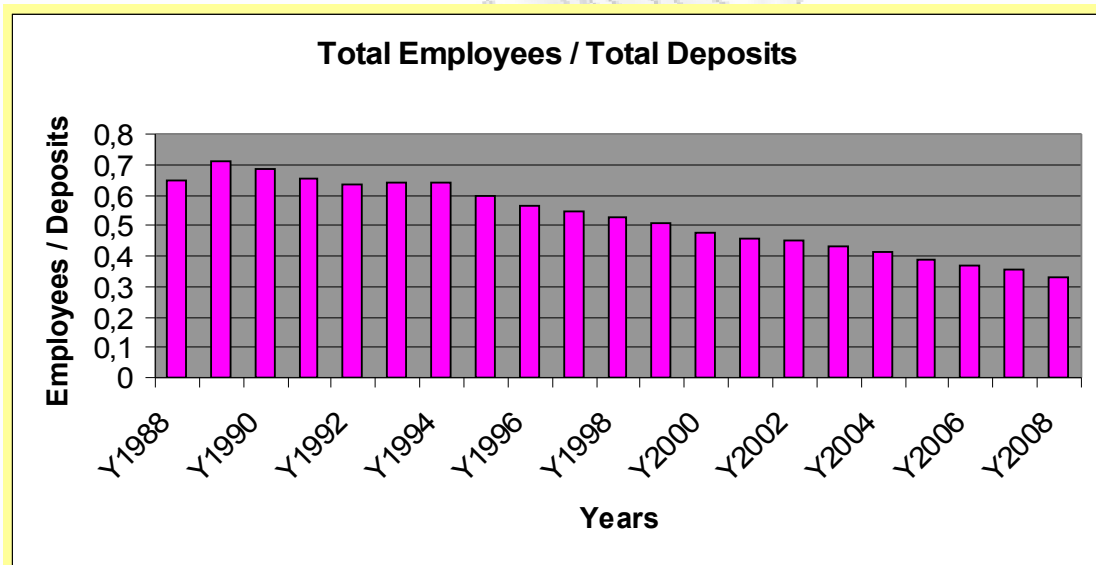
Here follows a presentation of the average ratio of Total employees / Deposits for all 97 banks throughout the years.

##### **Total employees / Total deposits**

<b>Year</b>	<b>Ratio</b>
Y1988	0,6486

## The determinant of banks' non interest income

Y1989	0,7096
Y1990	0,6836
Y1991	0,6570
Y1992	0,6346
Y1993	0,6415
Y1994	0,6398
Y1995	0,5949
Y1996	0,5677
Y1997	0,5478
Y1998	0,5299
Y1999	0,5106
Y2000	0,4791
Y2001	0,4590
Y2002	0,4488
Y2003	0,4303
Y2004	0,4124
Y2005	0,3844
Y2006	0,3705
Y2007	0,3544
Y2008	0,3313



We can note that the ratio has fallen significantly throughout the years. This could be due to the increasing volumes of deposits held by the banks, but it is most probably due to the developments in technology. The progress in computers and in Management Information Systems has made handling and processing of information a lot more efficient. In modern banks fewer employees are needed compared to some years ago, since they now have the tools to work with increased accuracy.

## The determinant of banks' non interest income

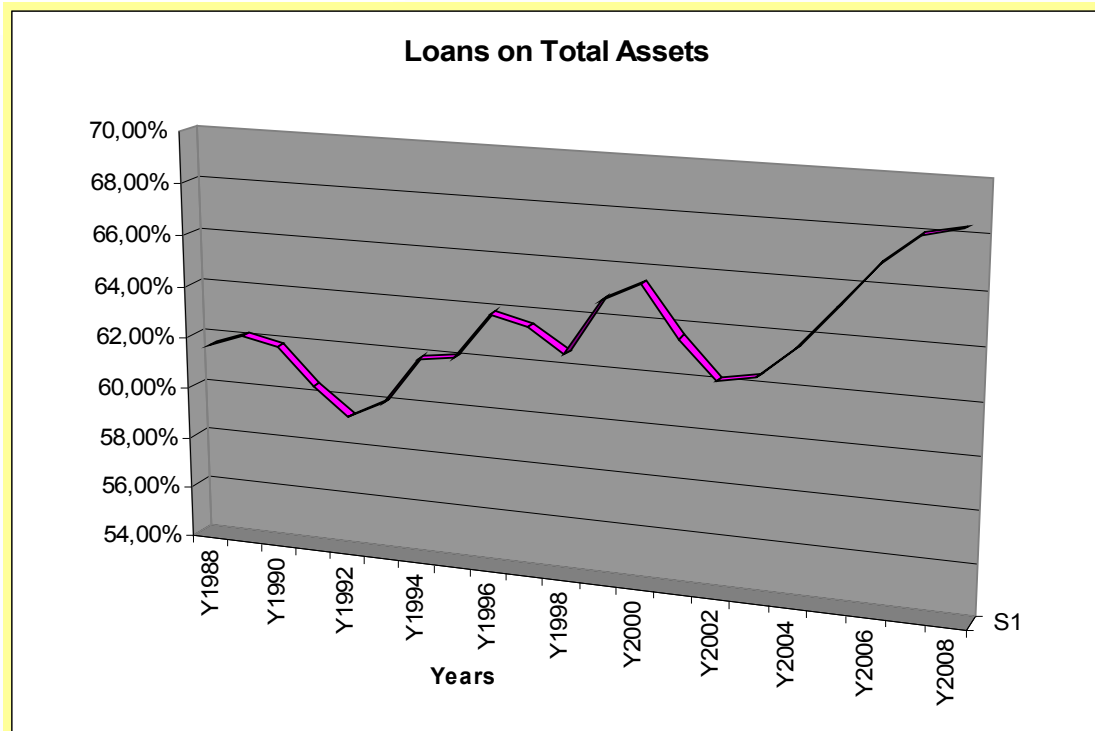
***Loans / Total Assets, Real Estate Loans / Total Assets, Commercial & Industrial loans / Total Assets, Consumer Loans / Total Assets.*** These parameters were created by dividing the respective asset by total assets. All the above are indications on how the bank is managed, and specifically which is its target group.

- *Loans / Total Assets.* A high loans/total assets ratio is an indication that the bank is mostly oriented towards core banking business and interest income. We would expect this to be negatively correlated to Non Interest Income / Total Assets.

It would be useful to examine the average progress of the Loans / Total assets ratio throughout the years.

<b>Years</b>	<b>Loans / Total Assets</b>	<b>Ratio</b>
Y1988		61,64%
Y1989		62,17%
Y1990		61,88%
Y1991		60,41%
Y1992		59,36%
Y1993		60,09%
Y1994		61,91%
Y1995		62,12%
Y1996		63,83%
Y1997		63,47%
Y1998		62,60%
Y1999		64,73%
Y2000		65,51%
Y2001		63,57%
Y2002		62,16%
Y2003		62,39%
Y2004		63,57%
Y2005		65,23%
Y2006		66,91%
Y2007		68,00%
Y2008		68,34%

## The determinant of banks' non interest income



We note that there was an increase in the Loans / Total Assets ratio throughout the years, since late in the '00s nearly 70% of a bank's assets are given as loans. This ratio has increased compared to the late '80s. This seems to be contradictory to the fact that there is a proven increase of Non interest income / Total Assets. How can this happen if more and more of a bank's assets are given as loans that generate interest income? As we have mentioned time and again in this essay, large parts of non interest income are based on off-Balance sheet items (i.e. Letters of credit, Securitizations). Also, activities that are also a source of non interest income are not presented on the balance sheet (i.e. employees that offer asset management services). There could also be constant trading with derivative instruments within the year that would not appear on the bank's balance sheet. This variable was really interesting because it presented us with an indication that what we described in theory, are actually the case.

- *Real Estate Loans / Total Assets*. This variable is also an indication of the bank's strategy. Since Real Estate Loans are backed by mortgages, the interest spreads are not high, so relatively small amounts of interest income are generated. Real estate loans are also a source of non interest income since, as we have already discussed, they are the basis on which a lot of fees are charged. In this respect their correlation

## The determinant of banks' non interest income

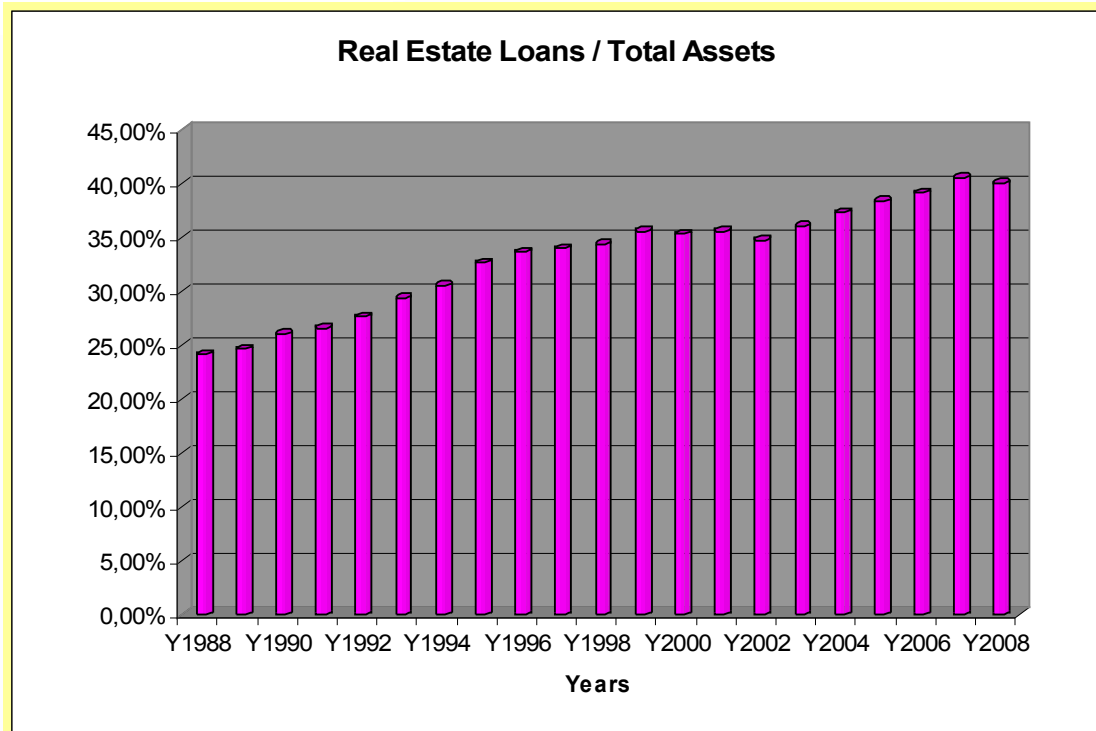
with Non Interest Income / Total Assets could be ambiguous. Although as products they are loans and generate interest income, the margins are low and they are also a valid basis of generation of non interest income. We would expect this factor to contribute negatively to Non Interest Income / Total Assets, but with a low coefficient.

Here follows a presentation of average volumes of Real Estate loans over Total Assets throughout the years for all the banks of our sample.

### Real Estate Loans / Total Assets

Year	Ratio
Y1988	24,13%
Y1989	24,64%
Y1990	26,07%
Y1991	26,60%
Y1992	27,72%
Y1993	29,40%
Y1994	30,56%
Y1995	32,66%
Y1996	33,67%
Y1997	33,95%
Y1998	34,39%
Y1999	35,58%
Y2000	35,29%
Y2001	35,57%
Y2002	34,75%
Y2003	36,06%
Y2004	37,37%
Y2005	38,40%
Y2006	39,18%
Y2007	40,56%
Y2008	40,07%

## The determinant of banks' non interest income



- *Commercial & Industrial loans / Total Assets*. The same as with Real Estate Loans apply (more or less) for Commercial & Industrial loans. They are also backed by collaterals so the interest margin is kept low. Also C&I loans are a source of non interest income, since a lot of fees are charged to the loan takers that are not interest related. Here also the result of the regression might be either way since it is not certain whether this kind of loans contributes positively or not to non interest income. We would expect a negative correlation to Non Interest Income / Total Assets but with a statistically immaterial coefficient.

The progress of C&I loans over the years are as such.

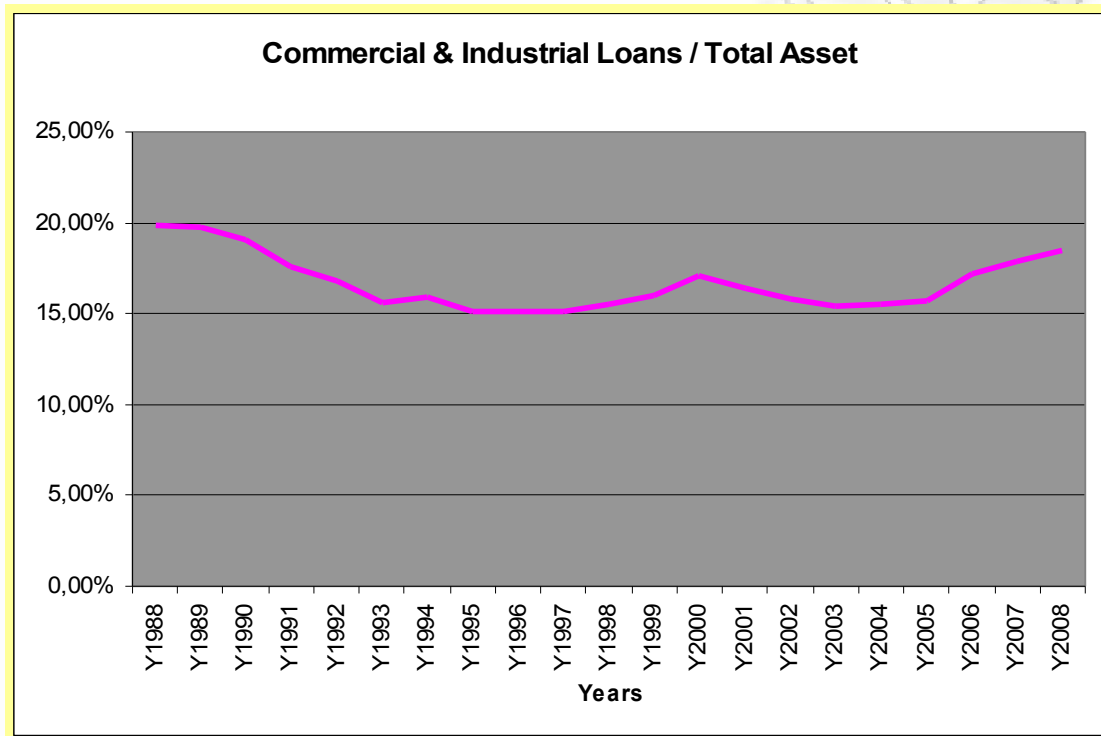
### Commercial & Industrial Loans / Total Assets

Year	Ratio
Y1988	19,90%
Y1989	19,77%
Y1990	19,09%
Y1991	17,60%
Y1992	16,81%
Y1993	15,61%
Y1994	15,87%
Y1995	15,09%
Y1996	15,13%
Y1997	15,10%
Y1998	15,56%
Y1999	15,99%



## The determinant of banks' non interest income

Y2000	17,11%
Y2001	16,37%
Y2002	15,84%
Y2003	15,39%
Y2004	15,47%
Y2005	15,72%
Y2006	17,17%
Y2007	17,84%
Y2008	18,43%



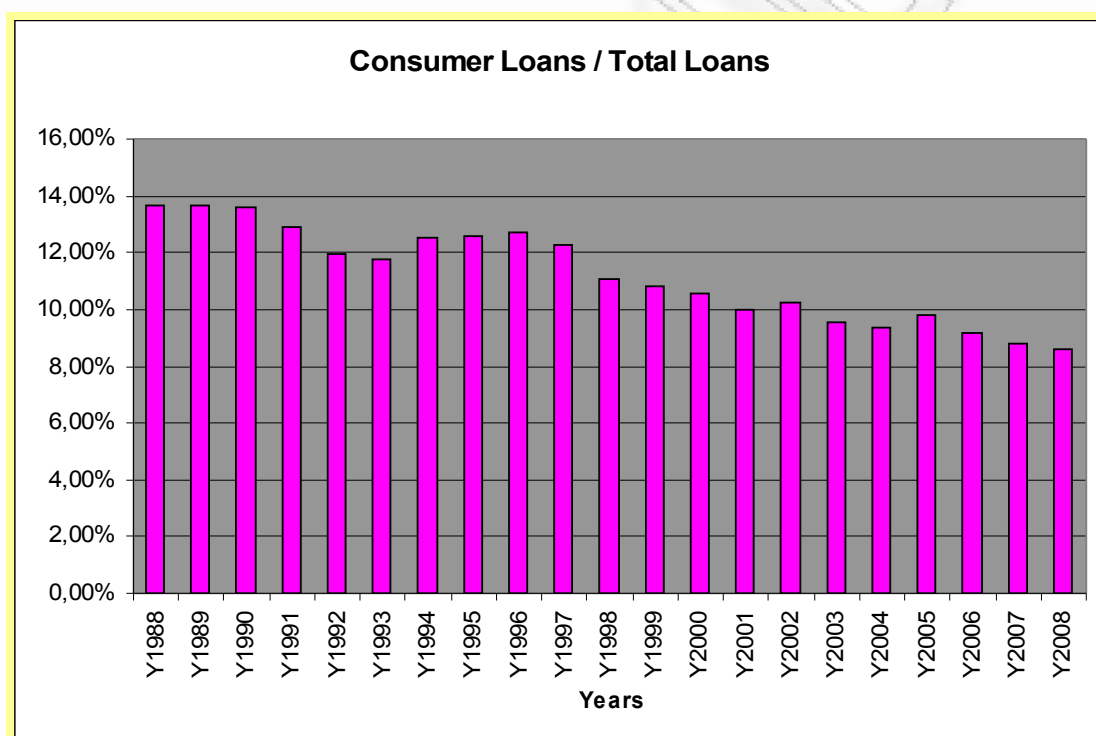
- *Consumer Loans / Total Assets*. Consumer loans as opposed to the other two categories are not backed by any collateral, and present high spreads. These are considered to be “risky” loans. We would expect these loans to contribute positively to interest income, so they would be expected to be negatively correlated to Non Interest Income / Total Assets. The coefficient should be higher than the other two categories of loans.

### Consumer Loans / Total Loans

Year	Ratio
Y1988	13,66%
Y1989	13,64%
Y1990	13,59%
Y1991	12,90%
Y1992	11,94%
Y1993	11,76%

## The determinant of banks' non interest income

Y1994	12,54%
Y1995	12,58%
Y1996	12,74%
Y1997	12,25%
Y1998	11,09%
Y1999	10,82%
Y2000	10,55%
Y2001	10,00%
Y2002	10,25%
Y2003	9,52%
Y2004	9,36%
Y2005	9,78%
Y2006	9,15%
Y2007	8,81%
Y2008	8,58%



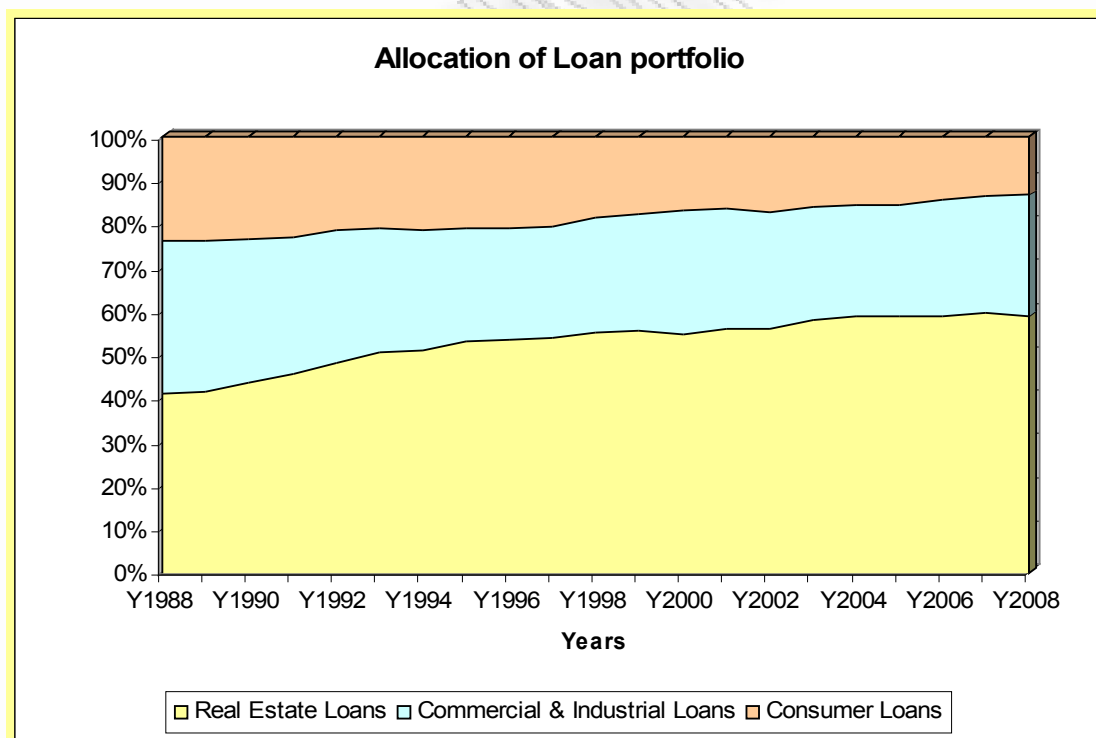
As aforementioned, the above variables are used as indication of the way that the bank is managed, and also provides us with views on the bank's strategy. From examining their behaviour throughout the year we could only get indications on the Banks' strategies and practices. What would be even more interesting, is to examine the structure of the banks' total loan portfolio throughout the years, and how and if this was altered in any way.

Year	Allocation of Loan Portfolio		
	Real Estate Loans / Total Loans	Commercial & Industrial Loans / Total Loans	Consumer Loans / Total Loans

## The determinant of banks' non interest income

Y1988	40,93%	35,13%	23,93%
Y1989	41,59%	34,66%	23,75%
Y1990	43,61%	32,85%	23,53%
Y1991	45,61%	31,30%	23,09%
Y1992	48,00%	30,40%	21,60%
Y1993	50,72%	28,20%	21,09%
Y1994	51,02%	27,53%	21,46%
Y1995	53,18%	25,80%	21,02%
Y1996	53,38%	25,66%	20,95%
Y1997	54,01%	25,54%	20,45%
Y1998	55,10%	26,32%	18,58%
Y1999	55,58%	26,65%	17,77%
Y2000	54,82%	28,11%	17,07%
Y2001	56,04%	27,31%	16,66%
Y2002	55,93%	26,80%	17,27%
Y2003	57,85%	26,03%	16,12%
Y2004	58,77%	25,49%	15,74%
Y2005	58,88%	25,30%	15,83%
Y2006	58,68%	26,70%	14,62%
Y2007	59,39%	26,90%	13,71%
Y2008	58,84%	27,88%	13,28%

FOR ALL YEARS LOANS TOTAL TO 100%



Just by looking at the allocation of the loan portfolio throughout the years, we can see that there is a significant increase in Real Estate Loans, while the other categories have decreased (the decrease in Consumer Loans being proportionately bigger). There are several explanations for that. One might be that the banks tend to

## The determinant of banks' non interest income

prefer to give safer loans, and that could be a strategic decision. Indeed, Real Estate loans are backed by collateral, so their risk weight factor is a lot smaller than other loans. This would allow the bank to give bigger volumes of loans, without having regulatory capital adequacy problems.

Also a bank may chose to securitize any kind of loans as long as they are homogenous. The above could be an indication that banks securitize and sell Consumer Loans and Commercial & Industrial Loans, get them off their balance sheet in order to gain liquidity, and prefer to keep Real Estate loans, since these loans are a lot safer.

Another reason for the big increase in Real Estate Loans portfolio compared to the other loans is that Real Estate Loans are usually of big volumes. In that case a sudden increase in the number of Real Estate Loans disbursed could disproportionately alter the ratios in favour of them in the total loans portfolio. This could be the case in the '00s with the boom in US real estate market (with the results that we now all know...)

**Equity / Total Assets.** The above parameter is created by dividing the bank's equity by total assets. The higher the ratio, the more solvent the bank is. It means that a bank is funded more by its own means and is less leveraged than others. This also means that we would not expect high profitability ratios from this bank. It is also an indication on the strategy of the bank and on how it is managed.

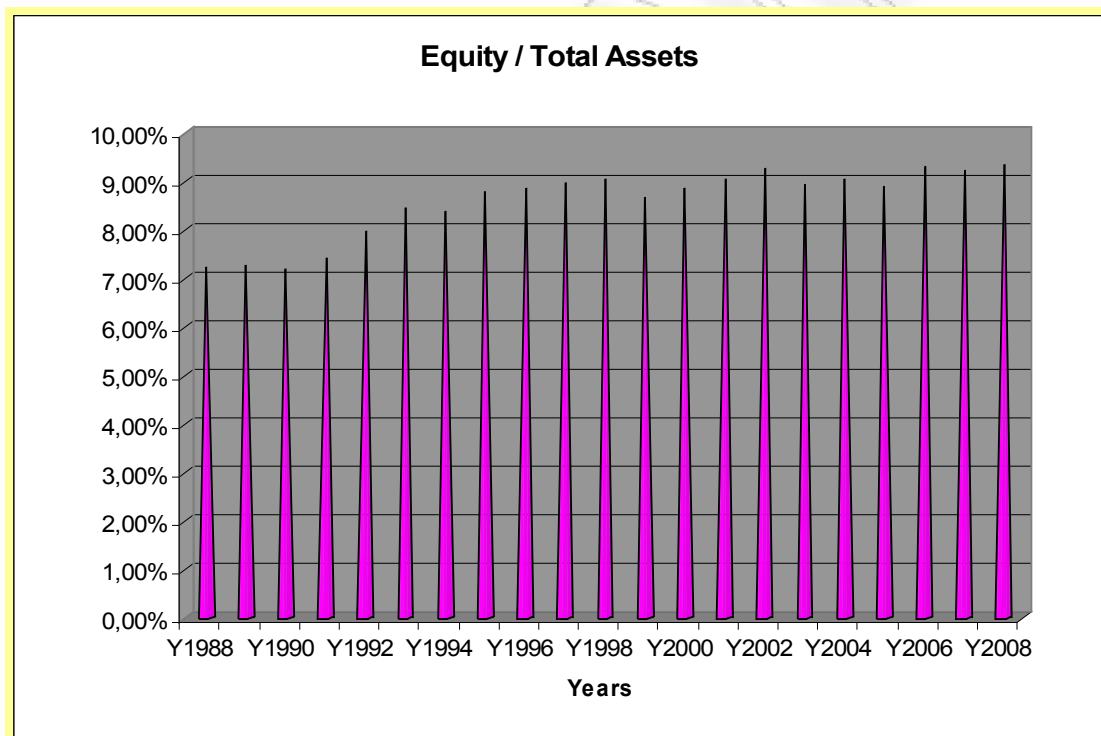
It is common bank policy not to use funds from equity to fund loans. They mostly fund other investments, fixed assets, and highly liquid risk free assets. This is because in case of loan defaults, the bank would be in a better position to continue to fund its operations. As a result, from a bank with high equity related to its competitors, we would expect increased volumes of non interest income, so it would be positively correlated to Non Interest Income / Total Assets.

It would be useful to examine the progress of the Equity / Total Assets ratio throughout the years. The results are as such:

	<b>Equity / Total Assets</b>	
<b>Year</b>		<b>Ratio</b>
Y1988		7,20%
Y1989		7,26%
Y1990		7,20%
Y1991		7,42%

## The determinant of banks' non interest income

Y1992	7,97%
Y1993	8,44%
Y1994	8,37%
Y1995	8,77%
Y1996	8,83%
Y1997	8,96%
Y1998	9,04%
Y1999	8,65%
Y2000	8,86%
Y2001	9,04%
Y2002	9,26%
Y2003	8,93%
Y2004	9,02%
Y2005	8,90%
Y2006	9,29%
Y2007	9,21%
Y2008	9,34%



Just by looking at the above results we can note that the American Banks of our sample have satisfactory solvency ratios. We could even describe them as “conservative” in this respect... What is even more impressive is that this ratio is even growing throughout the years, maybe due to the banks’ choice to capitalize or keep as reserves part of their retained earnings. Although these are good Equity / Total Assets ratios, we cannot comment on off-balance sheet liabilities or other contingent liabilities that are not evident just by looking at balance sheet figures. Maybe there are

## The determinant of banks' non interest income

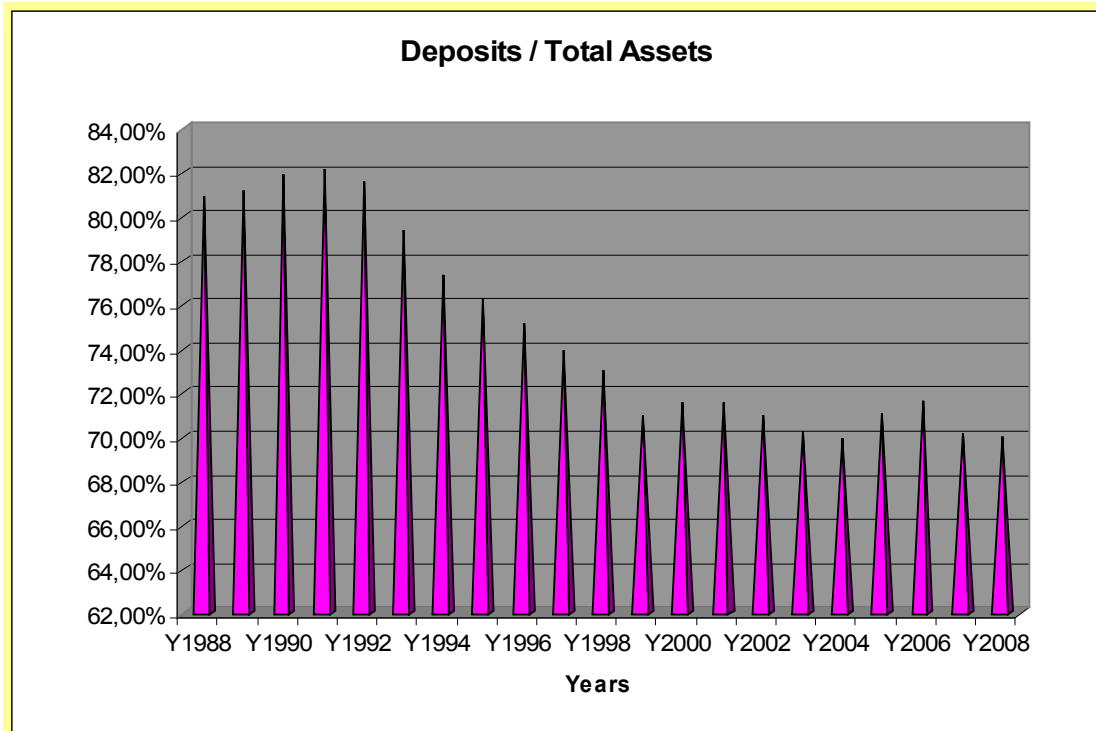
other reasons that drive banks to want to strengthen their financial situation, and not just a tendency to be prudent, reasons that are known only to the management.

**Deposits / Total Assets.** This parameter is created by dividing deposits by total assets. The more deposits a bank has, the more its access to cheaper funds. From this, one would expect higher amounts of net interest income. Also, if a bank has large volumes of deposits, it is an indication of its attention towards core banking business, so we would expect lower non interest income on total income. We would expect this to be negatively correlated to Non Interest Income / Total Assets.

Here follows a presentation of the progress of the above ratios throughout the years under discussion.

<b>Year</b>	<b>Deposits / Total Assets</b>	<b>Ratio</b>
Y1988		80,88%
Y1989		81,16%
Y1990		81,83%
Y1991		82,10%
Y1992		81,51%
Y1993		79,38%
Y1994		77,30%
Y1995		76,24%
Y1996		75,13%
Y1997		73,89%
Y1998		73,03%
Y1999		70,92%
Y2000		71,52%
Y2001		71,55%
Y2002		71,00%
Y2003		70,26%
Y2004		69,92%
Y2005		71,07%
Y2006		71,60%
Y2007		70,18%
Y2008		69,96%

## The determinant of banks' non interest income



We can observe that throughout the years, the significance of deposits as the primary source of funds for the American banks has decreased. Of course this could just mean that the banks' assets grow with a faster rate than deposits. It could also mean that banks tend to derive from core banking businesses and lean towards more modern ventures, that are also a source of non interest income.

Even in this case, we will have to admit that a rate of Deposits / Total Assets of ~ 70% is quite impressive.

**Money & Capital Market Financing / Total Assets.** A bank's balance sheet is funded by 1) Equity, 2) Deposits and 3) Money & Capital market financing. Having already included the other two elements in the equation, we should also include this one. We took total assets (which equal to total liabilities + equity) and then deducted deposits and equity. By doing so, we ended up with all remaining liabilities of a bank which would be financing by money and capital markets (ie bonds and takings from other banks). Increased Money & Capital market financing means increased leverage. We would expect quite high profitability ratios, however this type of growth is riskier. Increased leverage also means increased interest expense (more than with deposits). As discussed, we would expect a bank to use this kind of funding for financing loans. This could imply that this variable would be negatively correlated with Non Interest

## The determinant of banks' non interest income

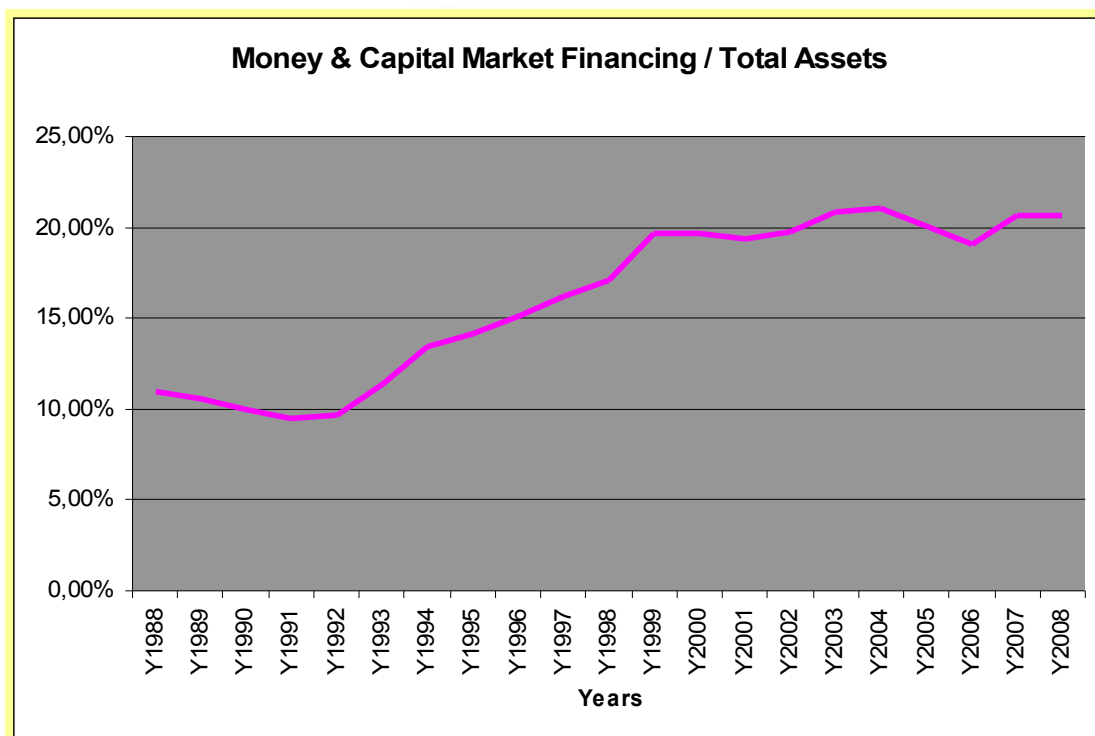
Income / Total Assets. On the other hand, by observing the market, it is evident (even as a “rule of thumb”) that banks that finance their activities through the Money & Capital Markets, are heavily involved in non interest income generating activities. This means that they want to fund activities with funds other than deposits or equity. This could also imply deviation from core banking business (especially if they want to fund assets other than loans). In all, this variable is quite ambiguous and would be interesting to see how it affects on Non Interest Income / Total Assets.

Here follows a presentation of how this ratio has advanced throughout the years. As in all other cases, we have used the averages per year, taking under consideration all the banks of our sample.

<b>Year</b>	<b>Ratio</b>
Y1988	10,94%
Y1989	10,62%
Y1990	10,01%
Y1991	9,52%
Y1992	9,66%
Y1993	11,33%
Y1994	13,43%
Y1995	14,10%
Y1996	15,16%
Y1997	16,24%
Y1998	17,07%
Y1999	19,62%
Y2000	19,62%
Y2001	19,41%
Y2002	19,74%
Y2003	20,82%
Y2004	21,06%
Y2005	20,03%
Y2006	19,12%
Y2007	20,60%
Y2008	20,70%



## The determinant of banks' non interest income



By the above we note that the significance of Money & Capital Markets funds has increased for the American banks. This could mean that they would probably want to fund assets for which they do not have the comfort of waiting for new deposits, or through increasing their equity through the issuance of new stocks. Money & Capital Markets funds could be used to increase a bank's network, a feature that was made a lot easier after deregulation.

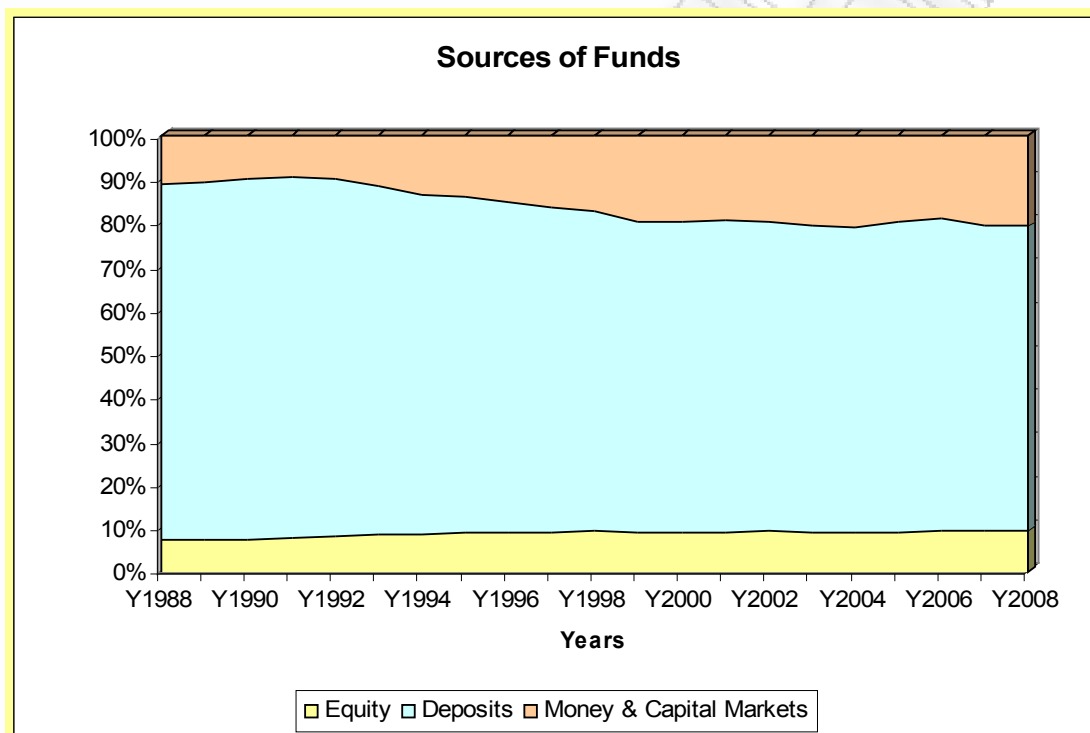
As we have discussed, the banks fund their business by Equity, Deposits, and funds from Money & Capital Markets. We deem that it would be very interesting to examine the ways that the banks of our sample draw funds throughout the years.

Year	Sources of Funds		
	Equity	Deposits	Money & Capital Markets
Y1988	7,27%	81,68%	11,05%
Y1989	7,33%	81,95%	10,72%
Y1990	7,27%	82,63%	10,11%
Y1991	7,49%	82,89%	9,61%
Y1992	8,04%	82,21%	9,75%
Y1993	8,51%	80,06%	11,42%
Y1994	8,45%	78,00%	13,55%
Y1995	8,85%	76,92%	14,23%
Y1996	8,91%	75,80%	15,29%

## The determinant of banks' non interest income

Y1997	9,04%	74,57%	16,39%
Y1998	9,12%	73,66%	17,22%
Y1999	8,72%	71,50%	19,78%
Y2000	8,86%	71,52%	19,62%
Y2001	9,04%	71,55%	19,41%
Y2002	9,26%	71,00%	19,74%
Y2003	8,93%	70,26%	20,82%
Y2004	9,02%	69,92%	21,06%
Y2005	8,90%	71,07%	20,03%
Y2006	9,29%	71,60%	19,12%
Y2007	9,21%	70,18%	20,60%
Y2008	9,34%	69,96%	20,70%

FOR ALL YEARS SOURCES OF FUNDS TOTAL TO 100%



By the above analysis it is evident that the importance of equity as a source of funds has remained the same throughout the years, while Money & Capital Market Financing has gained some significance over deposits. This could mean a deviation from traditional banking strategies towards more novel practices, and it could in part explain the increasing importance of Non Interest Income on Total Assets.

**Loans / Deposits.** This parameter was created by dividing total loans by total deposits. This is a ratio that indicates how many times the bank loans are higher than its deposits. The higher the ratio, the most aggressive the bank, this being an indication of management and strategy. From a bank with high loans / deposits ratio

## The determinant of banks' non interest income

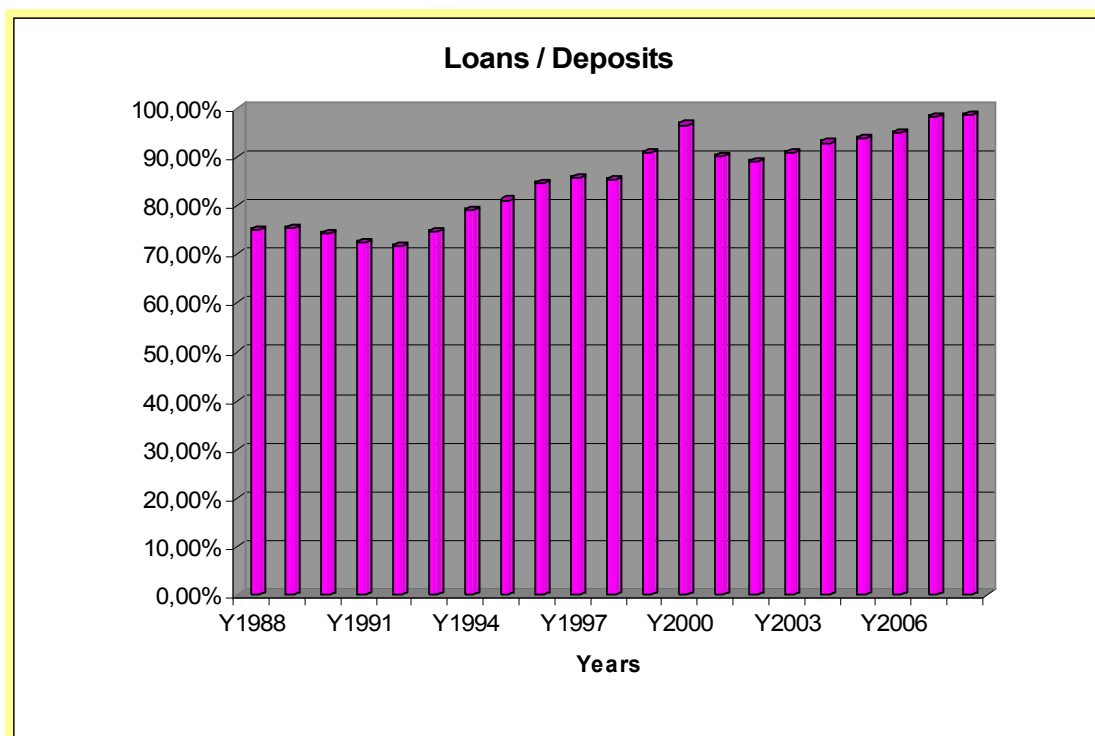
we would expect higher volumes of interest income and more funds transferred to loans than other, non interest income generating assets.

We deem that the results expected from this variable have in part been covered by others in our sample, so we could not know beforehand its significance in the final regression. However it is a useful tool to assess bank practises. Our guess would be that this variable would be negatively correlated to Non Interest Income on Total Assets.

Here follows an analysis of the progress of Loans / Deposits ratio throughout the years of our sample:

	<b>Loans / Deposits</b>	
<b>Year</b>		<b>Ratio</b>
Y1988		75,26%
Y1989		75,61%
Y1990		74,34%
Y1991		72,52%
Y1992		71,87%
Y1993		74,79%
Y1994		79,22%
Y1995		81,19%
Y1996		84,80%
Y1997		85,76%
Y1998		85,37%
Y1999		90,93%
Y2000		96,70%
Y2001		90,33%
Y2002		89,15%
Y2003		90,91%
Y2004		93,01%
Y2005		93,80%
Y2006		94,88%
Y2007		98,42%
Y2008		98,87%

## The determinant of banks' non interest income



From the above analysis we can see that on average, throughout the years, American banks keep Loans to Deposits ratio below 100%. This is really interesting when examined in conjunction with other facts that we came across during our essay. If deposits are at least as much in volumes as loans (in most cases even bigger) it means that the funds that banks draw from Money & Capital Markets are there to fund either expansion of network, or activities beyond “Core Banking”

It is also interesting that this ratio increases constantly throughout the years. However it never exceeds 100%, and to our view, this makes American Bank quite “conservative”. Again though, we cannot know what is “below” the balance sheet. There could be open derivative positions or off balance sheet items that could damage the bank’s profitability, or even cause a threat to its solvency.

***In of Total Assets.*** We used a scientific formula in order to calculate the natural logarithm of total assets. This is included in the equation, in order to account for bank size. We used the natural logarithm of the amount so that the (sometimes huge) differences in the sizes between the banks of our sample are somehow lessened. In any case the size of the bank will matter in our equation and of course this is something that we want. We would expect a positive correlation between bank size and Non Interest Income / Total Assets, since experience has taught us that bigger

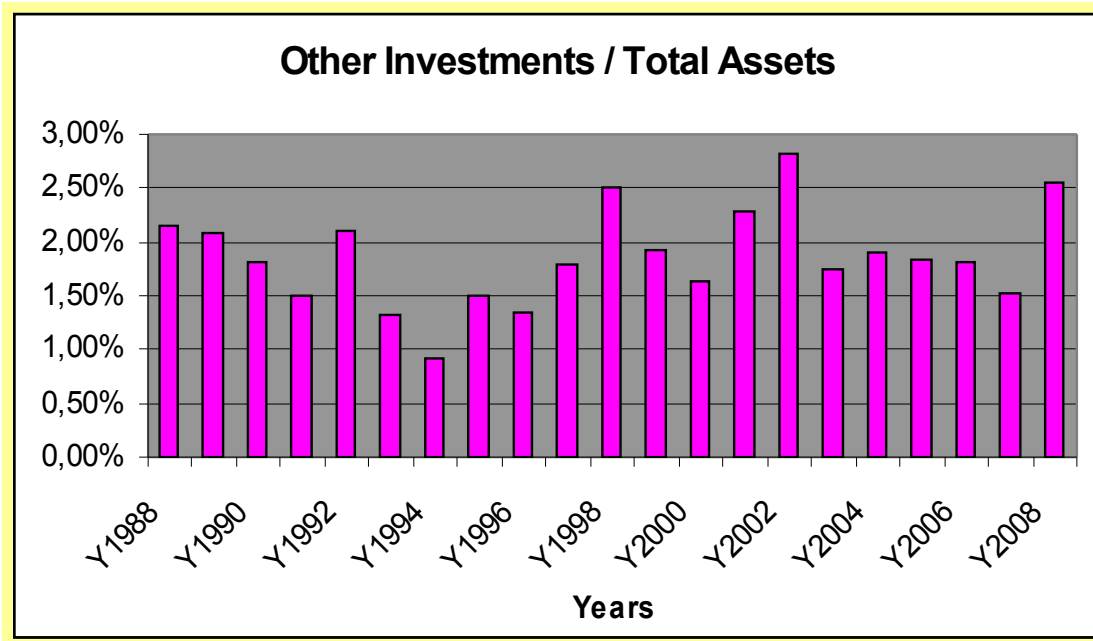
## The determinant of banks' non interest income

banks have increased presence in markets and assets that generate Non Interest Income.

***Other Investments / Total Assets.*** This variable was created by dividing Other Investments by Total Assets. Other investments would be investments other than loans. These investments are the primary on-balance sheet source of non interest income, so we would expect higher non interest income from banks with high “other investment / total assets” ratios. As a result of the aforementioned, we would expect this variable to be positively correlated to Non Interest Income / Total Assets.

Hereunder follows a presentation of the progress of the ratio throughout the years of our sample.

<b>Year</b>	<b>Other Investments / Total Assets</b>	<b>Ratio</b>
Y1988		2,15%
Y1989		2,09%
Y1990		1,80%
Y1991		1,50%
Y1992		2,11%
Y1993		1,33%
Y1994		0,92%
Y1995		1,50%
Y1996		1,35%
Y1997		1,79%
Y1998		2,52%
Y1999		1,93%
Y2000		1,63%
Y2001		2,28%
Y2002		2,83%
Y2003		1,75%
Y2004		1,90%
Y2005		1,84%
Y2006		1,81%
Y2007		1,52%
Y2008		2,55%



There is not much that we can make out of the above graph. It seems that the level of Other Investments as a component of Total Assets has remained constant at around 2% with some fluctuations around this level throughout the years.

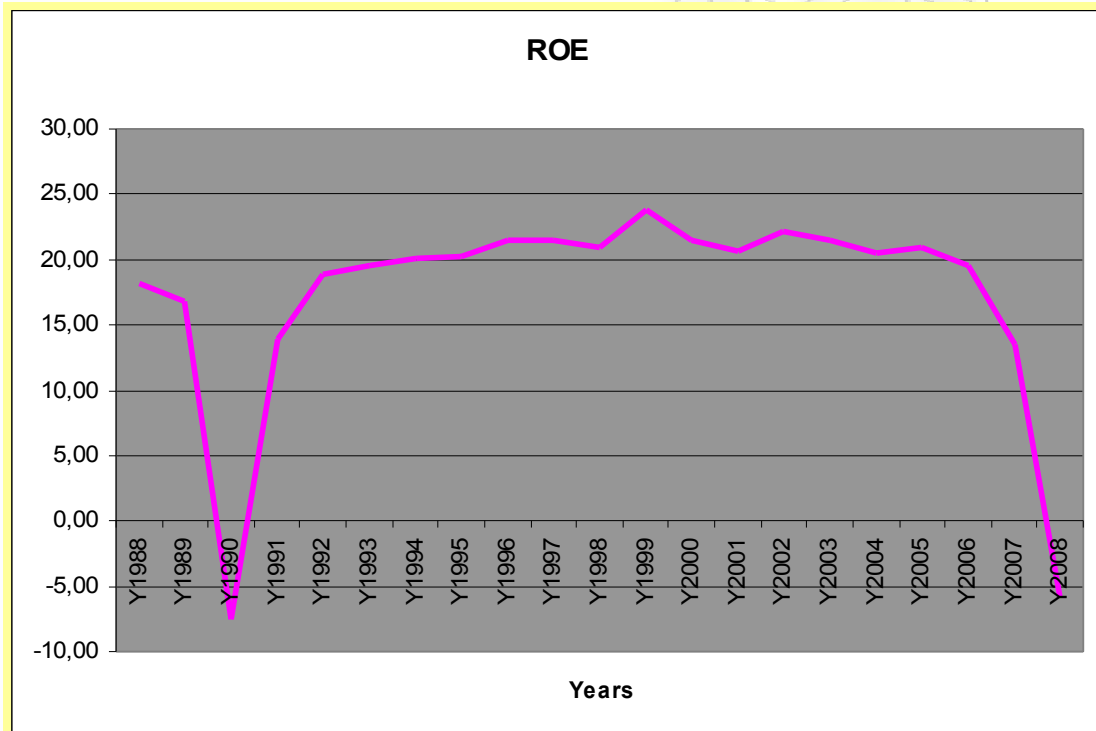
**Return on Equity.** This ratio was readily available within Thomson Financial, so there was need for us to generate it. A high ROE ratio is an indication of an increased Non Interest Income. Extra activities that generate fees like appraisals or asset management and investment banking do not have the need for extra capital and investments. Their needs are mostly employee related and are “satisfied” through Profit and Loss. Therefore since they contribute to higher income with (more or less) the same amount of equity, they generate higher ROE ratios. This should be positively correlated to Non Interest Income / Total Assets.

The progress of this ratio throughout the years is as such.

Return On Equity	
Year	Ratio
Y1988	18,17%
Y1989	16,74%
Y1990	-7,54%
Y1991	13,89%
Y1992	18,83%
Y1993	19,57%
Y1994	20,10%
Y1995	20,26%

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Y1996	21,49%
Y1997	21,50%
Y1998	20,90%
Y1999	23,80%
Y2000	21,46%
Y2001	20,71%
Y2002	22,21%
Y2003	21,49%
Y2004	20,47%
Y2005	20,87%
Y2006	19,56%
Y2007	13,55%
Y2008	-5,82%



Here, it is important to note again that throughout this essay, we decided to accept the financial information that we were able to collect and generate as such, and not try to alter it in any way, even in cases of extreme values. We deem that by this method the results generated will also be trustworthy and in fact closer to reality. In this case though, we will have to mention that the price of the above presentation for 1990, does not depict the reality. This was due to an extremely low result generated by a bank of our sample (namely WSFS Financial Corp.). If we were to exclude this company for 1990 and adjust the average, we would end up with a ROE of 13,11% for 1990. On the other hand, the results for 2008 are genuine since a lot of the banks

## The determinant of banks' non interest income

of our sample have presented negative P&L, probably as a result of the ongoing crisis in the financial sector.

By scanning through the results of ROE throughout the years we could note that there is a slight increase above the levels of 20% which has remained constant. This also means that the profits are getting bigger and bigger, since the denominator (equity) is also growing each year by the amount of profits that were not distributed as dividends. By the above, we can suppose that Bank profits were increasing up and until 2007, were the first signs of the economic slow down became evident. These signs were worsened in 2008 were the results of the crisis in the banking sector are more evident.

**Return on Assets.** This variable was also readily available on Thomson Financial as Pre-tax ROA. It is similar in essence to the above, with the denominator being assets this time and not equity. Activities that generate fee income are not always evident in a bank's balance sheet (with notable exceptions being items like Trading portfolio of Assets and Fair Valuation of derivative instruments- covered by our Other Investments / Total Assets ratio above). Since the activities that generate Non Interest Income do not need big new investments, the income generated from such activities increases more compared to a Bank's asset. Therefore an increased ROA is an indication of increased Non Interest Income. We would also expect this variable to be positively correlated to Non Interest Income / Total Assets.

**Total Assets Growth.** This information was readily available within Thomson Financial. However we were also able to generate it in order to compare results and no discrepancies were noted. This would be a variable from which we could extract several conclusions. Assets could grow either through equity (ie profitable P&L or share capital increase) or through liabilities (ie issuance of a bond, increase in deposits). By inserting this variable we could extract useful information on how the rapid or not growth of a company affect non interest income. Rapid growth is a form of strategy, and as far as non interest income is concerned, we would like to examine any connections.

We have already discussed that we would expect the size of a bank to be positively correlated to non interest income. This variable, total assets growth has to do with a bank's size, so at first, we would also expect this variable to be positively



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correlated to non interest income / total assets. However this variable directly has to do with the denominator of the dependent variable and this could affect the equation in many ways. As discussed there are numerous ways for the assets to grow and it is not certain that non interest income will grow at the same level, as a result of the growth of total assets themselves. We would expect the coefficient of this variable to go either way.

**Relative ROE, Relative ROA.** These were calculated by dividing the ROE and ROA of each individual entity to the average ROE and ROA off all the entities for which we had information. We should note that for calculating the global average we did not only use the 97 banks of our sample but all the banks (1508) for which we had such observations (ROE and ROA) throughout the years.

These ratios compare the result of a specific bank to those of its peers. This is an indication on how well the bank is managed and how well does its strategy compare to that of its peers. These variables are highly related to the ones described above (ROE, ROA). This could potentially cause problems in the regressions, with these variables mutually eliminating each other, however we deem it useful to use them as an indication of how well and efficiently each Bank is managed. We would also expect these two variables to be positively correlated to Non Interest Income / Total Assets.

### *Calculation of formula and results*

In order to insert all the above information in our statistical software "Eviews" we had to rename all variables (including the dependent variable). Here follows a legend of the variables used and their "new" names.

<b>Variable</b>	<b>New Name</b>
Non Interest Income / total assets	NNITA?
Full time employees / total deposits	EMPDEP?
Loans / total assets	LOATA?
Real Estate Loans / total assets	RESTA?
Commercial & Industrial loans / total assets	SBBTA?
Consumer loans / total assets	CLTA?
Equity / total assets	IKTA?
Deposits / total assets	DEPTA?
Money and capital market financing / total assets	MMFTA?

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Loans / deposits	LOADEP?
LN(total assets)	LNTA?
Other investments / total assets	OITA?
PretaxROE	ROE?
PretaxROA	ROA?
Total Assets Growth (1YR) %	TAGR?
Relative ROE	RELROE?
Relative ROA	RELROA?

The Formula which we used in order to run regressions on will be the following (as is obvious, we also used a constant):

$$\begin{aligned}
 NIITA_{(t,i)} = & a + b*EMPDEP_{(t,i)} + c*LOATA_{(t,i)} + d*RESTA_{(t,i)} + f*SBBTA_{(t,i)} + \\
 & g*CLTA_{(t,i)} + h* IKTA_{(t,i)} + j*DEPTA_{(t,i)} + k*MMFTA_{(t,i)} + m*LOADEP_{(t,i)} + \\
 & n*LNTA_{(t,i)} + p*OITA_{(t,i)} + q*ROE_{(t,i)} + r*ROA_{(t,i)} + s*TAGR_{(t,i)} + t*RELROE_{(t,i)} + \\
 & u*RELROA_{(t,i)} + \varepsilon_{(t,i)}
 \end{aligned}$$

The regression method that we used was Pooled Least Squares. At our first try we got a Durbin Watson statistic of 0.4, which was an indication that there was positive serial correlation. We made correction by applying the AR(1) formula which is a remedy to the above, however it adjusts the sample. After 9 iterations, convergence was achieved. Our sample (after the adjustments) was from 1989 until (and including) 2008. It should be noted that we did not use random or fixed effect for our regression, since the use of AR(1) formula does not permit that.

At first we chose to keep variables that were statistically significant at the 5% level. We continued running regressions eliminating one by one the variables that were proven not to be significant at the required level. The final result was as follows:

Dependent Variable: NIITA?  
 Method: Pooled Least Squares  
 Date: 06/29/09 Time: 01:31  
 Sample (adjusted): 1989 2008  
 Included observations: 20 after adjustments  
 Cross-sections included: 97  
 Total pool (unbalanced) observations: 1770  
 Convergence achieved after 9 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EMPDEP?	0.020856	0.001426	14.62122	0.0000
LOATA?	-0.006562	0.001821	-3.603451	0.0003
RESTA?	-0.004515	0.001682	-2.684111	0.0073
CLTA?	-0.007195	0.003786	-1.900230	0.0576
DEPTA?	-0.015447	0.002769	-5.579375	0.0000
LNTA?	0.002705	0.000456	5.932554	0.0000

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TAGR?	-2.78E-05	4.83E-06	-5.759406	0.0000
OITA?	0.007573	0.003601	2.103046	0.0356
ROA?	0.001405	0.000136	10.31107	0.0000
RELROE?	4.40E-05	2.11E-05	2.084143	0.0373
RELROA?	0.000109	4.28E-05	2.533097	0.0114
C	-0.022684	0.005555	-4.083511	0.0000
AR(1)	0.870480	0.011317	76.92025	0.0000
<hr/>				
R-squared	0.886085	Mean dependent var		0.015327
Adjusted R-squared	0.885307	S.D. dependent var		0.011996
S.E. of regression	0.004062	Akaike info criterion		-8.166726
Sum squared resid	0.028997	Schwarz criterion		-8.126487
Log likelihood	7240.552	Hannan-Quinn criter.		-8.151859
F-statistic	1138.900	Durbin-Watson stat		2.332544
Prob(F-statistic)	0.000000			

As can be observed some variables were left out of the final result as they were not statistically significant at the 5% level. These variables were:

Variable	Name in the Equation
Commercial & Industrial loans / Total assets	SBFTA?
Equity / Total assets	IKTA?
Loans / Deposits	LOADEP?
PretaxROE	ROE?
Money and capital market financing / total assets	MMFTA?

From scanning through the results, one could note that (strictly speaking), variable CLTA? (Consumer loans / total assets) was also not statistically significant at the 5% level. We chose to keep it, since it is only marginally not statistically significant at the level we discussed, while it is significant at any level higher than that.

Before commenting on the coefficients that the regression has generated, we will have to comment on the remaining results. The results from the t-statistic indicated that none of the coefficients are equal to zero. The R-squared and Adjusted R-squared results are satisfactory. They measure the success of the regression in predicting the dependent variable within the sample. The Adjusted R-squared is also very satisfactory. It is stricter than R-squared, since it penalizes it for the addition of regressors that do not contribute to the explanatory power of the model.

The Standard Error of regression is a summary measure based on the estimated variance of the residuals. The Durbin Watson residual (after adjustments in

order to eliminate positive serial correlation) is 2.3325 which is satisfactory. As a “rule of thumb” the Durbin Watson statistic is less than 2, there is evidence of positive serial correlation.

We should now have a look at the coefficients generated by our regression. EMPDEP is positively correlated with NIITA, as was expected. It seems that increased levels of employees are either related to providing personalized services and non interest income related activities.

LOATA, RESTA and CLTA are negatively correlated to NIITA. We expected such results, since all these are categories of loans. Loans generate interest income, so they should be negatively correlated to non interest income. What is even more interesting is that the values of the coefficients are in line with what we expected. CLTA is more negatively correlated to NIITA than RESTA, and this can be explained by the fact that Consumer loans present higher interest margins than Real Estate loans. The coefficient of LOATA is somewhere in the middle as expected since LOATA includes both Consumer Loans and Real Estate loans. It also includes Commercial & Industrial loans, which is a variable rejected by our regression as not statistically significant at the required level. Just by examining the results we would expect a negative coefficient, somewhere between Consumer loans and Real Estate loans levels.

DEPTA is also negatively correlated to NIITA. As mentioned in our analysis, increased levels of deposits may give us an indication of a bank's strategy towards traditional banking. Also, as already mentioned, deposits are considered to be “cheap” funds so if they are used to fund loans (which is the norm in most cases) the net interest margin is increased.

LNTA is, as expected positively correlated to NIITA. From experience and also by reviewing related surveys, it was evident that bigger banks produce relatively more non interest income than smaller banks. They have the edge on this respect since they have a bigger customer base in order to promote any novel products and have most probably already proceeded in diversifying income generating activities by providing other financial services. For LNTA we would expect a higher coefficient,

since we consider this to be one of the most important variables in determining non interest income.

TAGR, as a variable, was considered by us ambiguous on how it would contribute to NIITA. Since we were not sure from the beginning on if it was positively or negatively correlated to Non Interest Income on Total Assets, we would expect a low coefficient in value. This was proven to be the case. The regression resulted in a low (in value) negatively correlated coefficient. We could suppose that this result could also be interpreted as such: Although bank size is an important factor contributing positively to non interest income, rapid growth might not have the same effects.

The results generated for OITA were somewhat expected. As we have mentioned before, other investments are the on-balance sheet assets that mostly generate non interest income (ie dividend income, trading income etc). From this respect, the positive correlation is justified.

As also expected ROA is also positively correlated to NIITA. Increased non interest income is usually expected from companies with well diversified sources of income. These companies also present increased profitability ratios, like ROA. Another explanation comes from the fact that non interest income comes also from items that are not present on-balance sheet. In that case also ROA is increased, since the numerator of the ratio is increased while the denominator remains unaffected.

Relative profitability ratios (RELROE, RELROA) also present positive correlation to NIITA. The value of the coefficient in each case is not very high, however the positive correlation is something that we expected. From the results we may deduct that, well managed banks have a presence in the “non interest income” market, however this is not an axiom. There might be well managed banks that tend towards more traditional banking policies, and of course there might be banks that have proceeded in diversifying their income making business, but with little success in terms of non interest income.

## 5. CONCLUSIONS

It seems that we have come a long way since we have started talking about financial intermediation... We have reviewed the advantages and the characteristics of banks as financial intermediaries and have examined the secrets behind their success in this respect.

We have also seen the importance of the legal framework and how this affects banks, and we have also had the chance to examine the way that banks are sometimes the means of passing and applying a given governments fiscal policies.

As we progress through time it was becoming evident that there is a shift at the banks' quality of income since an ever increasing part was non interest income. This was surely a result of deregulation and advancement in technology, as well as a result of the banks' efforts and strategy in order to diversify their sources of income. After having a detailed look at these sources of income, we set of to approach its determinants.

From our statistical analysis we have come to the following conclusions. There is a positive correlation between profitability ratios and non interest income, a fact that implies that at least some degree of diversification of income should be achieved by banks in order to enhance their results. However we should always bear in mind that increased profitability ratios also mean higher risk.

A shifting in a bank's strategy towards traditional banking, be it from assets side (loans) or liabilities side (deposits) will have negative effects on non interest income, although this is not entirely a bad thing, since we have not proven its connection to financial performance. This would be useful to know, since it would play a dear role on what strategy a bank should follow at given points in time, however it was not part of the subject of this essay. We have determined that it negatively affects interest income, since our regression has consistently indicated exactly that.

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We have also determined that a bank's size also affects the bank's ability to generate relatively bigger amounts of interest income. Bigger banks are in a better position to take advantage of opportunities and have a vast amount of clients and markets to promote any novel fee generating product. Although size does matter (don't let anyone tell you otherwise) rapid expansion does not have beneficial effects on non interest income. Trying to quickly expand in size without first adjusting strategies and policies in order to cope with new levels and facts is not a wise thing to do.

What was also interesting was that relationship banking (expressed by the relatively increased number of employees) seems to have beneficial effects on non interest income. Although it will be challenging to combine that with the "cold" face of the big bank conglomerates, a good combination of the two could work wonders in being able to diversify sources of income.

Finally we may say that increased levels of other investments, is also beneficial in generating relatively more non interest income. We cannot comment if it is better that funding new loans, since loans present a very good income margin, but for sure it is good for diversifying a bank's sources of income.

If we were to conclude in only a few words, we would say that traditional banking and lack of strategy result to lower amount of non interest income per balance sheet assets, while bank size, novel products and willingness to assume a little more risk, leads to increased levels of non interest income per asset. If we were to comment on the correct strategy, we would say that the correct approach would be for consistent growth, trying to explore new ways left open by deregulation and technology, however without diverting long away from core banking activities, who have consistently made banks a success story throughout their history.

### *Epilogue*

In all, we found it interesting and intriguing to examine a variable that was not very looked upon to extant bibliography on the issue. We also enjoyed the fact that our thorough research on the variables that we used to describe the dependent variable has lead us to reach correct expectations on the outcome of the regression results. To

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our view, this has enhanced our faith to the accuracy of the results. Our intention was to expand even by a little bit the accumulated knowledge on the subject, and our hope is that maybe some potential readers may be intrigued and maybe continue further from where we have left off.

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ΠΑΝΕΠΙΣΤΗΜΙΟ ΠΕΡΠΑ