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Banking Internationalization in Latin America: The Brazilian case, 1997- 2007 a panel analysis

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Glossary of Abbreviations

ADCT - Ato das Disposições Constitucionais Transitórias, Temporary Constitutional Provisions Act.

CMN – Conselho Monetário Nacional, National Monetary Council.

D.O. – Diário Oficial, official gazette.

EM/MF – Ministério da Fazenda, Department of Treasury.

FDI – Foreign direct investment.

IGPM – Índice Geral de Preços do Mercado, General Price Index of the Market

INCC - Índice Nacional de Custo da Construção, Construction costs index

IPA – Índice de Preços do Atacado, Wholesale Price Index

IPEADATA - Instituto de Pesquisa Econômica Aplicada, Applied Economic Research Institute.

IPC- Índice de Preços ao Consumidor, Consumer Price Index.

MP – Medida Provisória, Provisory measure.

PROER – Programa de Estímulo á Reestruturação e ao Fortalecimento do Sistema Financeiro Nacional, Stimulus to the restructuration and strengthening of the National Financial System Program.

PROES – Programa de Incentivo à Redução da Presença do Estado na Atividade Bancária, Stimulus to the reduction of The State presence on banking program.

RAET – Regime de Administração Especial Temporária, Especial Temporary Management Regime.

URV – Unidade Real de Valor, Unit of real value.

HSBC – Hong Kong and Shanghai Banking Corporation.

ABN ANRO – ABN AMRO GROUP.

CSFB – Credit Suisse First Boston.

BBVA – Banco Bilbao Vizcaya Argentaria.

BSCH – Banco Santander Central Hispano S.A.

Resumo

Durante a década de 90 o setor bancário mundial passou por mudanças significativas. Um processo de internacionalização teve início em países desenvolvidos e em desenvolvimento, caracterizado por uma desregulamentação financeira, com barreiras de entradas mais fracas, globalização e desenvolvimento tecnológico. Após a crise Mexicana alguns países em desenvolvimento tiveram necessidade de realizar uma recapitalização no setor. A situação no Brasil era um pouco diferente, pois o país possuía um sistema financeiro com instituições problemáticas e para o aperfeiçoar havia necessidade de as vender ou de transferir o seu controlo. A privatização e o processo de internacionalização tornaram-se numa solução para este problema, e tiveram um papel muito importante durante este período.

Este estudo analisa os efeitos da abertura do sistema bancário Brasileiro, e compara-os com o esperado de acordo com a teoria da internacionalização bancária. Diferenças de acordo com a dimensão dos bancos também serão estudadas, através da introdução de pequenos e médios bancos na amostra. A análise foi realizada utilizando dados de 18 bancos nacionais com portfólio comercial, durante o período de 1997 a 2007.

Os resultados demonstram que o caso Brasileiro foi atípico, e assim difere do esperado de acordo com a teoria. A análise revelou que a rentabilidade dos bancos Brasileiros não diminuiu com a internacionalização do setor, pelo contrário até aumentou durante este período. Os resultados também permitem concluir que não houve um aumento da eficiência destes bancos nacionais em geral, na realidade os custos destes bancos aumentaram ao longo do tempo, negando a hipótese teórica de que deixariam a sua "quiet life". No entanto a associação existente entre ativos e eficiência, mostra que os maiores bancos se tornaram mais eficientes durante este período.

Abstract

During the 90s, the banking sector went through significant changes worldwide. An internationalization process began in developed and developing countries, characterized by financial deregulation, weaker entrance barriers, globalization and new technological developments. In some developing countries, after the Tequila banking crisis, there was the need to recapitalize the sector. The situation in Brazil was different, the country had a financial system with problematic institutions and in order to improve it, these institutions had to be sold or had to have their control transferred. Privatization and internationalization were an answer to these problems, and had a crucial role during this period.

This work analyses the results of the opening of the Brazilian banking sector, and compares it to what is expected according to the multinational banking theory. Differences between bank sizes will be studied by introducing smaller banks in the sample. The analysis is made by using data from 18 private Brazilian banks with a commercial portfolio, between the period of 1997 to 2007.

The results show that the Brazilian case was not typical and that it does not follow what is expected by theory. It shows that national bank profits did not decrease during internationalization; as a matter of fact, it only increased recently. The results also show that national banks did not become more efficient in general and actually have increased their costs, going against the "quiet life" hypothesis. However the association with assets and efficiency shows that bigger banks probably became more efficient during this period.

Keywords: Banks, internationalization, Brazil, globalization, privatization, financial deregulation.

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1. Introduction

The Brazilian banking sector has shown peculiarities throughout history and therefore it has always attracted my attention. After studying the creation of the Brazilian bank system, with the first bank of Brazil, I am now focusing on more recent events, that is the internationalization process.

In the last decade of the XXth century the world went through severe changes due to the globalization. A new wave of internationalization began in the banking sector, in developed and developing countries. This wave was characterized by financial deregulation, weaker entrance barriers, capital mobility and new technological development. The crisis in Mexico, in 1994, created problems all across the globe, especially in Latin America. The entire banking sector needed recapitalization. Brazil was facing a serious banking crisis, with problematic institutions threatening to take down the system if any action was not taken. Such institutions needed to be financially aided, sold or to have their control transferred. Privatization and the entrance of foreign banks were an answer to the problem. The so protected banking sector was then   opened to the world.

What were the effects of this tendency on national banks? Many studies have already exploited the changes occurred in the Brazilian largest private banks, such as Rocha (2002), Bitter (2003) and Carvalho (2002).   Most of those studies have focused on analyzing the largest banks in Brazil, but what happened to smaller banks? Were there any significant differences in the result of banking internationalization when the size of the banks had also been considered? The internationalization in Brazil had three main phases until 2007, a period of accelerated entry between 1997 and 1998, a period of initial departure 1999-2002, and after 2002 there was tendency of foreign banks to leave the market. How did the changes in the above period affect national banks? In this study, we will try to identify the effects of the internationalization process in the Brazilian banking system from 1997 to more recent year (2007) over the institutions that remained functioning and had reliable balanced data throughout this period. We will also characterize these banks by assets, to analyze the internationalization effects, considering the size category as well as the intensity of these effects over them. Previous empirical researches have shown the effects over Brazilian top banks after the entrance of foreign banks in the country (Fachada 2008) and also the immediate effect of the internationalization (Carvalho 2002). Other papers tried to highlight the importance of banking internationalization in the country development (Lensink and Hermes 2003). Cross country studies were also made, such as Claessens et al 2000, who

studied banks in 80 countries. Comparisons among Latin American countries had also been made before, such as, Brazil compared to Argentina (Paula 2006), and there were also other theorist papers on the subject, such as Rocha (2000), Paula (2002) and Corazza and Oliveira (2007).

According to Rocha (2000), in Brazil, the official act that marked the entrance of foreign banks was the purchase of Bamerindus by HSBC in 1997, the only transaction of PROER that involved foreign currency. Although there had been the possibility of foreign banks entering Brazil since 1995, the entrance tendency started only in 1997. Therefore, due to its importance, the data used for analysis in this paper will initiate in 1997.

Multinational banking theory says that changes in banking ownership have significant implications in efficiency, competition, potential systematic crisis and access to credit and banking services. Empirical evidence presented in other papers (such as Claessens et al 2001) shows that the entrance of foreign banks in developing markets is associated with improvement in efficiency and with minor State presence in the sector as well.

Regarding efficiency, the theory described in Grubel (1977) states that foreign banks are, by definition, more efficient. Consequently, less efficient markets would be seen as attractive, where foreign banks could capture a significant share of their market and profits.

The main purpose of this study is to demonstrate, as others had done before, that the Brazilian case was different from any other countries. In fact, it completely differs from what is expected according to theory. This paper, however, will also consider the size of each institution when analyzing the results, since big and small banks have their own peculiarities. Smaller banks have never been researched so far because researchers have been focusing only on the biggest banks in Brazil. This paper will also mention the changes occurred over the period of internationalization, with a more accelerated entrance between 1997 and 2002 and the beginning of their departure from Brazil after 2002.

This study is organized in four chapters.

Chapter one will present the theory of general bank internationalization, followed by the motives of the 90s internationalization wave in Latin America, and the strategy of European banks in this matter.

Chapter two will take a brief look on the history of international banks in Brazil. It will also analyze legal and economic aspects regarding foreign and national banks throughout the

XXth century in Brazil, followed by the problems and the restructuration in the Brazilian bank sector during the stabilization process in the 80s.

Chapter three will present the legal aspects that led to the entrance of foreign banks after 1988 followed by phases of internationalization in Brazil.

Chapter four will discuss about the results of previous researches on the matter, followed by the data criteria, their analyses and research results.

2. Theory, motives and strategy of internationalization in Latin America during the 90s.

The outgrowing importance of banks in the worldwide economy across the globe has been an increasing concern in studies made during the XXth century. One of the main topics of researches about banks has been the banking internationalization. This section will present the theory on banking internationalization, followed by some results obtained in empirical researches conducted in several countries. Brazil's banking sector is inserted in the internationalization process that took place during the 90s when the main international players were Europeans, hence their motives and strategy for Latin America will be presented afterwards.

2.1. The theory of banking internationalization.

The theorists' definition for multinational banks are banks that own and/or control branches in other countries, are engaged in foreign direct investment and are equivalent to a variant of a multinational enterprise. However, according to Geoffrey Jones (1990), multinational banking differs from international banking because the latter has a much wider concept. International banking includes foreign trade, finance and cross border lending. According to the author, although banks often take part in international banking, trade financing and cross border lending, it can be done without multinational banking. Over the XXth century, investment banks, such as Barings and Rothschilds, were engaged in international trade finance and foreign bond issues, but their international activities were held in most part without the need of establishing branches abroad. By doing so, they were considered international but not multinational banks.

It is known that international and multinational banks have existed for centuries, since the Middle Ages, when Italian bankers established branches in other countries in order to assist their cross border lending and trade activities.

Nevertheless, according to Jones (1992), the modern multinational banking effectively started only in the nineteenth century, when commercial banks, especially Europeans, established hundreds of branches outside their countries.

The first author to formalize a general theory on multinational banking was H.G. Grubel. The literature on multinational banking theory is mostly concentrated in the inward and outward internationalization in America, between 1960 and 1980, and in some cases it

addresses to European and Japanese banks. The early literature on the subject often assimilates banks to multinational companies. However, Rocha (2002) believes that banks differ from non-financial companies, not only because of their functions and their impact on the economy, but also because of stricter regulations the banking sector faces. The gravity of the risks that the banking sector may encounter, combined with the effects that it can generate on the financial system stability leads to a much more needed regulation and supervision. In order to maintain a sustainable financial sector, the entrance to the market of new participants in banking activities is restricted, thus banking competition is restricted by regulation.

The theory of multinational banking states that foreign banks penetrate other markets for four main reasons. These reasons, presented in Bhattacharya (1994), are: "follow the customer", "business opportunities", "Regulatory arbitrage" and "diversification in interest rates differentials". Each one of them is separately described below.

2.1.1 Follow the customer

The theorists' explanation of multinational retail banking is similar to that of FDI's, as banks make use of management technology and marketing know-how, developed by them for domestic purposes, at a very low marginal cost abroad. Also, banks benefit from geographic diversification. According to the author, the idea of the "follow the customer" hypothesis is based on the concept that multinational banking has grown in parallel with FDI, with banks trying to meet the demand for banking services of their national firms abroad. To Bhattacharya (1994), this hypothesis is the most cited explanation of why banks go abroad.

Furthermore, continued business carried out by a domestic bank and a company can be highly efficient due to informal operations taken on trust, which in turn, is based on continuous personal contacts and the result is the flow of information. This information interaction between the bank and the company about its financial status is made at a very low cost and high speed, and it puts the bank at a better position than any other competitor to evaluate its client's difficulties and demand for loans. This low marginal cost information, originated from the direct dealing with the foreign branch of a company, represents the main source of a comparative advantage between the bank and its competitors. This strategy is considered defensive, because, in case a bank does not set up its business abroad, it may lose national clients to their competitors.

According to Rocha (2002), this hypothesis has two main assumptions. The first one, being the parallel between non-financial companies and banks, it has some problems because of their big differences. The second is the assumption of low development of the financial market in the host country, according to the theory, that would stimulate banks to internationalize. The main criticism to this hypothesis is that banks would follow non-financial companies in a second moment. However, Rocha (2002) defends that banks are not passive institutions when it comes to competition. Being so, the prior presence of banks would actually be a stimulus to the entrance of foreign companies, and banks would actually be leading their country. Well established banks can provided useful, important information and advice for companies willing to enter the foreign market, some authors as Bhattacharya (1994) and Walter (1988) and also Jones (1992) indicate that was one of the reasons why British banks would have established branches overseas. According to Foccarelli and Pozzolo (2000,) following the client would be one of the reasons why a bank would go abroad and even so, it would be the least significant one.

2.1.2 Business Opportunities

Another motive for multinational banking is business opportunities. This hypothesis relies upon the idea that foreign banks are more efficient than national banks. These differentials can be seen in lower spreads, better technology, operational efficiency, higher services diversification, higher liquidity and others (Rocha 2002). In addition to the assumption of an inefficient host market, an oligopoly market with smaller uncompetitive banks would not be able to supply the increasing demand for banking services. Therefore, more efficient foreign banks in less lucrative markets would only be beneficial to host countries. Restrictions to the entrance of efficient foreign banks would only prevent the host country from gaining. In the case of Brazil, those were the main arguments used by EM/MF nr.89, 1995, that justify the opening of the market by arguing that foreign banks were more efficient than Brazilian's. The EM/MF nr.311, 1995, which also defends that foreign banks would introduce better technologies and product innovation, will be studied further in the next chapter.

2.1.3 Regulatory Arbitrage

Another reason, studied in the literature, for multinationals banks to exist is the "regulatory arbitrage". Due to specific characteristics of the banking sector and their influence over the economy, banks have to face severe regulatory measures. However, banks can decide to enter less regulatory systems if they perceive high profits. According to Bhattacharya

(1994), in 1978, with the International Banking Act, interstate activities became stricter, but privileges were established, such as the Federal Deposit Insurance and checking facility, which, according to the author, has been perceived to have encouraged the foreign bank entrance. The same can be seen in Gray and Gray (1981), the surge in the establishment of foreign branches by large American banks can be attributed to the Regulation Q, which limited interest rate on time deposits, and also to the interest equalization tax impediment to acquire foreign assets.

Countries with a highly developed banking system tend to put pressure for liberalization measures. Rocha (2002) believes that the risk of such a hypothesis lies on the stimulus for premature measures, and on the possibility of foreign banks taking advantages of regulatory and supervision deficiencies in the host country. According to the author, financial liberalization along with a weak institutional environment may lead to financial fragility in the banking sector.

The author defends that nowadays, with a high deregulatory and liberalization process, specifically with the European integration process, this hypothesis can work to the opposite direction, where elevated competition reduces profits, and high concentration and international expansion can be seen as a reaction against regulations.

2.1.4 Diversification and differentials on interest rates

Finally, as banks are always looking for ways to maximize their profits, portfolio diversification, including the domestic and foreign assets, would offer lower risks and more variability in investment and return. It might mean maximizing returns at lower risks with a broader diversification. Several researchers have studied the risks and returns of banks when investing abroad. Although the return of foreign assets are sometimes low, they have confirmed lower portfolio risks, according to Rugman (1979).

Interest rate differentials between countries could create a higher return on financial intermediation. Foreign banks take advantage of higher interest rates in the host country, due to the fact that they can borrow from the international market at lower rates and for longer periods of time. Then they can make these resources available in the host country. Rocha (2002) defends that the foreign bank can also benefit from high spreads between capitation and internal lending when superior to its domestic country. According to the author, when benefiting from better conditions in the host country, foreign banks would contradict the

theory and a priori would not be more efficient. They would not reduce rates to benefit the economy. In fact, they would take advantage by adapting to the local market.

2.1.5 Other possible reasons for internationalization.

In addition to the facts presented by Bhattacharya (1994), Rocha (2002) refers to other possible reasons why banks would go abroad. According to the author, banks decide to go international due to the competition. Therefore, it is considered a defensive strategy, similar to the "follow the customer" idea. This hypothesis can be seen in many cases, including the case of Brazil. According to Guillén and Tschoegl (1999), that was the case among Spanish banks, especially BBVA and BSCH[1], when both rivals tried to anticipate each other's movement towards fusions and expansion.

According to the author, apart from the economic reasons, there are also some social and historic reasons why a bank would choose a country or region in particular. According to the author, the above reasons can explain why Portuguese banks decided to go to Brazil, German banks to Eastern Europe, the geographic proximity. There is a shared common language and cultural background, connected with the colonial period and immigration in the XIXth and XXth century. Furthermore, the large presence of Spanish community in many Latin American countries, could assist the entrance of Spanish companies in the market.

Rocha (2002) believes that the growth itself can be another strategy for internationalization, which was also mentioned by others, including Gray and Gray (1981) Other specific factors can also influence banks to go overseas, such as particular repelling factors in the country of origin, which will be further referred in this chapter.

2.2. Global Studies results

Many studious have tried to prove their theory with real data. Researches have been made over several different periods by different countries. The most relevant ones are briefly presented next.

Demirguç-Kunt and Huizinga (1999) studied a group of variables in 80 different countries over the period between 1988 and 1995, demonstrating that spread and profitability can be explained according to a series of variables, such as size, ownership, leverage, macroeconomic conditions, taxes, legal aspects, and compulsory deposits. The authors

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[1] Banco Santander Central Hispano

conclude that foreign banks have larger profitability margins in developing countries than in developed ones.

The influence of foreign entrance in the domestic market over 80 countries was examined in Claessens et al (2001), using the same database as the one used in this paper, BankScope Data. The study concluded that foreign banks tend to have higher interest margins, profitability and tax payments in developing countries, whereas the opposite happens in developed countries. Empirical tests have also shown that, in most countries, a higher share of foreign banks in the market is usually associated with higher competition and with a reduction in profitability and margins of national banks. Their results are consistent with the multinational bank theory, which, as mentioned earlier, defends that the entrance of foreign banks forces national banks to work more efficiently, improving the national market and their clients' services.

Likewise, the authors discovered that the local market reacts to the number of foreign banks entering the market rather than the share of the market owned by them.

As it was mentioned before, in Brazil, as in many other countries, there were restrictions to foreign bank entrance until the 90s. This sudden change in restrictions meant that the government's view on the subject changed, due to the benefits that could be expected from internationalization, as the theory states.

According to Lensink and Hermes (2004), the first argument is that the foreign presence may stimulate the domestic market to reduce costs, increase efficiency and diversity of financial services due to a harsher competition. The addition of foreign players in the local market may put pressure on old practices. Competition can lead to lower interest rate margins and profits in local banks.

Secondly, foreign entrance can also lead to spill-over effects. Foreign banks can introduce new technologies and services, what would force domestic banks also to develop them, improving the efficiency of financial intermediation in the country.

According to the authors, foreign banks can also be responsible for improving management in the sector, especially when they participate in domestic banks through mergers and acquisitions. International banks can also demand for better regulation and supervision what may contribute to improve the quality of operations. It can also reduce the influence of the government over the sector, reducing the importance of direct credit policies. The spill-over effects would contribute to a more efficient bank sector, what would reduce costs, although these may only happen in long term, since the implementation of new services and technologies will incur higher costs in short term.

The third argument is that foreign banks can increase the quality of human services, which can happen in different ways. For instance, international banks can bring high-skilled managers to work abroad, and locals could learn from working with them. Foreign banks can also invest in training their local staff, increasing the quality of the human capital, what would contribute to more efficiency and therefore help to reduce costs in long term.

The work of Claessens, Demirguc-Kunt and Huizinga (2001), as mentioned before, also reinforces these assumptions, showing that increased competition improves efficiency. Once the market conditions have changed, national banks are forced to identify and adopt cost saving strategies, leaving their "quiet life". According to them, the increase in competition leads to positive efficiency by improving the functioning of domestic banks as soon as they enter the market.

Other studies have found similar results when applied to a specific country. Studies made in Turkey[2] have found that net interest rate margins, returns on assets and overhead expenses of domestic banks decrease after the foreign bank entry, supporting the idea that foreign banks put competitive pressure on local banks even if foreign banks have a very small market share. Studies made in Colombia have also shown that competition reduced intermediation spreads and raised costs, due to the need of local banks to upgrade their activities[3]. A study made in the Phillipines market has also shown similar results, demonstrating that foreign entrance improved the efficiency of national banks and made them more independent from government policies[4].The same results can be seen in Argentina, where a study found that foreign banks increased competition. Profit and net margins were lower to national banks that were engaged in manufacture lending, where foreign banks had the main focus.

Other more recent studies have demonstrated that the development of a host country may affect the results of internationalization, at least in short term (Lensink and Hermes, 2004). They believe that less developed countries are more prone to see improvements in the banking sector with the entry of foreign institutions. In short term, this entrance would generate higher costs in different levels, depending on the stage of development of each country. In long term, the effect could be positive, reducing costs and it would also generate a positive influence on the functioning of the banking market.

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[2] See more at Denizer (2000).
[3] Barajas, Salazar and Steiner (2000)
[4] See Clarke et al (1999)

Regarding human capital, less developed countries have a lower level of human capital, thus, a less developed country would have a larger benefit in relation to efficiency improvement in long term, but also higher costs in short term.

Finally, competitive pressure from the foreign bank entry may be less strong over less developed countries with a more underdeveloped financial system. According to the authors, one of the main causes of underdeveloped financial system is related to financial repression policies characterized by stimulation or creation of segmented markets. Foreign banks may be interested in only a few segments of the market in order to serve a specific group of clients, what may reduce the competitive pressure over the locals, since they would serve another market group (consumer credit, credit to small and medium sized companies etc). In case of low competition, there will not be as many spill-over effects over their clients as expected in short term. A situation like this may lead to higher margins on banking services, when the interest rate charges are raised more than the increase of interest rate payment. In long term, foreign presence may increase competition and reduce margins and costs as a result.

The paper has concluded that the entry of foreign banks is associated with increasing costs and margins in the economy of less developed countries. In more developed regions, costs margins and profits are neither associated with foreign entrance nor have a negative effect. It demonstrates that economic development is actually an important factor to be taken into account when considering the effects of foreign bank entrance.

As shown in this section, most of the empirical international researches on banking internationalization have proven theory right. The most important work on the subject has found that foreign entrance is associated with a reduction in profits to domestic banks, as well as an decrease in their costs, showing the existence of the quiet life hypothesis, where national banks, when facing a higher competitive sector, are forced to be more efficient, resulting in reduction of their costs over the time. However, the evidence for the Brazilian case is quite different. The results of the most important researches on the topic will be presented in the data section of this paper.

2.3 External motives for the recent global expansion.

After analyzing the internationalization theory and empirical results in international researches on the subject, this paper will now present relevant internal and external factors that may have lead to foreign bank entrance. This section will introduce the external factors, whereas internal motives will be analyzed in the next chapter.

Until now, the international banking sector has faced two major waves of foreign expansion: the first one started in the XIXth century and the second in the 1960s. According to Jones (1990), the most extensive example of the first expansion was the British banks that started to appear in 1830. Posterior authors described another wave, during the 90s. The latter is characterized by financial globalization and determined by free capital mobility. As a result of the liberal reform, restrictions that had been established after the Great Depression and during the Bretton Woods period were being slowly eliminated.

The deregulation process, along with the global tendencies of globalization, created a process of a competitive deregulation, reinforcing monetary integration.

One of the characteristics of the internationalization process in Latin America and Brazil is the high presence of European capital. Therefore, it is important to highlight the saturation of their domestic markets that were in need of diversification and new sources of profit. According to Paula (2002), bank's FDI cannot be analyzed separately from the general movement of FDI to Latin America. The region received records of FDI during the 90s, equivalent to 41% of the total FDI directed to developing economies. Between 1991 and 2005, transactions targeting banks in the region accounted for 48% of total cross-border mergers and acquisitions in emerging markets, followed by emerging Asia with 36% and Eastern Europe with 17%. The preference for Latin America was partially due to the crisis in Asia in the second half of the 90s, and to the fact that the Indian and Chinese financial system was closed to foreign banks. Thus leaving South American countries, such as Argentina, Brazil and Mexico, as the main big emerging markets with a banking sector open to FDI. Brazil has received the most part of the FDI that was directed to Latin America.

Paula (2002) explains that the Single Market Act[5], that established a single market in Europe, created the chance for mergers in the region, and therefore bank concentration in the EU. According to the author, a single currency in Europe was likely to increase competition and reduce entrance barriers by reducing currency exchange risks and consumers costs. As a result of a higher competition and in anticipation of the establishment of the euro, financial consolidation in Europe accelerated.

Mergers and acquisitions in Europe did not happen only in the banking sector. European banks have acquired and merged with other companies, especially insurance companies. Another aspect of banking consolidation in Europe is that it remained national, rarely involving other European countries. Most businesses among European countries were mainly alliances, such as the Santander and the Royal Bank of Scotland alliance.

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[5] The Single Market Act set the objective of establishing a Single Market in the European Union by 31 December 1992, revising the Treaty of Rome.

In Spain the five largest banks held 34.9% of the total assets in 1995 and increased to 64% in 1998, because these banks were controlled by two main financial groups, Banco Bilbao Viscaya, that merged with Argentaria, and Banesto acquired by Banco Santander, that merged with Banco Central Hispano, Rocha (2002)

In other European markets, a large number of fusions took place earlier, between 1991-92 in France, and 1993-94 in Germany and Italy. The quantity of fusions in Europe only accounted for 26.86% of the fusions that happened in the USA, showing that, in America, the consolidation process was even more intense.

After the euro became active, the financial market consolidation accelerated in Europe, and it strengthened the tendency toward integration, liberalization and deregulation. Internationalization was a way to leave behind mature markets with low growth rates and reduced profits, with a liberalization process that increased competition. These banks went looking for new markets.

As a result of that concentration process in the European banking sector, the competition for modification increased. Consequently, profit was reduced, favoring the search for new promising markets recently opened for foreign competition, less regulated and with higher interest and profit rates, like Latin American's.

According to Paula (2002), the concentration in Europe remained domestic and not cross-bordered as mentioned before. The author believes that there were impediments to mergers and concentration within Europe, whereas there were incentives outside the continent. It is one of the reasons he finds as a possible explanation for it is the absence of a regulatory entity in the region, limiting the benefits of cross-border expansion. Consequently, it also prevented from the diversification on earnings and caused a reduction in the regulatory capital, like what had been practiced in America.

The number of mergers and acquisitions shown by the author, from 1997 to 2000 in Europe, demonstrates that transactions involving cross European are quite small when compared to the number of transactions involving banks inside the same country in the euro zone. The greater number of merger activities during the period happened when a non-European country was involved, showing an increasing interest in acquisitions outside Europe. Moreover, there was an expansion especially to emerging markets, such as the South East Asia, Central and Eastern Europe and especially Latin America. Some expansions were connected with historical relationships, such as the case of Spanish, Italian and Portuguese banks that started entering their former colonies financial market.

Some countries in Europe, where banking markets had also been closed for competition, suffered from the opening of the sector as well. Controls in banking activities

such as limits for interest rates, compulsory investments etc, were eliminated or softened by deregulation. A stable environment of low competition and efficiency has now been changed. One of the main results of this change was the lower rates of intermediation margins in the banking sector. There was a decline in profit margins, especially in Mediterranean countries, where usually there was a more regulated market.

According to Rocha (2002), the main reason for banks to go looking for opportunities in the international market is the tendencies towards deregulation and liberalization. These tendencies modified the financial and banking market creating new possibilities of international capital fluxes. These changes caused a reduction in profitability, new non-banking competitors and the consolidation of the markets.

There are some important factors to be considered when choosing a host country. One of them is the interest rate. Since the main target of multinational banks is high profits, foreign banks could benefit from low interest rate in their own countries or in the international market, and then pass it on to host countries with higher interest rate, what was explained by theory before.

Rocha (2002) points out that the search for geographical diversification and regulatory arbitrage is usually overestimated. In a new market there is also the chance to overcome competitors in their former market as well, like the Spanish banks in Latin America.

Paula and Alves (2006) defend that international banks did not expand to international markets only to serve their home enterprise as the theory says. It corresponds to one of the reasons for foreign expenditure. They also aimed at disputing new markets with their home and host competitors. It can also be seen as a response to higher competition in their home countries, and to constraints to mergers and acquisitions in Europe. Paula, in another study (2002), reinforces the idea that European countries have expanded overseas not only as a source of earnings diversification but also as a way to strengthen themselves for the competition inside the EU.

Spanish banks played the main role in the Brazilian internationalization process. They already had mergers and acquisitions strategies in Spain, and later, they had to start searching for other markets in order to ensure their position nationally and defend themselves from competitors.

According to Paula and Alves (2006), from 1992 to 1995, most of the FDI directed to Latin America belonged to banks coming from Europe: being 46.6% from Spain, 10% from the UK and 6.4% from Holland.

Since Spain was the main participant in the Latin American internationalization process, it is important to highlight their particular case, which will be done in the next section.

2.4. The internationalization of Spanish Banks and their strategy in Latin America.

Spanish Banks have already been immersed in mergers and acquisition in their home country. The expansion of Spanish banks in Latin America, according to Sebastián and Hernansanz (2000), is part of a broader process that has been encouraging Spanish companies to become multinational.

With the creation of the EU, an expansion in the region was to be expected. However, as the author shows, while almost 80% of the Spanish FDI had its origin in the European Union, the proportion of Spanish FDI to the European Union was quite small, only 16 %. The main recipient of the Spanish FDI was Latin America, representing 4.9 % of the Spanish GDP according to estimates for 1999, and only 1.8% belonged to Europe.

The largest Spanish banks searched for global markets in order to maintain their positions at home, thus, the process had two phases: an initial one that involved alliances and cooperation agreements with other financial institutions, followed by an aggressive expansion to Latin America.

Latin America had some advantages in comparison to other markets at the time. It had suffered a severe change after the crisis in Mexico; it went through a deregulation process with political and economic reforms during the 90s, making room for foreign companies to enter key sectors that had been protected before, such as banking. There were also other advantages, such as a younger population, less mature markets and potential economic growth of the region.

Intermediation margins in Latin America are higher than in developed countries, creating a possibility of higher returns to financial institutions. According to Paula and Alves (2006), most Latin American countries have a lower degree of efficiency. Operating costs to assets ratio were 5.5% in Latin America between 1992 and 1997, whereas in G3 countries they were only 1.7%. This characteristic of higher operating costs may be an inheritance of the inflation period, when banks obtained their revenues from inflation, and there was little pressure to cut costs.

Another characteristic of the Spanish internationalization process highlighted by Sebastián and Hernansanz (2000) is that the process was due much more to a "carrying-over" of the local competition among Spanish banks, as already briefly mentioned before, than to any other possible reasons for banking internationalization. According to the authors, that would be an example of oligopolistic reaction paradigm, when banks follow the footsteps of their domestic competitors in their international expansion.

In the Spanish case, although it is not the main rule, only the biggest banks decided to go international. The authors say that, despite the small size of the Spanish banks if compared to other big banks worldwide, size seems to be a secondary argument when regarding Latin America. According to them, in the advent of the euro, size does become essential if a bank wants to have a significant role in the European banking map.

In Spain, as in all Europe, there was a highly competitive environment in the sector. The liberalization process lasted for over twenty years. Restrictions on capital flows ended and foreign banks could enter the market only in 1992. Saving banks could not open new branches in the country until 1989, and the liberalization of interest rates and commissions only took place in 1987, then competition increased.

The euro affected the sector in different ways. Interest rates declined in order to accompany and stabilize the euro, generating a negative impact on intermediation margins. The change to a single currency in the region also eliminated gains from currency exchange and trading commissions.

The international expansion can be seen as a way out of this competitive and less lucrative scenario.

Expansion in the region got under way in 1995 and intensified between 1996 and 1999 with Spanish banks acquiring large shareholdings in Latin American banks. The process of privatization and the withdrawal of American banks from Latin America contributed to the timing of this expansion. Bank entry was made mainly by acquiring other institutions, which provided favorable conditions for the retail banking business, where Spanish banks were focusing. Spanish banks acquired important positions in several countries in Latin America, as shown in the table below:

Table I: Participations of banks according to ownership across Latin America and Eastern Europe.

Country	State banks	Private banks	Foreign banks				Single largest foreign country present
			Total	EU	USA	Others	
Latin America							
Argentina	32,5	19,1	48,4	33,6	12,1	2,7	Spain (17,9%)
Brazil	46	27	27	15,7	5,3	6,1	Spain (5,3%)
Bolivia	18,2	56,5	25,3	10,4	4,5	10,4	Spain (10,4%)
Chile	12,9	45,5	41,6	32,4	5,5	3,8	Spain (30,6%)
Peru	10,8	43,2	46	34,8	5,6	5,6	Spain (17,1%)
Mexico	-	17,7	82,3	53,7	23,7	4,8	Spain (41,5%)
Eastern Europe							
Rumania*	41,8	3	54,9	46	4,5	4,4	Austria (21,7%)
Poland	23,1	5,4	71,5	60,2	10,4	0,9	Italy (16,6%)
Slovakia*	33	6,4	60,5	51,8	2,8	5,9	Luxembourg (34,9%)
Bulgaria	18,1	10,3	72	62,9	1,3	7,8	Italy (27%)
Czech Republic*	4,3	25,7	70	58,1	6,3	5,6	Austria (40,5%)
Estonia	-	2	98	98	-	-	Sweden (86,7%)
Hungary	44,6	3,2	52,2	39,2	8,6	4,4	Austria (17,8%)
Slovenia	14,3	19,6	66,2	66,2	-	-	Belgium (44,5%)

Participations in term of assets in each country's banking sector. Participation is considered to be 100% when a foreign banks controls a bank but owns less than 100% of it's capital
* participation measured in terms of capital

Adapted from Cárdenas et al. (2003) p. 5

From the above Table we can see that the Spanish presence in Brazil was actually the smallest in percentage compared to the rest of the Latin American countries annualized (only 5.3%, whereas it accounted for 41.5% in Mexico).

Technology today allows banks to be present overseas without a large physical presence, for example, in investment banking. However, Spanish banks have decided to replicate the model of banking in Spain, the universal banking model, which also means competing with locals in the retail market.

In this chapter it was possible to conclude that theory and empirical research shows that internationalization has brought efficiency to national banking markets but also a fall in profitability. In the most recent wave of banking internationalization in the 90s, it is possible to see a significant presence of European capital. After the euro started functioning, financial market consolidation accelerated in Europe. Mergers and acquisitions started taking place more rapidly increasing concentration. Internationalization was a way to leave behind more saturated markets with lower profitability. The tendencies towards deregulation and liberalization created a new branch of possibilities, modifying the market and creating new fluxes for international capital. At the same time as the European capital was searching for new markets, South America was going through a deregulation process after the Tequila crisis, creating a great opportunity for internationalization.

As it was seen in this last section, Spanish banks played the main role in foreign bank entry in Latin America. Entrance was made mainly by acquiring other institutions, and it was part of a process already started in Spain. However, each country had its own political and monetary reforms that have influenced the internationalization process.

Apart from the external factors that led to the internationalization of the banking system in Latin America, there were also some important internal factors. There were changes in the legal system allowing the entrance of foreign bank. The entrance was seen as a way to solve the current crisis in the banking system, generated by the Tequila crisis in Mexico. This theme will be analyzed closely in the next chapter.

3. Internationalization History in Brazil

After analyzing the theory of banking internationalization, and the external motives for the 90s globalization wave in the sector, in which Brazil had a very important role, this chapter now studies the history of international banks in Brazil, followed by the most recent economic and legal internal reasons that led to the latest foreign entrance in Latin America and especially in Brazil in the 90s.

3.1. A brief history of the foreign presence in the Brazilian banking sector.

Brazil's banking privatization after the Real Plan seemed to be the beginning of the foreign presence in the sector. In reality, this presence initiated in 1860. According to Rocha (2002), from the last quarter of the XIXth century up to 1920, the commercial banking sector was formed mainly by foreign banks, a period characterized by no restrictions to the opening of new branches with the growth of international institutions. The first bank in Brazil was actually the first Banco do Brasil, a national bank created in 1809. Although it seems late when compared to other countries, according to Teles (2006), it was actually created before the first bank of Portugal, its metropolis at the time. The first foreign bank to be established was the "London and Brazilian Bank" in 1863 in Rio de Janeiro. During that time, coffee exportation was responsible for stimulating the economic growth, and there was a flourishing market for institutions that wanted to fund the international commercialization of coffee. By the end of the XIXth century, foreign banks had a substantial share in the national market, concentrating their main operations in financing activities and in the exchange market, Moraes (1990).

In 1911 the Italian-Belgium bank entered the country, followed by others, such as CitiBank in 1915 and Banco Holandês Unido in 1917. In the 50s, three Japanese banks also penetrated the market, Mitsubishi, The bank of Tokyo and Sumitomo, and later in the 60s the German Banco Alemão Transatlântico followed.

In the early XXth century, foreign banks represented 46% of the total assets in the commercial banking sector, more than in any other Latin American country. In Chile and Argentina they represented no more than 28%. According to Moraes (1990), the information about the banking sector for this period is very limited, and restricted to Rio de Janeiro. Therefore, all the information that has been studied is based upon the Statistical Yearbook for 1908 /12.

The Great War brought changes in the banking sector. After it, there were adverse modifications in the relationship with foreign institutions, restrictions were created, and there were incentives to the growth of national banks branches. Moraes (1990) defends that the first legal distinction between domestic and foreign banks was made in the article nr. 117 of the 1934 Constitution, that declared that foreign banks should be gradually nationalized.

According to Rocha (2002), the 1934 and 1937 Constitution determined the nationalization of foreign banks, (mainly relating to war enemies), and forbade the ownership of banks by no residents. One effect of such measures was the reduction on the total assets participation of foreign banks from 46% in 1912 to 5% in 1945. There was also a strong reduction of foreign capital participation, caused by the nationalization of German banks, after war was declared against Germany. Article 117 of the Constitution of 1934 says that foreign banks should be progressively nationalized. The nationalist perspective was reinforced in the 1937 Constitution, article 145 established that only financial institutions that belonged to a Brazilian citizen would be allowed to function and all the existent foreign banks should be gradually sold.

According to Moraes (1990), a number of years were established in order to reach the full nationalization of the Brazilian financial sector, by decree law 3182 of 1941 banks should have only Brazilians as share holders. The deadline was initially set to 1946 and later postponed. Exceptions to law 3182 were made six months after its promulgation, at first for American banks in 1941, later for Canadian banks in 1942[6]. The law allowed them to continue operating as foreigners. In the following year those benefits were passed on to other banks that could then share the same privilege, such as the Bank of London and other South American banks[7].

After the Second World War, foreign banks continued penetrating the market, however not as a constant trend.

Before the deadline was reached, a new decree law[8] authorized national banks with foreign share holders to remain operating. This more liberal approach could also be seen later in the 1946 Constitution, where no explicit references to foreign financial institutions were made, only one article referred to the matter, leaving it to be dealt with by common law[9]. Financial institutions could then be under total foreign control, and there was also free entrance of international banks according to Corazza and Oliveira (2007). According to Rocha (2002), despite the changes in the Constitution in the late 40s, the number of international

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[6]Decree law 4650 September 2, 1942.
[7]Decree law 5618 June 24, 1943.
[8]Decree law 8.568.
[9] Article 149, 1946's Constitution

institutions continued to decrease and the situation only changed in the 60s. However, Moraes (1990) believes that this declining tendency remained for a longer period, through 1950 to 1980.

In 1964, the Military Government started a financial reform that occurred along the period of 1964 to 1967, by law 4595. The new law set distinctions between national and international banks[10]. According to it, to be created a new Brazilian bank needed an authorization from the Central Bank. In case of a foreign bank, however, it would depend upon an authorization both from the Central Bank and from the President himself. That was the case of some international institutions that came to the country at the time, such as BankBoston, Chase and Lloyds. According to Rocha (2002), the reform promoted specialization of the financial sector, but also generated concentration. According to Moraes (1990), the same law also limited operations of already established foreign banks, limiting their number of branches. Although there was no explicit limitation in the law, restrictions were imposed by the Central Bank to the opening of new branches, since the opening of new branches needed prior approval from the Monetary Authorities. Although the law 4595 was very strict with banks, it was less severe with other financial institutions, where foreigners could own up to 49% of the total capital, and 33% of the voting capital in non- banking national institutions.

In 1967, a new mechanism was created, facilitating the access to the international market. It was the nr.63/1967 resolution that allowed the internationalization of the market, made through FDI, with minor participation in national conglomerates through investment banks. The measures that were taken during this period of reform started an external financial opening never seen before in the Brazilian history, Rocha (2002).

In the 70s, the banking system suffered new adjustments. In this period, there was a higher number of banks compared to the available resources, due to the financial market development and growth of the stock market. Competition increased and led the government to establish a tendency towards mergers and acquisitions. The CMN (Conselho Monetário Nacional, National Monetary Council[11]) set more severe measures in order to limit foreign participation in financial institutions. According to Rocha (2002), a set of normatives created along the 70s resulted in a law that later prohibited foreign presence in commercial banks. The banking sector at that time was overprotected due to its high profitability and political pressures from the dominant class.

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[10] Article 18, law 4595.
[11] Created by law nr. 4.595, of December 31th, 1964

The normative changes made in the 70s are summarized in the picture below:

Figure I : Regulations Regarding the Brazilian financial system

Normative	Resolution
Decision CMN (24.11.70)	Bans foreign participation in comercial banks. Limits participation in investment banks, 50% of the total amount of capital and 33% of the voting capital
Vote CMN n° 462/1971	Expand the limit of investment banks to DTV and financial. Bans participation in brokers.
Vote CMN n° 285/1975	Extend the limits of investment banks to leasing companies.
Vote CMN n° 130/1976	Aplies the same limits of non financial institutions to brokers. Limits the entrance of capital to brokers.

Adapted from Corazza and Oliveira 2007 p.3

The set of this normative later evolved to the CMN vote nr. 262/1986. Even after those prohibitions, the number of international banks increased, reversing the tendency of reduction that began in the 20s. This increase happened mostly due to reciprocity which created exceptions that granted higher percentages than what was established in the law. National banks such as Banco do Brasil, Banespa and Banco Real were expanding abroad allowing the creation of foreign subsidiaries in Brazil.

Although the period between 1930 and 1970 was a time of economic growth in the country, legal restrictions created difficulties for the growth of foreign bank presence. Even though Baer (1986) points out the creation of 18 foreign establishments, their participation in the market was very shy.

There was a big increase in financial globalization during the 70s, which was determined by the external debt, the political and economic agenda at the time in Brazil, that stimulated international funding, what, according to Rocha (2002), it allowed to increase the importance of the foreign capital in the banking sector.

This increase of foreign institutions, as mentioned before, occurred mainly by reciprocity, with a minority stake in investment banks, with the opening of commercial banks, and also with the transfer of international capitals through resolution nr.63, which was one of the main aspects of the growth in foreign presence.

According to Corazza and Oliveira (2007), the amount of deposits by foreign banks went from 10.2% in 1970 to 13.2% in 1980, whereas the amount of loans grew from 12.1% to 23.3% in the same period. The "shyer" growth in deposits may be attributed to the smaller number of branches allowed to foreign banks; it represented only 2.6% of the sector in 1980.

Although the number of national branches was a lot higher than the foreign ones, they caused administrative costs. As a result, foreign banks became more profitable, despite the legal disadvantages they had to face at that time. According to Moraes (1990), the number of fully owned foreign banks almost doubled in Brazil in the second half of the 70's, jumping from 9 in 1975 to 17 in 1980. This growth, according to Rocha (2002), occurred simultaneously with a concentration of private national banks, and the foreign share in the market went from 10% in 1970 to 32.1% in 1980. According to Moraes (1990), this increase in foreign banks was possible due to Banco do Brasil willing to expand abroad. Every country that Banco do Brasil entered, received the right to enter Brazil as well. However, the banks that did enter at the time, remained very small.

The early 80's brought an incredible growth to the sector when the financial sector output rose almost 27% while the GDP remained unchanged. This increase was caused by the rise in profitability in the banking industry, due to a jump in the inflation rate that increased the demand for banking services. Inflation also usually leads to deterioration of the budget deficit, the Oliveira-Tanzi effect, according to Moraes (1990), along with losses in part of the real revenue of transactions made through banks, would be appropriated by then. The increase in financial intermediation led to an increase in the number of commercial bank branches, by more than 30%. This phenomenon, according to the author, happened due to the impossibility of banks paying interest in demand deposits. Thus, the best way to attract new clients was by convenience, and that could be made by offering branches near their homes. This increase could not be seen in foreign banks, due to legal limitations on their opening. Foreign banks were unable to compete in the volume of demand deposits and payments, by offering a nearby branch. Some foreign banks, in particular, did not suffer from this restriction, which was the case of Citibank and Chase Manhattan.

After 1984, the number of foreign branches began to increase, a sign that restrictions were lowering. Although foreign banks had a smaller number of branches, it did not affect their share in the market, regarding loans or credit in the early 80s. According to Moraes (1990), the only affected area was demand deposits, where they were not able to compete, and ended up losing more terrain in the following years. A significant increase was seen in external lending as expected, that went from 16.51% in 1980 to 20.9% in 1983.

In an analysis between domestic and foreign banks, made by Manso in 1985 seen in Rocha (2002), domestic banks were considered less efficient than foreigners', due to elevated administrative costs, caused by the large number of branches, according to the author.

Due to pressures made by the bank creditors of the external debt, restrictions on the entrance and opening of new foreign branches were lowered in the late 80s .

According to Moraes (1990), 1988 was the year that reversed the Central Bank policies regarding foreign institutions. The new Constitution of 1988 prohibited the entrance of foreign capital in banking institutions in Brazil, until the creation of the Article 52 of the Transitory Dispositions Act (Ato das Disposições Constitucionais transitórias – ADCT[12]). This article allowed the entrance of international banks in three different occasions, through international agreements, reciprocity or national interest (where a case by case authorization would be issued by the President's executive order). At the time of the promulgation of the new Constitution, there were 18 foreign banks and 11 national banks with a significant foreign participation (Rocha, 2002). Although the article 52 was created, the entrance of banks based upon the national interest was rarely used, being used in only 3 cases between 1988 and 1993.

Almost at the same time of the new Constitution, during dealings between the Central Bank of Brazil and the World Bank about a loan that aimed at restructuring the financial system, the national authorities issued a serious of measures that, according to Moraes (1990), were known to be advocated by World Bank officials. The most important of these measures considered the possibility of multiple banks[13]. It created an opportunity to increase international presence, allowing financial companies that operated in distinct segments of the financial market, to merge into a sole institution, a multiple bank, which allowed foreign capital to constitute banks with a commercial portfolio, continuing to allow growth in foreign positions.

The enlargement of capital participation in investment banks was forbidden, but the creation of commercial portfolios with foreign capital was allowed. According to Rocha (2002), it was not possible to increase participation in an investment bank from 55% to 100%, but it was possible to create a commercial portfolio of 55% which led to 26 non- banking institutions to be transformed in multiple banks with a commercial portfolio. According to the author, the number of foreign banks increased severely between 1980 and 1990, especially the number of private national banks with foreign participation, that went from 3 to 13.

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[12] ADCT is a part of the constitution that regulates the period of transition between two constitutions, an old and a new one.

[13] Resolution nr,1.524 of September 21st, 1988. Multiple banks are situations in which different old institutions can concentrate two or more of their previous activities together offering all the financial products .

As mentioned before, the financial reform created the possibility of increasing foreign presence in the banking sector, especially through multiple banks. The increase in the number of institutions can be seen below:

Table II: Number of foreign institutions in Brazil between 1981 and 1990.

Foreign Banks in Brazil

	1981	1983	1984	1987	1988	1990
FB+PNBFC	24	18	26	25	26	28
PNBSFP	3	11	4	4	3	13
Total	27	29	30	29	29	41

FB+PNBFC meaning Foreign banks plus private national banks with foreign control.

PNBSFP Private national banks with significant foreign participation (10%-50%)

Adapted from ROCHA,(2002) p.24.

According to the Table above, it is possible to verify an increase in the number of foreign and private national banks with foreign control between 1988 and 1990. The Table also shows a general increase in foreign participation after 1988, which took place mainly after the creation of multiple banks in Brazil, and by the 1988 Constitution, mentioned earlier.

Changes at that time were only starting. During the 90s, the entire banking sector would pass through severe modifications, with new sources of income, privatization through which internationalization was possible, banking concentration and higher capitalization due to new monitoring rules and higher profits. All of these topics will be exploited in the next sections.

3.2. The Brazilian banking sector after the 1988 constitution: macroeconomic changes, inflation and measures against it.

The changes that occurred in Brazil and led to the entry of foreign banks were not only legal but also economic. The bank sector was much fragmented, with 244 banks. Foreign capital accounted for 33 institutions that shared 10% of the market, and there was a strong presence of State owned banks. The banking sector apart from being fragmented was still a very closed sector.

In the 90s, Brazil had an objective in its economic policy agenda, to open up the commercial and financial sectors to new fluxes of international markets by deregulation and liberalization, through privatization. According to Rocha (2002), these changes occurred

simultaneously with the return of foreign capital to Latin America. After a scarcity period, due to macroeconomic uncertainty and the external debt crisis in Latin America, foreign capital finally returned to the region. It returned due to deregulation, higher liberalization, new financial products, higher profitability and differentials in the real interest rate, making the region attractive for investors.

Foreign investments in portfolio also rose during this period. One of the most important measures that influenced the opening up of the financial market was passed by CMN. Resolution number 1832 of 31.05.1991, allowed and regulated foreign investments on bonds and securities owned by companies in the Brazilian stock exchange. It generated a great influx of foreign investment in portfolio, from 3 billion dollars in 1992 to 33.9 billion dollars in 1997. The return of private foreign capital also made the banking market attractive for foreigners, and that was one of the main conditions for the stabilization process of the Real Plan. Foreign institutions in this scenario, due to their international presence, had competitive advantages. At the time, the main institutions in the sector were Citibank, Chase Manhattan and BankBoston with a 69.5% share of the market. (Prates, 1999).

In order to complement the reforms initiated in the early 90s, in 1993 a new stabilization program was proposed to Brazil by Fernando Henrique Cardoso, a Senator at the time. According to Baer (2003), the program consisted of a monetary reform divided in two phases: the creation of a currency indexed to dollar, the URV, and later, the implementation of the Real, the current Brazilian currency. There would be a 5% increase on taxes, the creation of an Emergency Social Fund (with 15% of the total tax income) and a cut of 7 billion reais on public spending (with investment, personal and state companies).

Different stabilization plans have been created in the history of inflation in Brazil. Some of these plans were created based on the belief that the inflation was inertial, and therefore was centered in supply, but they failed. The inflation was not only inertial. Others have created plans that believed that the inflation was not inertial, but only based upon demand. According to Lacerda et al (2003), the first plan to take into account both inertial and demand inflation was the Real Plan.

Stabilization was obtained by a group of measures: an administrated exchange rate, a broader commercial exchange (with stimulus to importation) a financial policy (stimulating the influx of capital), and broader and stricter monetary policy (with high interest rates). The stabilization program provided a long-sought economic stabilization, but did not improve the outlook of the financial sector automatically, according to McQuerry (2001). The elevated interest stimulated the influx of capital, permitted through the opening of the financial market at the time. The continuous growth of foreign currency appreciated the Real. The growth in

demand, caused by stabilization, a stronger Real and the reduction on taxes, altogether, resulted in more imports. The competition with imported goods did not allow prices to go up. The government controlled the prices, administrated goods and established rules in payroll convertibility.

Although some authors share the view that the fixed exchange rates, used at the time, is usually the cause of many crises, Rocha (2002) does not agree, and uses Eichengreen as an argument. "There is no stable association between exchange rate regimes and banking crisis" (Eichengreen and Arteta 2000). However, stabilization, based upon fixed exchange rates regimes and on capital inflow, produces the richness effect, stimulating the aggregate demand. Increases in purchases are encouraged by credit, creating "bubbles" and making the financial sector more vulnerable, but this vulnerability is still far from becoming a banking crisis.

In the early 90s, banks in Brazil were still facing a very protective sector. Most part of their revenues came from floating, due to the loss of real value of time deposits, a result from inflation, or the indexation of deposits below the real inflation rate. The loss of inflation revenues after stabilization had to be compensated. According to Corazza and Oliveira (2007), in the early 90s, banking inflation revenue was about 4% of the national GDP. With the new Real Plan and the stabilization, this source of income began to fall, representing only 2% of the GDP in 1994 and 0.1% in 1995, which, according to the author, was a sign that the sector would need changes. One way of compensating these losses was trying to charge higher fees in banking services. According to the authors, revenues coming from fees doubled; they went from 10% to 20% of the billing between 1994 and 2004. However, this increase was not sufficient to maintain banking solvency. The increase on fees is a very controversial subject and many believe that fees have been a growing source of income for banks. In the study made by Fachada (2008), evidence of such trend is not found. The author believes that a rise on fees took place right after stabilization was achieved, rising from 0.4% in the beginning of 1994 to 2.4% in the second semester, and continued to increase in the next couple of years. Banks, before the stabilization, were looking for clients, trying to expand banking services to all the population, in order to earn inflation revenues, and an attractiveness of that period was the costless services. Banks started to charge for their services progressively after the inflation stabilization.

One of the positive effects of the Real Plan was the growth of the financial sector, 8% in the second semester of 1994 and 7.9% in the first half of 1995, and also a significant growth in aggregate demand, monetization and more credit operations (Rocha 2002). Credit

operations had a significant growth even with elevated interest rates, mainly due to the inelasticity of the interest rate, allowing elevated spreads.

According to Fachada (2008), the Real Plan did not affect banking profitability at first, gains from credit operations and fees compensated the loss of floating revenues. However, as inflation decreased, banks turned themselves to credit. The increase in credit was followed by default, due to the lack of capacity of banks in evaluating risks. The Central Bank feared that a larger credit line could expand aggregate demand, establishing a strict monetary policy in the aftermath of the Real Plan.

Rocha (2002) believes that the problems of the banking sector were not only the effects of the stabilization program, but a series of factors, including the domestic effects of the external shock, problems in the supervision made by the Central Bank, and frauds that were covered by inflation.

According to the author, the first banks to be affected by the crisis were small multiple banks, which were created after 1988 by non- banking institutions. The Basileia[14] agreement signed by Brazil required a higher level of minimum capital and that, along with the stabilization effects in the sector, made these small banks be unsustainable to function.

In addition to price stabilization with the Real Plan, a period of severe problems with liquidity and insolvency started in Brazil. After some small banks had suffered bankruptcy the problems transmitted to medium size banks, there was a danger of systemic crises in the sector. In order to avoid the lack of confidence in the whole banking system, the Central Bank of Brazil had to formulate a new policy, trying to avoid a bank run, starting a restructuring process in the sector (Maia 2003).

According to McQuerry (2001), policymakers had to initiate a managed restructuring of both private and public banks, in order to prevent these institutions from collapsing, due to the loss of revenue related to inflation activities.

The main aspects of this restructuration were the PROER and the opening up of the financial sector to foreign institutions. All of them will be presented in the following section.

3.3. Restructuring the Banking Sector

"...we also date currency "reforms" or conversions and their magnitudes. Such conversions form a part of every hyperinflation episode in our sample, in effect, it is not unusual to have

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[14] International Convergence of Capital Measurement and Capital Standards, an agreement ratified by 100 countries, which the main objective was to create capital demands for commercial banks in order to lower the risk of credit default.

several conversions in quick succession. For example, in its struggle with hyperinflation, Brazil had no less than four conversions from 1986 to1994." Rogoff and Reinhart (2010) p. 24

The crisis in the banking sector was a result of the decrease in floating earnings generated by stabilization, high demands of compulsory reserves, client's default, macroeconomic volatility, premature liberalization of the financial sector and excessive credit. For Rocha (2002), the decrease on floating revenue alone cannot be the main cause of the crisis, as it was seen before, profits were maintained initially. For the author, the macroeconomic volatility and external shocks along with a restrictive monetary policy are more explicative.

According to Fachada (2008), one of the monetary measures established by the Central Bank was an increase in the reserve requirement of demand deposits, from 40% to 100% on margin, and a 15% requirement on loans, reducing banking funding capacity. The outlook of the banking sector was aggravated by effects from the Mexican crisis[15], forcing the Central Bank to liquidate seven small institutions.

In an attempt to reduce the economic liquidity, (due to a higher credit demand), the Central Bank of Brazil tried to limit credit availability by making it more expensive, in order to restrain inflation and maintain credit influx. Freitas (2000) believes that these credit restrictions have increased default risks, and also elevated the risk of a systemic crisis.

Countries in Latin America, such as Mexico and Argentina, were affected by the early tequila crisis. What allowed foreign entrance to become more appealing, according to Fachada (2008), was the opening up for foreigners to enter in a period when international players were making acquisitions in the continent.

The impact of the Tequila crisis was severe, especially in a restrict monetary scenario as Brazil's in 1994. Facing a devaluation menace that could create capital outflow, the Central Bank increased interest rates to 65% a year in 1995. Credit was rapidly reduced and banks started to invest in more government bonds, which were more profitable and offered lower risks. According to Rocha (2002), the increase on interest rates was the main cause of the

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[15] On the Mexican crises see: Measuring Vulnerability: Who Suffered in the 1995 Mexican Crisis? Cunningham and Maloney The World Bank, 2000 and "Lessons from the Tequila Crisis" Mishkin Journal of Banking & Finance Volume 23, Issue 10, October 1999, Pages 1521-1533

banking problems at that time, bursting the credit bubble, increasing default and elevating the chance of a contagious crisis.

The banking crisis only became evident when the government had to intervene in two large private commercial banks, Econômico and Nacional.

In 1995 the Central Bank had to intervene in several small banks. The RAET was an especial temporary management regime, and it was implemented in the two largest State banks, Banespa, owned by the State of São Paulo and Banerj, owned by Rio de Janeiro and in two other large private banks.

The difficulties of the sector in the stabilization period along with the restrictive monetary policy and external shocks ended up leading institutions to bankruptcy. As a result, banking institutions had to adjust to the new situation.

In order to avoid such a crisis, several measures were established to facilitate acquisition of insolvent institutions, one of the most important one was the creation of a program called PROER[16] (Programa de Estímulo à Reestruturação e ao Fortalecimento do Sistema Financeiro Nacional : Stimulus to the restructuration and strengthening of the National Financial System Program). The two main objectives of the program were: to maintain stability in the payment system (by guaranteeing deposits and by forcing buyers to take on liabilities of a problematic bank) and to penalize bad banking practices by forcing the change of control (mal practice penalization, transferring stock control of the institutions that were helped by the program), according to Maia (2003).

Problematic banks were classified in either "good" or "bad". The good ones, after being helped by the program, would be bought by other institutions and the bad ones would be terminated by the Central Bank. It was an important tool that helped mergers and acquisitions; it offered the buyers a credit line with lower interest rates in an effort to encourage them to purchase; financial losses from problematic banks were absorbed by buyers into their balance sheet. The total amount used by the government via PROER reached 4.03% of the Brazilian GDP with loans reaching 2.72% of the average GDP between 1995-1997.

In the acquisitions helped out by PROER, we can point out the only one case involving foreign capital: HSBC[17] purchased a national bank named Bamerindus. The sale of Bamerindus was the first time in the history of Brazil when the insolvency problem of a private bank was

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[16] Provisory measure (MP[16]) nº 1.179, de 03.11.1995 , Resolution nº 2.208
[17] A global financial services company headquartered in London, United Kingdom. As of 2010, it is both the world's largest banking and financial services group and the world's 8th largest company according to Forbes magazine.

solved by selling it to a foreign bank. The figure below shows acquisitions made at the time with the use of the PROER program.

Figure II: Institutions acquired with the help of PROER.

		01.07.94 to 31.12.98
Institution	**Buyer**	**D.O. publication**
Banco Nacional S.A	**União de Bancos Brasileiros S.A**	**18.11.96**
Banco Econômico S.A	**Banco Excel S.A**	**30.04.96**
Banco Mercantil S.A	**Banco Rural S.A**	**31.05.96**
Banco Banorte S.A	**Banco Bandeirantes S.A**	**17.06.96**
Banco Bamerindus do Brasil S.A	**Grupo HSBC**	**02.04.97**

Adapted from: D O - DEORF/COPEC
http://www.bcb.gov.br/htms/Deorf/r199812/Anex27.asp?idpai=revsfn199812

The Figure shows the main acquisitions in the period, including the ones mentioned before. Other legal measures created during this period helped the government to apply and guarantee the effectiveness of the restructuration plan. There were two very important legal measures. The first one was in the Resolution nr 2.211, of 16.11.1995, that created the Fundo Garantidor de Depósitos, FGC[18]. It tried to guarantee client's deposits in case of insolvency or bankruptcy of banks. The second one, resolution nr 1.182 of 17.11.1995[19] allowed the power of The Central Bank to be strengthened, expanding its permission to act preventively, exercising powers over mergers, acquisitions and control transfers. The Central Bank could now determine the capitalization of a bank, and if that was not fulfilled, it could establish a special regime or the controller of the bank could be destitute of his share, promoting assets transference. These kinds of power were vital in mergers and acquisitions between good and problematic banks. According to Rocha (2002), along with other supervision problems in this period of crisis, there was a lack of legal mechanisms available for the Central Bank to take preventive actions in needing institutions; therefore, the creation of such a measure was essential.

Restructuration also affected public banks, the ones owned or controlled by States of the Federation. According to the author, not only the transition period for stabilization aggravated the situation, but also high operational costs, management problems, credit concentration and fraud did. The provisory measure 1.514 of 1996 created PROES, Programa

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[18]A civil nonprofit association, a protection to bank clients and investors, where there is the guarantee that part of the deposits would be recovered in the case of a bank bankruptcy (up to twenty thousand reais).
[19] Later converted into law nº 9.447 of 15.03.1997.

de Incentivo à Redução do setor público estadual na atividade bancária. Restructuration expenses in the public State banks were funded by PROES.

With PROES, ten institutions were extinct, seven privatized, six became federal for posterior evaluation and five were restructured. There was also the creation of 16 development agencies. The privatization created a revenue of 10.1 billion reais, and two of them were responsible for foreign bank entry, ABN AMRO[20] by acquiring Bandepe (belonged to the State of Pernambuco) and Banco Santander Centro-Hispano[21] by the acquisition of Banespa (belonged to the State of São Paulo).

The capitalization of Bank of Brazil cost 8 billion reais at the time, the result of public expenses with banking restructuration corresponded to 10.83% of the GDP in 1996, 4.03% of the GDP belonged to PROER, 5.77% in PROES and 1.03% in the capitalization of Bank of Brazil.

Mergers and acquisitions in Brazil, during this period, were made mainly by domestic banks, according to Paula and Alves (2006). In Argentina, on the other hand, they were made mainly by foreign banks. The fact that most acquisitions were made by national banks aroused a controversy with the government in favor of foreign entrance by assuming that national banks did not have enough capital.

The restructuration was mainly done in the retail market, where mid-sized banks were the most attractive, since they did not have either the right size or dimension for the market or modern technology and capitalization. There was an increase in the concentration of the largest private national banks, due to their willingness to continue restructuration without resources, such as Itaú and Bradesco.

Since the beginning of the Real Plan, 104 banks, 42.11% of the market went through adjustments of some kind.

Overall, this chapter has shown that foreign banks played a main role in the Brazilian banking system until the 30s. After the Great War, foreign banks started facing a period of

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[20] ABN AMRO Bank N.V. is a Dutch bank with headquarters in Amsterdam. It was re-established in 2009 after an upheaval that saw it acquired and broken up by a banking consortium led by Royal Bank of Scotland Group and then, to prevent it from failing, it was in part nationalized by the Dutch Government.

[21] The 1999 the merger of Banco Santander (founded in 1857) into Banco Central Hispano, following the merger of Banco Central and Banco Hispanoamericano, created Banco Santander Central Hispano, or BSCH. On 13 August 2007, Banco Santander Central Hispano changed its legal name to Banco Santander

restrictions, when the increase of foreign presence was very difficult to achieve. Notwithstanding, the period between 1930 and 1970 was a time of economic growth in the country. In 1988 everything changed and the number of foreign and private national banks with foreign control increased. A series of political and monetary reforms started to take place, culminating in the Real Plan. The inflation stabilization and the Mexican crisis severely affected the banking sector that was under distress, and the government had to create a series of programs in order to assist these institutions. A solution to the banking sector problems was privatization and internationalization. However, foreign entrance did not maintain the same pace along the 90s, that will be shown more clearly in the following chapter.

4. Foreign entrance, its legal aspects and stages.

After studying the economic situation and the crisis in the banking sector, we will more closely study the legal aspects that concluded foreign banking entrance in Brazil during the 90s, followed by the different entering stages of international financial institutions, until 2007, the last year of the analysis.

4.1. Legal aspects of the Foreign entrance in Brazil.

As it was previously seen, until the banking crisis, foreign entrance was restrained by the 1988 Constitution, except for special cases, such as reciprocity. Although attempts of reform had been going on since the 80s, the biggest impediment to it was the national ongoing battle against inflation.

After the reform in the regulation, there was a significant change in the structure of the Brazilian financial system, making it expand. The numbers of banks doubled between 1988 and 1994, from 104 commercial banks to 244. However, after 1994, with the Real Plan, that tendency reversed. Earnings from floating were reduced and there was a necessity of changes and reform in the financial sector, in order to strengthen and restructure the Brazilian financial system.

After obtaining stabilization with the Real Plan, the commercial sector started opening up to the global market and the banking sector did not, as it was mentioned in the previous section. There were private interests in maintaining closed such a lucrative sector, and also governmental interest to maintain it discretionary.

According to Rocha (2002), Carvalho (2000), Mendonça de Barros e Almeida Junior (1997) and others, the crisis affected the need to open up the market. After an initial phase of helping insolvent institutions with PROER, the involvement of foreign capital came in a second phase of the restructuration process, with a more reduced risk than the first one. In the first phase, the government would mainly allow domestic banks to acquire other problematic banks with the Federal government aid. As mentioned before, only one of the acquisitions in the period involved foreign capital, when Banco Bamerindus was acquired by the foreign HSBC.

The normative EM/MF nr. 89 of 07.03.1995 set by the Ministério da Fazenda (the Finance Ministry) mentioned the need to open up the market and allowed foreign institutions to participate in the privatization process. The interest of foreign banks in domestic banking institutions would create a higher price demand, reducing fiscal costs that were used in aiding problematic private and public banking institutions, according to Rocha (2002). Later the

normative EM/MF nr.311 23.08.1995 legally allowed the entrance of foreign institutions; it unlinks foreign entrance from the privatization process and from the purchase of problematic institutions. The justification for this entrance was the lack of national capital, making foreign capital essential for the development of the national financial system. This measure was edited only two weeks after the intervention on Banco Econômico, a time when the whole sector was facing instability. According to Rocha, (2002), the sudden opening up of the market may have been hasty due to the crisis. Although the financial opening seemed very abrupt, the Brazilian case was the least liberal one in the region, where deposits in foreign currency for residents or non- residents were not allowed. Argentina, according to Paula and Alves (2006), began the process of internationalization at the same time as Brazil, but with a much greater intensity.

Apart from the acquisition of Bamerindus by HSBC, there were two earlier similar cases in Latin America. In Mexico, a couple of bankrupt national banks was bought by foreign banks, BBV bought Probursa in 1995 and Santander Banco Mexicano in 1996 as seen in Graf (1999). In the early years of PROER, acquisitions of problematic banks were only made by national banks. The crisis was being avoided with the use of public funds, with incentives to national private banks to absorb liabilities from problematic banks and with the use of the "safety net" of public banks. According to the author, the role played by foreign banks was actually complementary, in a period when risks were smaller.

After the Normative, until 1999, there were 87 Central Bank authorizations increasing or allowing foreign participation. Foreign banks acquired other banks and non-banking institutions, such as leasing companies and others.

The Brazilian market was very attractive to foreigners, according to Rocha (2002), as it was the biggest market in Latin America. Although some ratios, like deposits/GDP and credit/GDP were lower than in developed countries, they were still ahead of all other Latin American countries.

The banking crisis and the legal opening to international markets were not the only factors responsible for the entrance of foreign banks. The increase in the ratios, mentioned above, along with a higher availability of banking services to population, are facts that created attractiveness with the possibility of growth in the market. Although these ratios and the access to banking services increased, the data show that the figures are far from achieving the same results as in developed countries. According to Rocha (2002), other factors are also responsible for the increasing interest in the Brazilian market, such as the development of the financial sector and the stock market.

Although the EM/MF nr.89 of 07.03.1995 alleged that there was not enough national capital to solve the banking crisis, Rocha (2002) demonstrates that internationalization was the path that the government decided to follow in order to solve the situation. The operation that generated higher concentration in the market until 2000 was the purchase of BCN by Bradesco. Itaú, one of the largest private national banks, was also the bank that acquired a larger number of problematic institutions; therefore, it proves that national capital was not a problem. Bradesco, Itaú and Unibanco occupied the leading role in the market until 2000 when their assets were analyzed. After that, Santander Banespa surpassed Unibanco.

According to Cull and Martinez Peria (2007), the number of foreign banking institutions went from 18% to 33% of the market between 1995 and 2002. Foreign entrance, however, did not take place at a constant pace. Fachada (2008) presents the entry of foreign capital in the sector divided by phases, which will be studied in the next section.

4.2 The Phases of Internationalization

Foreign banks penetrated and left the market in three different stages according to Fachada (2008), each one of them is described in this section.

4.2.1 Accelerated entry

According to Fachada (2008), the entrance of foreign banks became accelerated along the years of 1997-1998, when the share of bank equity belonging to foreign banks almost doubled.

Effective participation of foreign institutions in the Brazilian banking retail sector began in 1997, as mentioned before, when HSBC, with the suport of PROER, acquired Banco Bamerindus, the fifth largest bank in assets and second in the number of branches. That was the only case when PROER was used by a foreign institution and its final operation. HSBC was trying to diversify its geographical market away from Asia, acquiring other banks in South America, such as Argentina and Mexico. There had already been a minority stake in Bamerindus since 1995, and in 1997 HSBC decided to take over selected assets and liabilites by inaugurating foreign participation in the retail bank market.

According to Rocha (2002), the excessive demand for local banks made it possible for the government to charge some kind of "toll" during the acquisition process, with the allegation that it would be a contribution to the local financial system. There were no legal

aspects regarding the matter, which, according to the author, was similar to the informality concerning the denationalization process.

Three other important transactions involving mid-sized banks with foreign institutions already present in the market, took place during the same period. The Portuguese Caixa Geral de Depósitos, the owner of a small subsidiary in the country, took over Banco Bandeirantes. Group Inter Atlantico, a consortion of Banco Espirito Santo (also Portuguese) along with Crédit Agricole and a national group that controlled an investment group, acquired Banco Boavista. The Italian Sudameris bought Banco América do Sul. Banco América do Sul was connected with Japanese immigrants working in agriculture and had a minority stake in the Japanese Fuji Bank. Banco Bandeirantes, with the help of PROER, had bought a smaller institution only two years before, but it was strangling itself with that acquisition. Banco América do Sul was almost facing insolvency, due to non-perfoming loans granted to rural cooperatives. These three acquisitions, mentioned above, had a similar size and also similar critical situations regarding credit portfolios. The mergers and acquisitions made during the period can be summarized and seen in the table below, including the ones mentioned above.

Table III. Acquisitions of Brazilian Retail Banks made by foreign institutions.

National Retail banks acquired by foreign institutions		
Name	Buyer	Date*
Banco Bamerindus	HSBC	02/04/1997
Banco Geral do Comércio	Santander	22/08/1997
Banco Boavista	Espírito Santo e Crédit Agricole	04/12/1997
Banco Noroeste	Santander	30/03/1998
Banco Bandeirantes	Caixa Geral de Depósitos	22/05/1998
Banco América do Sul	Sudameris	30/07/1998
Banco Real	ABN Amro	13/08/1998
Banco Excel-Econômico	Bilbao Vizcaya	09/10/1998
Banco do Estado de Pernambu	ABN Amro	17/11/1998
Banco Bozano Simonsen	Santander	18/05/2000
Banco Meridional	Santander	18/05/2000
Banespa	Santander	20/11/2000

* Date of the transfer of the share power or privatization. Exceptions: Bamerindus is the date of intervention and Banco Real, the date a presidential decret allowed foreign participation in the institution

Adapted from the Brazilian Central Bank http://www.bcb.gov.br/htms/Deorf/r199812/Anexc.asp?idpai=revsfn199812

There were also new foreign banks entering the market. The Spanish BBV, Banco Bilbao Viscaya acquired a bank that was a result from a previous merger of other two domestic banks, Excel (with no retail experience but a succesfull investment bank during the inflation period) and Econômico. Excel did not manage to assimilate the larger and more troubled institution and the negative net worth of the consolidated entity reached 500 million dollars in

the early 1998. BBV, after a few unsuccessful attempts to enter Latin America, came in Brazil by acquiring the eighth largest national branch network.

Banco Santander already had a subsidiary in Brazil, and in 1997 bought Banco Geral do Comércio, with an equity of about 150 million dollars. In 1998 it bought a much larger bank, Banco Nororeste, and made several other acquisitions in other Latin American countries[22].

The largest acquisition in the period took place in 1998, when the Dutch ABN AMRO Bank purchased Banco Real, the forth largest private bank with an equity of about 1,7 billion dollars and 20 billion dollars in assets. ABN AMRO had an affiliate in the 60s, Aymoré, through which it had presence in the consumer loan market, an unusual aspect for a foreign bank at the time.

The Credit Suisse First Boston (CSFB)   had received an authorization from the Central Bank to enter the market through a new bank. In the meantime, however, it succeeded in negotiating the acquisition of an investment bank, Banco Garantia, with an equity close to 400 million dollars, changing its initial plan.

In acquisitions that took place during that time, those mentioned above were the most important ones, although several others have taken place. According to Fachada (2008), foreign capital was absent in the first auctions of privatization at PROER . They effectively started taking an active participation in 1998 when ABN Amro acquired the public bank Bandepe, owned by the State of Pernambuco.

Foreing banks did not play a complementary role in the market anymore. In fact, their behaviour changed after the EM/MF nr.311. Foreign banks were now acting in all segments of the financial market and were a part of the biggest private multiple retail banks in the market, specially BSCH, ABN Amro and HSBC.

The participation in privatization was not only foreign, but also national. Banco Bradesco, the largest private bank in Brazil, took over one of the largests state owned bank Banco do Maranhão. According to the author, the active role played by national banks in the privatization process shows that they were not insensitive to the changes that were happening in the banking sector. The sector was turning international, consolidated and privatized.

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[22] Banco Santander made 22 acquisitions in Latin America between 1997 and 1999.

4.2.2. Last entries and first departures (1999-2002)

Over the period of 1999-2002 , the exchange rate regime in Brazil was no longer fixed. It changed to a floating regime in 1999. Due to external and domestic shocks, the national currency was constantly under depreciation. The year of 2000 was the only one with no exchange instability, when FDI inflow reached a record and foreign entry process continued . The FDI inflow was mainly linked to transactions involving Banco Santander, that took over Banco Bozano Simonsen. Bozano Simonsen was an investment bank with an equity of 450 million dollars, initiated activities in the retail market by taking over Banco Meridional in 1997, with poor results and pressures to boost growth through new acquisitions. Thus, it decided to leave its financial activities.

Foreigners' departures also started during the period, although they were usually associated with unsucessful attempts from banks that tried entering the retail market according to Fachada (2008). By then, Banco Santander had acquired 4 banks and local operations from Banco Hispano. In a privatization auction, it also bought Banespa (belonged to the State of São Paulo) for 3,6 billion dollars with a 281% premium over the minimum value, consolidating the group in Brazil.

In the next auction, another State bank, Banco do Estado da Paraíba, was purchased by ABN AMRO, with the possibility of integrating it with the former Bandepe (belonged to the State of Paraiba), already bought by ABN AMRO. It was the auction with the lowest price sale, and it was made with a 52% premium over the initial value.

Between 1997 and 2002, eleven banks were privatized, three had their control transferred to a foreign institution and eight to a domestic one. Later, one of them, Bozzano-Simonsen-Meridional, became indirectly controlled by a foreign bank, Santander. Thus, the main form of foreign entrance was not through privatization, but through acquisition of private banks.

Two important foreign departures occurred in 2002, both Portuguese. The first one was Banco Inter-Atlântico, although Portuguese, it had French control, which was acquired by Bradesco. Caixa Geral de Depósitos sold Banco Bandeirantes to Unibanco in exchange for a 12.3% participation in its capital. The presence of Caixa Geral de Depósitos in the retail market was seen with some skepticism, as it was a State owned bank in Portugal and had little international expertise and scale. The inheritance of Banco Bandeirantes was also a factor, since it showed negative results in all semiannual periods, but one.

At the time, these two departures were not representative of a trend, but they were a precedent of the initiating process.

4.2.3. De-internationalization (2003-2006)

In 2001, Argentina faced a crisis, with a collapse of its currency and a public debt default that caused severe losses to its banking sector. Many foreign banks refused to aid their subsidiaries, requiring them to leave the Argentinian market, instead. According to Fachada (2008), the share of banking assets owned by foreign banks in Argentina was 53.8% in 2001 and it was reduced to 27% in 2006.

The crisis in Argentina affected the strategy of foreign banks in the Latin American region. There was also an uncertainty regarding other countries, including Brazil. There were doubts about the economic policy with the election of the new President in 2002 and the possible rise of Luis Inácio da Silva. The Brazilian risk had reached 25% and the public debt seemed unsustainable, capital flows were reducing and the exchange rate was going up.

In early 2003, Bradesco took over BBVA. According to Cárdenas et al (2003), BBVA sold its Brazilian subsidiary probably influenced by their losses in Argentina. Moreover, the bank was still facing problems even 5 years after the acquisition of the former Banco Excel-Econômico (it had elevated operational costs) and with over dimensioned branches presenting results below previous expectations. BBVA was also unsatisfied with its position in Brazil. It was only the 15th largest bank in the country, a poor result if compared with the position in other Latin American countries. To make it worse, BBVA was even increasing its position in some other countries, like Mexico. To strengthen its position in Brazil, the bank would have to make more investment. The crisis in Argentina and its exposure in the Continent led the bank to reduce its position in Brazil, but still maintaining a minority stake in Bradesco, with remaining interest in the country.

After leaving Argentina in 2003, Banco Sudameris and Lloyds TSB decided to leave Brazil as well, but they were actually sold to international competitors, ABN AMRO and HSBC. Sudameris had the worst performance among large and mid -sized banks between 1999 and 2002. Although some of its poor results resulted from the acquisition of Banco América do Sul in 1998, the decision of departing was due to the Argentinian crisis and the consolidation of the Italian market. Banca Commerciale Italiana was incorporated by Intesa, which decided to restrict its operations in Europe. For ABN AMRO, it was an opportunity to retain the top position in foreign banks in Brazil.

Lloyds was actually quite profitable when compared to others. The bank fully controlled Losango, a leading consumer finance company. They tried to sell both their Brazilian and Argentinian business together; but unsuccessfully the Brazilian part was sold to HSBC.

Banco Fiat was the largest bank owned by car makers and had the most wanted auto financing portfolio. Unfortunately, it was having many difficulties in Italy. The bank was acquired by Banco Itaú, which, in the same year (2003), also bought Banco AGF that belonged to the Allianz Group.

Banca Nazionale del Lavoro (BNL) was also affected by the crisis in Argentina and also had to focus on its position in Italy, so it was sold to Unibanco. It had been actually the subject of a long problematic take over before ending up with BNP Paribas in 2005.

In 2006, new significant development took place. Banco Itaú acquired the operations of BankBoston firstly in Brazil, followed by Chile and Uruguai. USA FleetBoston merged with Bank of America in 2003, and afterwards it was expected that it would discountinue it's operations in Brazil and would then give preference to partnership operations rather than sole activities as it was what the Bank of America had been already doing. Bank of America acquired a 7.5% stake in Itaú, in a transaction that, including other South American subsidiaries, was estimated in 2,8 billion dollars.

American Express Bank also decided to leave Brazil because their operations as a commercial bank never gained significant scale. They sold the commercial bank, the credit card business and other financial services to Bradesco.

There were several departures during the 2003-2006 period. In the year of 2006, it took place two important takeovers of national banks by foreigners. The Swiss UBS bought Banco Pactual, an investment bank with an equity of 450 million dollars. Banco Pactual was a highly profitable bank and was disputed by UBS and by other international banks. Société Generalé bought a bank specialized in consumer financing, Banco Pecunia with an equity of 25 million dollars. The next year, it bought a larger bank, Banco Cacique with 150 million dollars in equity. Consumer lending was then less risky due to the possibility of banks discounting installments from paychecks and pension benefits, making the credit market more attractive. Credit to GDP ratio increased from 22% in 2002 to 31% in 2006 according to Fachada (2008).

The country, with a now more stable economy and industry and more robust results, was again attracting foreign interest and the consequent investment.

4.2.4. Current landscape of the bank market.

At the end of 2006, the banking sector in Brazil was mainly dominated by private banks, which held 56.9% of bank equity. The two largest groups held 33.1% and rising 11.2% in the last ten years. The share of the market owned by the 10 largest banks also increased during 1996 and 2006, from 65.4% to 78.1%, showing that there was an increase in concentration after the stabilization of the market.

There were a total of 104 institutions in the commercial banking activities operating in the sector. Although the market was not as fragmented as it was before 1994, there were still several marginal players operating among large retail groups. Small entities survived the readjustments made in the 90s, by constructing well structured and successful market niches in consuming finance, corporate banking and asset management.

The bank sector was well capitalized with a consolidated Basel capital ratio of 17.8% or 6.8 % percentage points above the minimum requirement. Private domestic banks had a higher risk-based capitalization compared to foreign banks with ratios of 17.8% and 15.9% respectively, and 19.5% for public banks.

With the increase of credit volume, assets mix changed over the years. Private national banks have an average credit to assets ratio, after reserves for loan losses of 32.9% , higher than their international competitors, with a ratio of 29.8%

The public sector in 2006 still held 20% share of the market with 12 active public banks, from which 6 were controlled by the Federal government. The share of the market owned by public banks was reduced, as a result of the privatization process. Before this process, it held 1/3 share of the market, but it is still quite significant. Besides Banco do Brasil and Caixa Econômica Federal (a mortgage and saving bank), the Federal government owns 2 more regional banks. It also controls 2 former sub national banks, which at first it intended to privatize, but later, they were incorporated into Banco do Brasil.

Six sub-national banks survived the privatization period and in 2006, according to the author they were very different institutions when compared to old inefficient and politically orientated institutions that sprouted during the 80s. The largest Banco Nossa Caixa, owned by the São Paulo government, is listed in one segment of the São Paulo Stock Exchange restricted only for companies with better corporate governance (Novo Mercado).

The foreign participation in the market equity in 2006 was 22.5%. Market players included conglomerates with large branch networks and retail orientated that grew mainly through mergers and acquisitions such as ABN ANRO bank, Banco Santander and HSBC Bank, it also included conglomerates oriented to corporate banking , asset management and specialized in financial services and property trading. The increase in consumer credit along with high credit spreads and moderated default rates led a few institutions to the low end market (Ibibank and GE Capital), and others, despite having their main activities in investment banking, were also entering the consumer lending market, as BNP Paribas through Cetelem[23].

Domestic banks have advantages and facilities in the consumer lending sector that foreign institutions do not. In the past few years, medium and large domestic banks in association with supermarkets and retail chains launched financing companies. Lending associated with payroll deductions is also a sector led by medium sized banks. Foreign banks are restricted to the corporate lending market, where competition is higher and interest rates lower.

According to Fachada (2008), as a rule, it is possible to see that the fastest growing banks had all headquarters in countries where the consolidation process was more advanced, for instance, in the Netherlands, Spain, Swiss, the UK . Meanwhile, Italian banks left the market and American, French and German banks showed an erratic behavior, reflecting a less advanced stage in their consolidation. Portuguese banks remained only for a short period, whereas Japanese banks had the most severe downsizing experience, being the largest foreign investors in the 90s and have been reduced to a marginal position recently.

ABN Amro group was sold in a three-way deal. According to Barret (2007), it finally gave Santander a long-desired foothold in Italy and vaulted it into the major banking league in the fast-growing Brazilian market. Santander picked up the smallest part of the 71.1 billion euros in its joint bid for ABN along with Royal Bank of Scotland and Fortis. The Spanish group got ABN's Italian Antonveneta, Brazil's Banco Real and other Dutch consumer finance units. In September of 2007, Santander initiated the purchased of Banco Real, after a long negotiation period. Santander became the third biggest bank in terms of branches and loans, behind Banco

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[23] Dresdner-Cetelem Kreditbank GmbH is a German financial services corporation headquartered in Munich. A Joint Venture of BNP Paribas Personal Finance S.A. (formerly Cetelem S. A.) and Commerzbank AG. The primary product of the company is consumer lending. It issues credit cards and offers revolving credits.

do Brasil and Bradesco, with 2,177 branches, 55 thousand employees and 21,6 million clients, with a 15% share of the market[24].

As a result, there was a higher concentration in the banking market, and an increase in foreign participation, what can be seen in the figure below.

Table IV. Participation of institutions in the net worth of the national financial system in percentage.

Banking Institution	December 2004	December 2005	December 2006	December 2007	December 2008
Public Banks	4,66	4,74	4,74	3,91	7,16
Banco do Brasil	8,69	9,3	10,54	8,22	6,71
Caixa Econômica Federal	4,11	4,39	4,66	3,59	2,84
National Private Banks	52,89	54,15	55,12	65,96	58,99
Foreign Contolled Banks	27,09	24,56	21,78	15,71	22,19
Credit Cooperatives	2,56	2,86	3,16	2,61	2,11
Total	100	100	100	100	100

Adapted from The Central Bank of Brazil: Evolution Report of the Financial System 2008.

The Figure shows that there was an increase of 6.48% over the total foreign participation between 2007 and 2008, due to, among other facts , the purchase of Banco Real by Banco Santander. It is also possible to see a decrease of 6.97% in the participation of private national banks and an increase in the share of participation of public banks. There was an increase in foreign participation in 2008 as well, which had been decreasing since 2003. It was also followed by a decrease in 2009.

As seen in this chapter, a couple of legal normatives was responsible for legally allowing foreign bank entry in Brazil, first through the EM/MF nr.89 of 07.03.1995 and later through the more recent normative EM/MF nr.311 of 23.08.1995. Although foreign banks were now free to enter the country, they have not been doing it as a constant trend since 1995. Foreign institutions, after an initial aggressive entrance period, started to leave the region, due to particular issues in their homeland and to local matters as well. In recent years, there has been an increase in concentration and in the foreign share of the market, mainly by acquisitions made by Santander. The impacts of these phases and of the entire foreign entry in the 90s will be analyzed next.

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[24] In Appendix 1 it's possible to see that Banco Santander branches plus Banco ABN Real branches makes the group the third largest in branches in 2008.

5. Previous Research and Empirical Model and Results

The increase on banking internationalization in several regions of the world enhanced the number of researches in the subject.

After analyzing the theory and the specific aspects of the Brazilian banking internationalization, we are now going to study the results of previous researches in Brazil, followed by the empirical analysis of this study. After explaining the data selection criteria, the research and its results will be discussed.

5.1. Results of banking internationalization according to the theory and previous researches:

Many researchers have studied the banking internationalization in Brazil, in different periods and different aspects.

Carvalho (2002) studied the theory of internationalization according to the country development, and concluded that foreign banks are less efficient than domestic ones in developed countries, but the opposite happens in less developed regions. His studies with the foreign entrance in Brazil reasoned that it resulted in a higher level of efficiency. According to the author, what counts more, in competitive terms, is the health of the bank rather than its ownership. Moreover, he does not see any significant changes in the financial sector since credit has not been more available or cheaper, and the foreign presence has not resulted in financial innovation. According to him, international players have benefited from the same profit opportunities as domestic banks and also have dealt with public debt; in fact, dealing with public debt is even a more important source of gain to foreign banks than to domestic ones.

Paula (2002) sees the Brazilian internationalization process as a result of both external and internal factors. According to the author, foreign bank entrance is a result of both financial deregulation and technological changes. Financial institutions seek new ways of diversifying their activities (both in services and geographically) and also ways of increasing their minimum scale necessary to remain competitive.

According to the author, the strong presence of European competitors may be seen as a way of strengthening the competitive environment in the euro zone and not only as a source of earning diversification. The top 3 biggest private domestic banks, banks in Brazil have been reacting positively to foreign entrance, as foreigners have been actively participating in the acquisition wave, and have been improving their efficiency and performance. The author says

that domestic banks can even explore some advantages they have over foreigners, since they are more adapted to the peculiarities of the local market. He defends that cultural differences and a high level of development and sophistication of the national banking sector is a result of its capability to adapt to the period of high inflation, what can explain its behavior.

Other authors have studied the effects of banking denationalization, specific variables, such as credit availability. Analyzing the data of the 37 largest banks in the country, from 1994 to 2002, Cavalcanti and Jorge Neto (2003) firstly investigated the impact of credit on national private banks according to GDP; secondly, they analyzed the impact of foreign entrance on credit availability over the total assets of national banks. Regressions were made following the SUR method (seemingly unrelated regression) and multivariable regressions. The authors found that the amount of available credit was reduced by the entrance of foreign players, even though it was expected that national banks would prioritize credit after the stabilization process. The foreign entrance affected negatively the credit availability of national private banks, according to GDP, and a smaller part of the assets was destined to credit. However, Fachada (2008) defends that the effects on credit availability studies are less conclusive. According to him, at the same time that studies emphasize detrimental effects caused by selective lending by international banks to lower risk borrowers, others have found that they would promote and even increase credit especially in adverse circumstances.

Fachada (2008) studied the Brazilian case over the period of 1996 to 2006, with the data from the Central Bank of Brazil, analyzing the top 50 banks in the country. The empirical analysis showed that a heavier foreign presence contributed to reduce overhead costs in domestic banks, but it did not reduce profitability, as other previous cross-country studies expected; however, this conclusion is consistent with international evidence that internationalization generates competition and forces local firms to operate more efficiently.

The empirical results showed that there is a relationship between foreign market share and cost reductions, and bankers had to sacrifice their "quiet life" and cut costs in a more competitive market. According to the author, cost efficiency is a key element to explain the higher profitability of the Brazilian banks. According to him, lower profitability of foreign banks along with a view of perceived risks, led many international banks to exit the market, and to associate, as minority shareholders with more efficient local players. According to the author, that fact makes the Brazilian scenario unique in the emerging world, with foreign banks "succumbing to higher efficiency of their competitors" (Fachada 2008). Flavio Bitter (2003) does similar analysis but with some different dependent variables; he analyses foreign entry regarding before tax profits, spread, credit, efficiency and risks. The author concludes that the entrance of foreign banks had little effect concerning the performance of national private

banks. He found a positive correlation between foreign banks and before tax profits and efficiency. He also found a negative correlation between foreign banks and credit, but the variable did not contribute to explain the model.

Important researchers have focused only on the largest banks in the country. The main objective of this paper is to use a set of broader data. It will also investigate the relationship between the bank size and the effects of the foreign entrance, since these data include a higher number of smaller and medium size banks than previous researches. It will also investigate the results of denationalization, by analyzing two separate periods of time, 1997-2002 and 2003-2007, representing both the foreign entrance and departure period. A more specific description of the data selection and empirical analysis will be described below.

5.2.Data:

The data for this research were obtained in the BankScope data base from IBCA, an Institute that gathers account data of several countries. A list of the existent banks in Brazil in 1997 was obtained, chosen from the data base according to the geographical location and available accounting years. There were 97 banks in that list. Due to the high number of mergers, acquisitions and bankruptcy cases, the data were very unbalanced. In order to obtain a more reliable result on the panel data, only banks that were functioning and had data for the entire period of 1997 till 2007 were considered. They were divided into ownerships, since this research analyses the results of foreign entry over national banks, only national banks were considered. The result was 18 national banks with a commercial portfolio[25]. These banks were divided into big and small institutions according to their assets available in the last accountable year, following the criteria established by BankScope.

The data and therefore the variables used in this research are similar to the ones used in Claessens et al (2001) since the objective of this research is to generate results that may be easily be compared with this previous work. From the income statement obtained for each bank in each year, the following accounting identity follows, similar to that of Claessens et al (2001)

Net margin/ta + non interest income/ta = before tax profits/ta + overhead/total assets + loan loss provisioning/ta

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[25] Appendix 2

The first ratio is the accounting value of a bank's *net interest income over the total assets*, or *net margin/ total assets* .The second ratio is the net non-interest income over total assets, *non-interest income/ta*. The last one captures the fact that banks engage in activities other than lending activities, like brokerage services, which generate income not coming from interest.

In order to measure the banking profitability the ratio banks before tax profits/*ta* can be broken into *after tax profits/ta* and *tax/ta.* The total overhead of a bank over the total assets is represented by *overhead/ta* and the provisioning for bad debts is measured by *loan loss provisioning/ta.*

According to Claessens et al. (2002), the use of accounting ratios is preferable to the rates of return on stocks. In their case, the financial returns are not always available, which makes it harder the comparison between countries. There is also a difference among banking systems.

Similar to the model used by Claessens et al (2001), banking specific variables and macroeconomic variables were used. The variables were divided into dependent and independent. A balanced panel was constructed.

Apart from the variables used by the authors in their previous work, other variables were added, such as a period dummy, and an asset variable which will be explained below.

Dependent variables:

The dependent variables are the ratios mentioned in the equation earlier, similar to those of Claesses et al. (2001)

Netm: the value of net margin / total assets

Noninti: the ratio non- interest income/ total assets

BFT: the ratio before tax profits/ total assets

Over: the ratio overhead/ total assets

Loanloss: the ratio loan loss provisions/ total assets

NETM is the net interest income over total assets. In some banks, the net interest income is likely to be more sensitive to changes in the interest rate. It is expected to be positively related to profitability.

Noninti**,** a part of banking revenue, shows the income that originates from other sources rather than interest. It is usually unaffected by economic and financial market cycles.

Before tax profits/ total assets, a ratio of profitability is frequently used to measure the banking performance. According to Kunt and Huizinga (1999), it is an appropriate measure, due to the fact that other profitability ratios may be less appropriate, such as ROE, because banks in developing countries work with a low rate capital, inflating it. International research

shows a negative relationship between this variable and foreign entry, whereas some studies in Brazil show exactly the opposite.

Overhead/ total assets, personnel expenses and other non-interest expenses over total assets. According to the work of Claessens et al (2001), foreign institutions may have high overheads if they have to overcome information disadvantages, or low if they engage themselves in wholesale activities. According to the authors, some developed countries have foreign banks with lower overheads. On the other hand, in developing countries, it is expected foreign banks to have higher overheads.

Loan loss provisions / total assets indicate the value of reserves made by banks in case of default. Demirgüç-Kunt and Huizinga (1999) and Abreu and Mendes (2001) found a positive relationship between this ratio and earnings.

Independent variables:

The independent variables include both bank specific and macroeconomic variables obtained from IPEADATA and the Brazilian Central Bank database.

FNUM is the number o foreign banks divided by the total number of banks

FSHARE is the share of foreign presence in the financial sector according to assets

IGPM is the inflation rate

REALINT is the real interest rate

Growth is the variation of the GDP

GDP is the real GDP per capita

Equity is the ratio equity / total assets

Deposits is the ratio of deposits and short term funding divided by total assets

Over is the overhead divided by total assets

Noninta is the ratio of non- interest assets divided by total assets

Dummy_temp is a dummy create to differentiate entrance periods

Assets is the banking assets divided by the total assets of the initial sample

FNUM/FSHARE : There are two ways of measuring the presence of foreign banks in a market. The first one is made by measuring the number of foreign banks, according to the total number of banks in the national system (FNUM). The second one is the share of foreign assets in the market (FSHARE). In Claessens et all (2001), it was possible to conclude that, when analyzing the data of 80 countries, the number of banks, and not their market share, influenced the impact on the national market, showing that national banks reacted upon the entrance and not upon the gaining of market share by foreign banks at the time. Therefore,

both variables will be taken into account to evaluate their influence in the Brazilian case, and the most significant one will be chosen.

IGPM is the annual inflation rate measured by Fundação Getúlio Vargas, FGV. The index is composed of IPA, the wholesale prices index, responsible for 60% of IGPM, IPC, the consumer prices index, responsible for 30% of IGPM and INCC, the construction costs index, corresponding to 10% of the IGPM index, and they represent the inflation rate used in several similar studies. It is expected that the increase in inflation has negative effects on overhead and loan loss provisioning, and positive effects on before tax profits.

REALINT : Selic is the annual interest rate established by the Central Bank of Brazil. It is divided into real interest rate and the inflation rate.

GROWTH is the annual growth rate in real GDP. It is expected to have a positive correlation of economic growth with before tax profits, overhead and a negative relation with loan loss provisions.

GDP is the real GDP per capita in thousands of US$. This variable is usually included and significant in other studies.

Equity/ Ta is a measure of capitalization and risk taking. Banks with a higher ratio are expected to have lower funding costs and higher earnings.

Deposits and short term funding/ ta characterize the funding structure of the institution. Brazil has many deposit categories, non-remunerated demand deposits, time deposits and savings. According to the theory, it can be expected that banks, with a larger amount of demand deposits over funding, are more profitable. Huizinga (1999) found a negative relationship between this variable and profitability, but it is likely to have a positive relationship between it and overhead.

Overhead/ ta was mentioned in the prior section.

Non-interest assets/ ta is the part of the banking assets that does not generate interest.

Dummy_temp is a dummy created to indicate the difference between the entrance period and the departure period, being zero from 1997 until 2001(entrance period) and 1 from 2002 until 2007. As stated by the previous chapter, 2002 is the year when foreign institutions started their first departures.

Assets refers to each banking total assets for each year, divided by the total assets of the banks in the initial sample (97 banks opened in 1997), meaning, therefore, the share of each bank in the total amount of the banks that had been operating in the market since 1997.

5.3. Methodology

The observations on multiple phenomena, made over multiple time periods for different subjects, refer to panel data. A panel is a cross-section or a group, in this case, banks, which is surveyed periodically over a given time period (Yaffee, 2003). Panel data analysis is a regression analysis with both a spatial and temporal dimension. The spatial dimension is in a set of cross-sectional units of observations, in this case of 18 different banks, whereas the temporal dimension is due to periodic observations of a set of variables characterizing these cross-sectional units over a particular time frame (1997-2007).

Empirical estimation

At first, a panel unit root test was run for each variable, to verify the existence of a unit root; the panel unit root test tests the variable as a group. In order to obtain stationary variables, the variables that had a unit root were corrected, taking into consideration the Phillips-Perron-Fisher-Chi-Square-test. After that, a regression using random effects was run and later tested with the Hausman effect test. Both will be explained below.

The general model of panel regressions is:

$$Y_{it} = \beta_1 X_{1it} + \beta_2 X_{2it} + ... + \beta_k X_{kit} + a_i + \varepsilon_{it}$$

Where

$i = 1, 2, ... , n$

$t = 1, 2, ... , T$

$Y_{it} =$ the dependent variable for the bank i at time t,
$X_{1it} =$ the independent variable 1 for bank i at time t,
$X_{2it} =$ the independent variable 2 for bank i at time t,
$X_{kit} =$ the independent variable n for bank i at time t,
$a_i =$ the unobserved individual effect for the bank i and
$\varepsilon_{it} =$ the error for bank i at time t.

In the model in question, the independent variables will include bank specific variables and macroeconomic variables.

Y_{it} is the dependent variable for each bank i at time t; Xit represents characteristics for each bank i at time t, in this case, including specific bank variable and macroeconomic variables.

This paper uses panel data, a combination between time series data and cross section data, particularly in annual data. The research uses a Panel Estimated Generalized Least Squares (EGLS) Regression Model obtained in the Eviews Software. The Panel Data method is a longitudinal data analysis, which is very popular among social and behavioral science researchers. It is a method of studying a particular subject within multiple sites, periodically observed over a defined time frame.

Among the panel data analyses, there are distinct types of panel data, namely, the constant coefficient models, fixed effect models, and random effect models. The difference among the types of panel data lies in the correlation of the error "ε_{it}" (the idiosyncratic error) that changes across "i" and "t" and the explanatory variables.

According to Wooldridge (2001), there is often disagreement about treating "a_i" either as a random effect or as a fixed effect, arisen from the question if "a_i" is a random variable or a parameter to be estimated. Traditionally in panel data, "a_i" is called a random effect when it is treated as a random variable, and a fixed effect when treated as a parameter to be estimated for each cross section "i".

In the fixed effect model, the idiosyncratic error is correlated with one or more dependent variables. In the random effect model, the idiosyncratic error is not correlated. The decision to use either one of the models relies on the possibility whether "a_i" and X_{it} are correlated. A method used to test such a hypothesis is the Hausman test, based on the difference between random and fixed effect estimation. Fixed effects is consistent when "a_i" and X_{it} are correlated, but random effects is inconsistent. A significant statistic difference is considered as evidence against the random effect assumption.

This study is based upon five regression analyses, as it follows:

(1) $\text{Netm}_{it} = \beta_1 \text{Fnum}_{it} + \beta_2 \text{Equity}_{it} + \beta_3 \text{Noninta}_{it} + \beta_4 \text{deposits}_{it} + \beta_5 \text{overhead}_{it} + \beta_6 \text{gdp}_{it} + \beta_7 \text{growth}_{it} + \beta_8 \text{igpm}_{it} + \beta_9 \text{realint}_{it} + \beta_{10} \text{assets}_{it} + \beta_{11} \text{dummytemp}_{it} + a_i + \varepsilon_{it}$

(2) $\text{Nonintin}_{it} = \beta_1 \text{Fnum}_{it} + \beta_2 \text{Equity}_{it} + \beta_3 \text{Noninta}_{it} + \beta_4 \text{deposits}_{it} + \beta_5 \text{overhead}_{it} + \beta_6 \text{gdp}_{it} + \beta_7 \text{growth}_{it} + \beta_8 \text{igpm}_{it} + \beta_9 \text{realint}_{it} + \beta_{10} \text{assets}_{it} + \beta_{11} \text{dummytemp}_{it} + a_i + \varepsilon_{it}$

(3) $\text{Btp}_{it} = \beta_1 \text{Fnum}_{it} + \beta_2 \text{Equity}_{it} + \beta_3 \text{Noninta}_{it} + \beta_4 \text{deposits}_{it} + \beta_5 \text{overhead}_{it} + \beta_6 \text{gdp}_{it} + \beta_7 \text{growth}_{it} + \beta_8 \text{igpm}_{it} + \beta_9 \text{realint}_{it} + \beta_{10} \text{assets}_{it} + \beta_{11} \text{dummytemp}_{it} + a_i + \varepsilon_{it}$

(4) $\text{Over}_{it} = \beta_1 \text{Fnum}_{it} + \beta_2 \text{Equity}_{it} + \beta_3 \text{Noninta}_{it} + \beta_4 \text{deposits}_{it} + \beta_5 \text{overhead}_{it} + \beta_6 \text{gdp}_{it} + \beta_7 \text{growth}_{it} + \beta_8 \text{igpm}_{it} + \beta_9 \text{realint}_{it} + \beta_{10} \text{assets}_{it} + \beta_{11} \text{dummytemp}_{it} + a_i + \varepsilon_{it}$

(5) $\text{Loanloss}_{it} = \beta_1 \text{Fnum}_{it} + \beta_2 \text{Equity}_{it} + \beta_3 \text{Noninta}_{it} + \beta_4 \text{deposits}_{it} + \beta_5 \text{overhead}_{it} + \beta_6 \text{gdp}_{it} + \beta_7 \text{growth}_{it} + \beta_8 \text{igpm}_{it} + \beta_9 \text{realint}_{it} + \beta_{10} \text{assets}_{it} + \beta_{11} \text{dummytemp}_{it} + a_i + \varepsilon_{it}$

A correlation Table can be seen in the appendix, but no elevated correlation (superior to 0,95) between variables was found[26]. After performing the unit root test[27], it was possible to verify that the variable gdp had a unit root. The panel unit root test is a summary of 5 different tests. The test taken into account for this study was the PP Chi Square Unit Root test. Complete tests can be seen in the appendix.

As Gdp was non-stationary, the stationary first difference was used in its place. All other variables were stationary in a 5% level of significance.

The next step was to run five different panel regressions, for dependent variable. The method was set to random effects and panel estimated generalized least squares, in order to test, following the Hausman test to verify if the regression should be run as random or fixed effects.

The Hausman test showed that there was little difference between the coefficients of fixed and random effects. The probability was one in all five tests, showing, therefore, that all regressions should be set to random effects[28]. The results of these regressions are discussed below.

5.4 Results

The variable Fnum turned out to be more significant than Fshare, similar to the results obtained by Claessens et al (2001), meaning that, in Brazil, the number of foreign banks entering the market caused more reaction in the national sector, rather than in the foreign share of the market. That result shows that the national competitors did not wait for a more significant share of the market to be taken by foreign banks. It actually started taking place right after the foreign entrance had begun. Therefore, the regressions presented will only consider the Fnum variable.

The results from all five regressions are summarized in table V.

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[26] Appendix 3.

[27] Appendix 4.

[28] Hausman Test outputs are shown in Appendix 5 along with the regressions output.

Table V. Results of foreign presence in national private banks in Brazil

	netm	nonintin	btp	over	loanloss
fnum	0.014281	-0.228431	0.181667**	0.151756*	-0.441578***
	(0.204326)	(0.190595)	(0.080488)	(0.089601)	(0.078065)
equity	0.179454	-0.181288	0.150562***	-0.048122	-0.010557
	(0.158485)	(0.127422)	(0.056492)	(0.056289)	(0.024027)
noninta	0.020206	-0.179366***	-0.050248	0.024368	-0.046662
	(0.143327)	(0.074425)	(0.054086)	(0.053953)	(0.051203)
deposits	0.021635	-0.083010***	-0.065715	-0.117142***	-0.006399
	(0.093745)	(0.034869)	(0.065013)	(0.032059)	(0.024760)
over	1023226***	0.245574***	-0.162768**	-	0.369474***
	(0.147120)	(0.083609)	(0.076643)	-	(0.056543)
d(gdp)	0.002078	-0.001686	-0.011417**	-0.012727***	0.017956***
	(0.007586)	(0.006245)	(0.004701)	(0.004627)	(0.003302)
growth	0.148605	-0.440048	0.599616***	0.625916***	-1087043***
	(0.490965)	(0.461772)	((0.188579)	(0.228710)	(0.186671)
igpm	0.058565	0.000563	0.197470***	0.102367*	-0.166198***
	(0.132099)	(0.116716)	(0.057924)	(0.054074)	(0.050738)
realint	0.074596	-0.083447	0.234243***	0.265939***	-0.309342***
	(0.182724)	(0.170217)	(0.072422)	(0.079271)	(0.068466)
assets	0.075456	0.042133	0.001673	-0.231239**	0.068926
	(0.064719)	(0.045452)	(0.035134)	(0.101591)	(0.048040)
dummy temp	-0.015182***	0.013260***	0.004220	-0.003916	-0.004931
	(0.005502)	(0.004896)	(0.003348)	(0.002952)	(0.003350)
R^2	0.407563	0.204279	0.324534	0.201944	0.284137
adj R^2	0.368772	0.152178	0.280307	0.154721	0.237265
observations	180	180	180	180	180

Notes:

i) Robust standard errors appear in parenthesis

ii) asterisks indicate significance; * is significant at 10%, ** significant at 5% and *** significant at 1%

According to the Table, the variable Fnum, that symbolizes foreign entrance, has shown to be significant at a 5% level of trust and it is associated with an increase in profitability in national banks, differing from the general internationalization theory, but similar to other researches made for Brazil.

Fnum was also significant at a 10% level with overhead. However, it was associated with an increase in overhead, denying the "quiet life" hypothesis. According to Carvalho (2002), heavy overhead costs can indicate an inefficient bank that is unable to trim its management costs or according to other analysts, heavier overheads are an indication of

applying a more complex management structure compatible with innovative ways of operation, particularly because of the dependence of these activities on the availability of high-cost skilled labor. It was also significant at a 1% level with loan loss, and associated with a reduction of it.

Going on to control variables the variable gdp was significant with all other dependent variables except for the net margin and non-interest income. It shows that GDP is associated with a decrease in overhead, similar to the results of Claessens et al (2001). According to the author, banks can probably reduce their employment costs when income (GDP per capita) is growing. Also similar to Bitter (2003), the increase in GDP leads to an increase in the demand for banking activities, which in turn, leads to higher profits. However, according to the founding of Claessens et al (2001), when the GDP was associated with a decrease in loan loss provisions, the opposite happens.

The variable growth was significant at a 1% level with before tax profits, overhead and loan loss, showing, as expected, that the economic growth was associated with an increase in profitability and overhead and a decrease in loan loss provisions, which is compatible with the results of Cleassens et al (2001).

The real interest rate was significant at a 1% level with before tax profits, overhead and loan loss provisions, associated with an increase in profitability (as expected) and overhead, and a decrease in loan loss provisions.

The IGPM, regarding inflation, was significant at a 1% level with also before tax profits and loan loss provisions. At a 10% level, it was significant concerning overhead. It is associated with an increase in profitability and overhead, and a decrease in loan loss provision. These results are similar to the ones found in Huizinga (1999) and Cleassens et al (2001). It is consistent to the notion that a higher interest rate and inflation leads to higher bank profits, but also to more elevated costs. A higher inflation rate leads people and companies to banks and investments companies, in order to avoid the loss of the money value, consequently, inducing banks to higher profits.

The variable assets were significant at a 5% level only with overhead, meaning that size does matter with reference to the effects of foreign entry. It showed an association with a decrease in overhead, signifying that bigger banks have a lower overhead, meaning they can benefit from economies of scale and scope, meaning that although larger banks have a higher volume of staff and branches they can be more efficient. The variable was not significant in any other regressions.

The dummy, that separates the two periods of foreign penetration, entrance and departure, was significant only with net margin and non-interest income. It shows a negative association with net margin and a positive one with non- interest income.

Equity was significant only regarding before tax profits, and it had a positive association. According to Fachada (2008), banks with a higher equity to assets ratio are expected to have a lower tendency towards facing bankruptcy risks, and therefore, lower funding costs, and consequently higher earnings.

The variable deposit was significant only regarding non-interest income and overhead, associated with a decrease in both. Deposits in Brazil are difficult to define. Banks can receive either demand deposits that does not generate any interest, or remunerated time deposits or even saving deposits. According to Fachada (2008), it is likely that banks, that rely more on demand deposits over total funding, are more profitable. The negative association with overhead was also found in Claessens et al (2001), as banks with a more elevated number of time deposits may incur in higher costs.

The variable overhead, when used as an independent variable, was significant at a 1% level with net margin, non-interest income and loan loss provisions, and at a 5% level with before tax profits. With a positive association with all of them, apart from before tax profits. As expected, more elevated costs in overhead would imply in lower profitability.

6. Conclusion.

This work shows that the Brazilian case is quite different from most of the cases analyzed by the internationalization theory, where the results diverge a lot from the theory. Similar to previous papers, such as Bitter (2003) and Fachada (2008), this research shows that profitability in national banks did not decrease with foreign entrance; as a matter of fact, it increased. However, this paper shows that the quiet life hypothesis did not take place in this sample. Showing that costs in national banks did not decrease, similar again with the findings of Bitter (2003). It proves that generally national banks did not become more efficient. Thus, the increase in profitability cannot be associated with either a decrease in costs or an increase in efficiency. However the existing relationship between assets and efficiency points to a scenario where bigger banks are more efficient, while smaller are not.

The efficiency of national banks could have contributed to the foreign departure and that would make Brazil an exception in Latin America, with the possibility of foreign banks succumbing to the efficiency of their competitors and leaving the market. As mentioned before bigger banks probably became more efficient, therefore further analyses on this topic may be of interest in order to try to establish the differences in efficiency between national and international banks in Brazil.

The incoming elevated national profitability, when in the rise of perceived risks, may have been one of the reasons that led foreign banks to decide to leave the Brazilian market. The increase on risk created by the crises in Argentina created instability in the sector, along with the lower profitability and the problems that some foreign banks carried along the years generated by problematic institutions that they have acquired in the entry processes, together may have contributed to the decision of leaving the market.

Over the years and when international banks started leaving the market, national net margins have decreased whereas non-interest income increased. Therefore, the profitability in the excess revenue, generated from the spread between interest paid out on deposits and interest earned on assets, was reduced.

It would also be interesting to include new ratios and more recent efficiency ratios such as the cost to income ratio, a more used ratio for efficiency nowadays, what may lead to different conclusions. Also, for further research, it would be interest to include the data of new banks in the sample, including those with unbalanced data, in the same given period. Additionally, it might be important to know about the impact of foreign bank entry in different

banking segments, since the influence of foreign banks may vary according to portfolios, like in loan portfolios.

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Appendix

Appendix 1

Institutions with the larger number of branches in Brazil.

classification	name	december 2004	december 2005	december 2006	december 2007	december 2008
1	Banco do Brasil	3781	4006	4046	4079	4388
2	Bradesco	3003	2921	3008	3144	3389
3	Itaú	2190	2300	2445	2575	2699
4	Caixa Econômica Federal	1770	1895	1981	2051	2068
5	ABN Amro Real	779	776	8328	1138	1177
6	Santander	199	199	1057	1081	1096
7	Unibanco	914	913	925	933	992
8	HSBC	923	931	934	933	930
9	Nossa Caixa	504	505	542	559	562
10	Banrisul	384	399	413	417	425
11	Banco do Nordeste	180	180	180	180	181
12	Mercantil do Brasil	201	192	192	167	150
13	Banestes	97	107	122	124	126
14	Citibank	60	80	109	121	124
15	Safra	85	90	91	114	112
16	Basa	92	95	101	104	104
17	Banese	58	60	61	61	61
18	BRB	55	56	57	59	59
19	Triângulo	2	2	2	31	43
20	Banpará	37	37	37	37	40

Adapted from the Central Bank of Brazil, Report of the Evolution of the National Finantial System 2008.

Appendix 2

Lista de Bancos nacionais com dados disponíveis para o periodo de 1997-2007, utilizadas na análise.

Banco Itaú

Unibanco

Bradesco

Safra

Fibra

BMG

Mercantil do Brasil

Sofisa

Banco Rural

Indusval

Banco Triangulo SA Tribanco

Banco Paulista

Banco Rendimento

Banco Pecunia

Itaúbank

Banco Tricury

Banco Ribeirão Preto

Banco Ficsa

Appendix 3

	netm	nonintin	btp	loanloss	fnum	equity	noninta	deposits	over	d(gdp)	growth	igpm	realint	assets	dummy_te
netm	1	-0.324673	0.269443	0.686691	-0.084436	0.440541	0.256875	-0.308368	0.734140	-0.083495	-0.085354	-0.006382	0.066099	-0.267915	-0.114339
nonintin	-0.324673	1	-0.166519	0.112909	-0.079243	-0.253963	-0.213754	0.089951	0.218332	-0.072941	-0.114215	-0.001061	0.073656	0.124856	-0.009035
btp	0.269443	-0.166519	1	-0.101489	0.004727	0.506832	-0.163311	-0.404580	-0.132334	-0.088000	-0.018889	0.099094	-0.062507	-0.126199	-0.079896
loanloss	0.686691	0.112909	-0.101489	1	-0.149292	0.097535	0.150609	-0.074417	0.568371	-0.035508	-0.112593	-0.079462	0.141127	-0.110494	-0.052515
fnum	-0.084436	-0.079243	0.004727	-0.149292	1	-0.049259	-0.030048	0.029635	-0.091485	0.073621	0.260557	0.416497	-0.693320	0.031984	0.073796
equity	0.440541	-0.253963	0.506832	0.097535	-0.049259	1	-0.118856	-0.608320	0.248684	-0.015672	0.009617	-0.014373	0.012891	-0.381743	-0.056500
noninta	0.256875	-0.213754	-0.163311	0.150609	-0.030048	-0.118856	1	-0.147523	0.238429	-0.109659	-0.074996	0.108250	-0.046629	0.099047	-0.058117
deposits	-0.308368	0.089951	-0.404580	-0.074417	0.029635	-0.608320	-0.147523	1	-0.201899	0.003025	-0.006716	-0.015286	0.011364	-0.018612	0.048931
over	0.734140	0.218332	-0.132334	0.568371	-0.091485	0.248684	0.238429	-0.201899	1	-0.073912	-0.095533	-0.026869	0.089544	-0.203103	-0.081879
d(gdp)	-0.083495	-0.072941	-0.088000	-0.035508	0.073621	-0.015672	-0.109659	0.003025	-0.073912	1	0.760331	-0.602777	0.132702	0.070229	0.789700
growth	-0.085354	-0.114215	-0.018889	-0.112593	0.260557	0.009617	-0.074996	-0.006716	-0.095533	0.760331	1	-0.097101	-0.420406	0.066098	0.560550
igpm	-0.006382	-0.001061	0.099094	-0.079462	0.416497	-0.014373	0.108250	-0.015286	-0.026869	-0.602777	-0.097101	1	-0.814236	-0.019914	-0.460894
realint	0.066099	0.073656	-0.062507	0.141127	-0.693320	0.012891	-0.046629	0.011364	0.089544	0.132702	-0.420406	-0.814236	1	-0.023443	0.103970
assets	-0.267915	0.124856	-0.126199	-0.110494	0.031984	-0.381743	0.099047	-0.018612	-0.203103	0.070229	0.066098	-0.019914	-0.023443	1	0.069285
dummy_temp	-0.114339	-0.009035	-0.079896	-0.052515	0.073796	-0.056500	-0.058117	0.048931	-0.081879	0.789700	0.560550	-0.460894	0.103970	0.069285	1

Appendix 4

Panel Unit Root Tests

1. Assets

Panel unit root test: Summary
Series: ASSETS
Date: 01/31/11   Time: 09:12
Sample: 1997 2007
Exogenous variables: Individual effects, individual linear trends
User specified lags at: 1
Newey-West bandwidth selection using Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.98272	0.0014	18	162
Breitung t-stat	2.90550	0.9982	18	144
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	1.04134	0.8511	18	162
ADF - Fisher Chi-square	29.2693	0.7790	18	162
PP - Fisher Chi-square	73.6629	0.0002	18	180

** Probabilities for Fisher tests are computed using an asymptotic Chi
   -square distribution. All other tests assume asymptotic normality.

2. before tax profits

Panel unit root test: Summary
Series: BTP

Date: 01/31/11   Time: 09:13
Sample: 1997 2007
Exogenous variables: Individual effects, individual linear trends
User specified lags at: 1
Newey-West bandwidth selection using Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-4.68622	0.0000	18	162
Breitung t-stat	2.21264	0.9865	18	144
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-1.27220	0.1017	18	162
ADF - Fisher Chi-square	70.1869	0.0006	18	162
PP - Fisher Chi-square	129.865	0.0000	18	180

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

3. Deposits

Panel unit root test: Summary
Series: DEPOSITS
Date: 01/31/11   Time: 09:14
Sample: 1997 2007
Exogenous variables: Individual effects, individual linear trends
User specified lags at: 1
Newey-West bandwidth selection using Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-1.48172	0.0692	18	162
Breitung t-stat	2.72094	0.9967	18	144
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	0.70796	0.7605	18	162
ADF - Fisher Chi-square	29.1353	0.7844	18	162
PP - Fisher Chi-square	82.8895	0.0000	18	180

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

4. Equity

Panel unit root test: Summary
Series: EQUITY

Date: 01/31/11   Time: 09:18
Sample: 1997 2007
Exogenous variables: Individual effects, individual linear trends
User specified lags at: 1
Newey-West bandwidth selection using Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-6.41366	0.0000	18	162
Breitung t-stat	1.40806	0.9204	18	144
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-0.68129	0.2478	18	162
ADF - Fisher Chi-square	49.0499	0.0721	18	162
PP - Fisher Chi-square	66.8448	0.0013	18	180

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

5. Fnum

Panel unit root test: Summary
Series: FNUM
Date: 01/31/11   Time: 09:19
Sample: 1997 2007
Exogenous variables: Individual effects
User specified lags at: 1
Newey-West bandwidth selection using Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.07376	0.0191	18	162
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-3.20908	0.0007	18	162
ADF - Fisher Chi-square	66.3604	0.0015	18	162
PP - Fisher Chi-square	166.518	0.0000	18	180

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

6. Fshare

Panel unit root test: Summary
Series: FSHARE
Date: 01/31/11   Time: 09:19

Sample: 1997 2007
Exogenous variables: Individual effects
User specified lags at: 1
Newey-West bandwidth selection using Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-3.56231	0.0002	18	162
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-3.09083	0.0010	18	162
ADF - Fisher Chi-square	64.7172	0.0023	18	162
PP - Fisher Chi-square	81.6227	0.0000	18	180

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

7. d(gdp)

Panel unit root test: Summary
Series: D(GDP)
Date: 01/31/11   Time: 09:20
Sample: 1997 2007
Exogenous variables: Individual effects, individual linear trends
User specified lags at: 1
Newey-West bandwidth selection using Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	0.84130	0.7999	18	144
Breitung t-stat	-3.47667	0.0003	18	126
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	0.54864	0.7084	18	144
ADF - Fisher Chi-square	22.6170	0.9599	18	144
PP - Fisher Chi-square	331.572	0.0000	18	162

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

8. Growth

Panel unit root test: Summary
Series: GROWTH
Date: 01/31/11   Time: 09:25
Sample: 1997 2007

Exogenous variables: Individual effects, individual linear trends
User specified lags at: 1
Newey-West bandwidth selection using Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-14.1480	0.0000	18	162
Breitung t-stat	-0.92876	0.1765	18	144
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-4.04885	0.0000	18	162
ADF - Fisher Chi-square	108.420	0.0000	18	162
PP - Fisher Chi-square	338.426	0.0000	18	180

** Probabilities for Fisher tests are computed using an asymptotic Chi
     -square distribution. All other tests assume asymptotic normality.

9. igpm

Panel unit root test: Summary
Series: IGPM
Date: 01/31/11   Time: 09:26
Sample: 1997 2007
Exogenous variables: Individual effects
User specified lags at: 1
Newey-West bandwidth selection using Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-5.26521	0.0000	18	162
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-1.22349	0.1106	18	162
ADF - Fisher Chi-square	39.5381	0.3149	18	162
PP - Fisher Chi-square	97.5010	0.0000	18	180

** Probabilities for Fisher tests are computed using an asymptotic Chi
     -square distribution. All other tests assume asymptotic normality.

10. loan loss provision

Panel unit root test: Summary
Series: LOANLOSS
Date: 01/31/11   Time: 09:26
Sample: 1997 2007
Exogenous variables: Individual effects

User specified lags at: 1
Newey-West bandwidth selection using Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-30.7345	0.0000	18	162
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-8.86824	0.0000	18	162
ADF - Fisher Chi-square	96.3203	0.0000	18	162
PP - Fisher Chi-square	80.1024	0.0000	18	180

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

11. net margin

Panel unit root test: Summary
Series: NETM
Date: 01/31/11   Time: 09:27
Sample: 1997 2007
Exogenous variables: Individual effects, individual linear trends
User specified lags at: 1
Newey-West bandwidth selection using Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-4.19400	0.0000	18	162
Breitung t-stat	1.61545	0.9469	18	144
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-0.40996	0.3409	18	162
ADF - Fisher Chi-square	43.6684	0.1778	18	162
PP - Fisher Chi-square	101.604	0.0000	18	180

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

12. non interest assets

Panel unit root test: Summary
Series: NONINTA
Date: 01/31/11   Time: 09:27
Sample: 1997 2007
Exogenous variables: Individual effects, individual linear trends
User specified lags at: 1
Newey-West bandwidth selection using Bartlett kernel

Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-10.8896	0.0000	18	162
Breitung t-stat	-0.25732	0.3985	18	144
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-1.83267	0.0334	18	162
ADF - Fisher Chi-square	62.2523	0.0043	18	162
PP - Fisher Chi-square	83.0220	0.0000	18	180

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

13. Non interest income

Panel unit root test: Summary
Series: NONINTIN
Date: 01/31/11   Time: 09:28
Sample: 1997 2007
Exogenous variables: Individual effects, individual linear trends
User specified lags at: 1
Newey-West bandwidth selection using Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-3.48534	0.0002	18	162
Breitung t-stat	1.73870	0.9590	18	144
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-0.66157	0.2541	18	162
ADF - Fisher Chi-square	50.0803	0.0596	18	162
PP - Fisher Chi-square	76.2789	0.0001	18	180

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

14. overhead

Panel unit root test: Summary
Series: OVER
Date: 01/31/11   Time: 09:28
Sample: 1997 2007
Exogenous variables: Individual effects
User specified lags at: 1
Newey-West bandwidth selection using Bartlett kernel
Balanced observations for each test

Cross-

Method	Statistic	Prob.**	sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	0.01966	0.5078	18	162
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	0.73537	0.7689	18	162
ADF - Fisher Chi-square	30.6583	0.7204	18	162
PP - Fisher Chi-square	63.2888	0.0033	18	180

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

15. real interest rate

Panel unit root test: Summary
Series: REALINT
Date: 01/31/11   Time: 09:29
Sample: 1997 2007
Exogenous variables: Individual effects
User specified lags at: 1
Newey-West bandwidth selection using Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-7.65687	0.0000	18	162
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-4.94844	0.0000	18	162
ADF - Fisher Chi-square	91.8810	0.0000	18	162
PP - Fisher Chi-square	92.4858	0.0000	18	180

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

Appendix 5.

Regressions Results

Reg 1.

Dependent Variable: NETM
Method: Panel EGLS (Cross-section random effects)
Date: 01/31/11   Time: 10:22
Sample (adjusted): 1998 2007
Periods included: 10

Cross-sections included: 18
Total panel (balanced) observations: 180
Swamy and Arora estimator of component variances
White cross-section standard errors & covariance (d.f. corrected)

	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.025364	0.166424	-0.152405	0.8791
FNUM	0.014281	0.204326	0.069891	0.9444
EQUITY	0.179454	0.158485	1.132305	0.2591
NONINTA	0.020206	0.143327	0.140979	0.8881
DEPOSITS	0.021635	0.093745	0.230785	0.8178
OVER	1.023226	0.147120	6.955018	0.0000
D(GDP)	0.002078	0.007586	0.273882	0.7845
GROWTH	0.148605	0.490965	0.302678	0.7625
IGPM	0.058565	0.132099	0.443340	0.6581
REALINT	0.074596	0.182724	0.408243	0.6836
ASSETS	0.075456	0.064719	1.165907	0.2453
DUMMY_TEMP	-0.015182	0.005502	-2.759388	0.0064

Effects Specification

	S.D.	Rho
Cross-section random	0.048257	0.4739
Idiosyncratic random	0.050844	0.5261

Weighted Statistics

R-squared	0.407563	Mean dependent var	0.042513
Adjusted R-squared	0.368772	S.D. dependent var	0.064628
S.E. of regression	0.051347	Sum squared resid	0.442932
F-statistic	10.50677	Durbin-Watson stat	1.147511
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.599250	Mean dependent var	0.134493
Sum squared resid	0.850455	Durbin-Watson stat	0.597644

TESTES HAUSMAN

Correlated Random Effects - Hausman Test
Equation: REG1NETM
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	11	1.0000

* Cross-section test variance is invalid. Hausman statistic set to zero.

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
FNUM	0.011667	0.014281	0.000828	0.9276
EQUITY	0.156717	0.179454	0.000470	0.2945
NONINTA	-0.015892	0.020206	0.000801	0.2020
DEPOSITS	0.022452	0.021635	0.000389	0.9670
OVER	1.010103	1.023226	0.008350	0.8858
D(GDP)	-0.000147	0.002078	0.000004	0.2602
GROWTH	0.208035	0.148605	0.008119	0.5095
IGPM	0.079192	0.058565	0.000344	0.2663
REALINT	0.106140	0.074596	0.001490	0.4138
ASSETS	0.579093	0.075456	0.084979	0.0840
DUMMY_TEMP	-0.017297	-0.015182	0.000002	0.0970

Cross-section random effects test equation:
Dependent Variable: NETM
Method: Panel Least Squares
Date: 01/31/11   Time: 10:21
Sample (adjusted): 1998 2007
Periods included: 10
Cross-sections included: 18
Total panel (balanced) observations: 180

	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.034130	0.181114	-0.188445	0.8508
FNUM	0.011667	0.321496	0.036289	0.9711
EQUITY	0.156717	0.069909	2.241739	0.0264
NONINTA	-0.015892	0.073170	-0.217188	0.8284
DEPOSITS	0.022452	0.059288	0.378692	0.7054
OVER	1.010103	0.150698	6.702836	0.0000
D(GDP)	-0.000147	0.016527	-0.008901	0.9929
GROWTH	0.208035	0.813703	0.255664	0.7986
IGPM	0.079192	0.233995	0.338433	0.7355
REALINT	0.106140	0.299833	0.353999	0.7238
ASSETS	0.579093	0.352485	1.642886	0.1025
DUMMY_TEMP	-0.017297	0.012793	-1.352092	0.1784

Effects Specification				

Cross-section fixed (dummy variables)

R-squared	0.816059	Mean dependent var	0.134493
Adjusted R-squared	0.781950	S.D. dependent var	0.108884
S.E. of regression	0.050844	Akaike info criterion	-2.973561
Sum squared resid	0.390353	Schwarz criterion	-2.459141
Log likelihood	296.6205	Hannan-Quinn criter.	-2.764986
F-statistic	23.92547	Durbin-Watson stat	1.310496
Prob(F-statistic)	0.000000		

REG2.

Dependent Variable: NONINTIN
Method: Panel EGLS (Cross-section random effects)
Date: 01/31/11   Time: 10:22
Sample (adjusted): 1998 2007
Periods included: 10
Cross-sections included: 18
Total panel (balanced) observations: 180
Swamy and Arora estimator of component variances
White cross-section standard errors & covariance (d.f. corrected)

	Coefficient	Std. Error	t-Statistic	Prob.
C	0.195028	0.120351	1.620496	0.1070
FNUM	-0.228431	0.190595	-1.198516	0.2324
EQUITY	-0.181288	0.127422	-1.422731	0.1567
NONINTA	-0.179366	0.074425	-2.410034	0.0170
DEPOSITS	-0.083010	0.034869	-2.380637	0.0184
OVER	0.245574	0.083609	2.937173	0.0038
D(GDP)	-0.001686	0.006245	-0.270001	0.7875
GROWTH	-0.440048	0.461772	-0.952954	0.3420
IGPM	0.000563	0.116716	0.004820	0.9962
REALINT	-0.083447	0.170217	-0.490237	0.6246
ASSETS	0.042133	0.045452	0.926994	0.3553
DUMMY_TEMP	0.013260	0.004896	2.708549	0.0075

Effects Specification

			S.D.	Rho
Cross-section random			0.016367	0.1569
Idiosyncratic random			0.037947	0.8431

Weighted Statistics

R-squared	0.204279	Mean dependent var	0.010770
Adjusted R-squared	0.152178	S.D. dependent var	0.041665
S.E. of regression	0.038364	Sum squared resid	0.247261
F-statistic	3.920841	Durbin-Watson stat	1.461154
Prob(F-statistic)	0.000045		

Unweighted Statistics

R-squared	0.306913	Mean dependent var	0.018215
Sum squared resid	0.294124	Durbin-Watson stat	1.228349

HAUSMAN TEST

Correlated Random Effects - Hausman Test
Equation: REG2NONINTIN
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	11	1.0000

* Cross-section test variance is invalid. Hausman statistic set to zero.

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
FNUM	-0.178878	-0.228431	0.000890	0.0966
EQUITY	-0.157699	-0.181288	0.000693	0.3703
NONINTA	-0.120341	-0.179366	0.001082	0.0728
DEPOSITS	-0.100211	-0.083010	0.000526	0.4534
OVER	0.174485	0.245574	0.008379	0.4374
D(GDP)	-0.002327	-0.001686	0.000004	0.7337
GROWTH	-0.360605	-0.440048	0.007775	0.3676
IGPM	0.007512	0.000563	0.000284	0.6799
REALINT	-0.053810	-0.083447	0.001302	0.4115
ASSETS	-0.184382	0.042133	0.060487	0.3570
DUMMY_TEMP	0.014097	0.013260	0.000001	0.4705

Cross-section random effects test equation:
Dependent Variable: NONINTIN
Method: Panel Least Squares
Date: 01/31/11   Time: 10:22
Sample (adjusted): 1998 2007
Periods included: 10
Cross-sections included: 18
Total panel (balanced) observations: 180

	Coefficient	Std. Error	t-Statistic	Prob.
C	0.183013	0.135173	1.353918	0.1778
FNUM	-0.178878	0.239945	-0.745494	0.4571
EQUITY	-0.157699	0.052176	-3.022462	0.0029
NONINTA	-0.120341	0.054610	-2.203662	0.0291
DEPOSITS	-0.100211	0.044249	-2.264699	0.0250
OVER	0.174485	0.112472	1.551366	0.1229
D(GDP)	-0.002327	0.012335	-0.188654	0.8506
GROWTH	-0.360605	0.607298	-0.593786	0.5535
IGPM	0.007512	0.174639	0.043013	0.9657
REALINT	-0.053810	0.223777	-0.240462	0.8103
ASSETS	-0.184382	0.263073	-0.700878	0.4845
DUMMY_TEMP	0.014097	0.009548	1.476489	0.1419

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.487626	Mean dependent var	0.018215
Adjusted R-squared	0.392616	S.D. dependent var	0.048691
S.E. of regression	0.037947	Akaike info criterion	-3.558713

Sum squared resid	0.217435	Schwarz criterion	-3.044292
Log likelihood	349.2842	Hannan-Quinn criter.	-3.350138
F-statistic	5.132381	Durbin-Watson stat	1.635320
Prob(F-statistic)	0.000000		

REG3.

Dependent Variable: BTP
Method: Panel EGLS (Cross-section random effects)
Date: 01/31/11   Time: 10:24
Sample (adjusted): 1998 2007
Periods included: 10
Cross-sections included: 18
Total panel (balanced) observations: 180
Swamy and Arora estimator of component variances
White cross-section standard errors & covariance (d.f. corrected)

	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.052583	0.081783	-0.642957	0.5211
FNUM	0.181667	0.080488	2.257079	0.0253
EQUITY	0.150562	0.056492	2.665208	0.0084
NONINTA	-0.050248	0.054086	-0.929042	0.3542
DEPOSITS	-0.065715	0.065013	-1.010800	0.3136
OVER	-0.162768	0.076643	-2.123717	0.0352
D(GDP)	-0.011417	0.004701	-2.428638	0.0162
GROWTH	0.599616	0.188579	3.179659	0.0018
IGPM	0.197470	0.057924	3.409135	0.0008
REALINT	0.234243	0.072422	3.234428	0.0015
ASSETS	0.001673	0.035134	0.047617	0.9621
DUMMY_TEMP	0.004220	0.003348	1.260387	0.2093

Effects Specification

		S.D.	Rho
Cross-section random		0.009521	0.0814
Idiosyncratic random		0.031982	0.9186

Weighted Statistics

R-squared	0.324534	Mean dependent var	0.027265
Adjusted R-squared	0.280307	S.D. dependent var	0.037500
S.E. of regression	0.031813	Sum squared resid	0.170028
F-statistic	7.337926	Durbin-Watson stat	1.225260
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.372448	Mean dependent var	0.037445
Sum squared resid	0.181917	Durbin-Watson stat	1.145185

HAUSMAN TEST

Correlated Random Effects - Hausman Test
Equation: REG3BTP
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	11	1.0000

* Cross-section test variance is invalid. Hausman statistic set to zero.

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
FNUM	0.171353	0.181667	0.000758	0.7079
EQUITY	0.138222	0.150562	0.000649	0.6280
NONINTA	-0.085252	-0.050248	0.000970	0.2611
DEPOSITS	-0.069456	-0.065715	0.000480	0.8644
OVER	-0.252522	-0.162768	0.006696	0.2727
D(GDP)	-0.012540	-0.011417	0.000003	0.5059
GROWTH	0.625475	0.599616	0.006337	0.7453
IGPM	0.208156	0.197470	0.000222	0.4735
REALINT	0.250671	0.234243	0.001031	0.6089
ASSETS	0.098569	0.001673	0.044735	0.6469
DUMMY_TEMP	0.003400	0.004220	0.000001	0.4271

Cross-section random effects test equation:
Dependent Variable: BTP
Method: Panel Least Squares
Date: 01/31/11   Time: 10:24
Sample (adjusted): 1998 2007
Periods included: 10
Cross-sections included: 18
Total panel (balanced) observations: 180

	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.037166	0.113925	-0.326229	0.7447
FNUM	0.171353	0.202229	0.847321	0.3982
EQUITY	0.138222	0.043974	3.143263	0.0020
NONINTA	-0.085252	0.046026	-1.852267	0.0659
DEPOSITS	-0.069456	0.037294	-1.862402	0.0645
OVER	-0.252522	0.094792	-2.663951	0.0086
D(GDP)	-0.012540	0.010396	-1.206201	0.2296
GROWTH	0.625475	0.511839	1.222016	0.2236
IGPM	0.208156	0.147188	1.414214	0.1594
REALINT	0.250671	0.188602	1.329100	0.1858
ASSETS	0.098569	0.221721	0.444563	0.6573
DUMMY_TEMP	0.003400	0.008047	0.422480	0.6733

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.467195	Mean dependent var	0.037445
Adjusted R-squared	0.368397	S.D. dependent var	0.040243
S.E. of regression	0.031982	Akaike info criterion	-3.900734
Sum squared resid	0.154451	Schwarz criterion	-3.386313
Log likelihood	380.0661	Hannan-Quinn criter.	-3.692159
F-statistic	4.728774	Durbin-Watson stat	1.326081
Prob(F-statistic)	0.000000		

REG 4

Dependent Variable: OVER
Method: Panel EGLS (Cross-section random effects)
Date: 01/31/11   Time: 10:25
Sample (adjusted): 1998 2007
Periods included: 10
Cross-sections included: 18
Total panel (balanced) observations: 180
Swamy and Arora estimator of component variances
White cross-section standard errors & covariance (d.f. corrected)

	Coefficient	Std. Error	t-Statistic	Prob.
C	0.073113	0.049417	1.479505	0.1409
FNUM	0.151756	0.089601	1.693687	0.0922
EQUITY	-0.048122	0.056289	-0.854903	0.3938
NONINTA	0.024368	0.053953	0.451640	0.6521
DEPOSITS	-0.117142	0.032059	-3.653997	0.0003
D(GDP)	-0.012727	0.004627	-2.750597	0.0066
GROWTH	0.625916	0.228710	2.736727	0.0069
IGPM	0.102367	0.054074	1.893087	0.0601
REALINT	0.265939	0.079271	3.354802	0.0010
ASSETS	-0.231239	0.101591	-2.276182	0.0241
DUMMY_TEMP	-0.003916	0.002952	-1.326823	0.1864

Effects Specification

		S.D.	Rho
Cross-section random		0.064999	0.8494
Idiosyncratic random		0.027366	0.1506

Weighted Statistics

R-squared	0.201944	Mean dependent var	0.012174
Adjusted R-squared	0.154721	S.D. dependent var	0.029651
S.E. of regression	0.027261	Sum squared resid	0.125592
F-statistic	4.276447	Durbin-Watson stat	0.899580
Prob(F-statistic)	0.000025		

Unweighted Statistics

R-squared	0.096991	Mean dependent var	0.092248

Sum squared resid	0.785663	Durbin-Watson stat	0.143802

HAUSMAN TEST

Correlated Random Effects - Hausman Test
Equation: REG4OVER
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	10	1.0000

* Cross-section test variance is invalid. Hausman statistic set to zero.

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
FNUM	0.147950	0.151756	0.000067	0.6411
EQUITY	-0.053718	-0.048122	0.000023	0.2383
NONINTA	0.016243	0.024368	0.000053	0.2628
DEPOSITS	-0.119602	-0.117142	0.000012	0.4804
D(GDP)	-0.012877	-0.012727	0.000000	0.7643
GROWTH	0.625052	0.625916	0.000524	0.9699
IGPM	0.102198	0.102367	0.000031	0.9758
REALINT	0.265118	0.265939	0.000110	0.9376
ASSETS	-0.210491	-0.231239	0.010235	0.8375
DUMMY_TEMP	-0.003956	-0.003916	0.000000	0.9236

Cross-section random effects test equation:
Dependent Variable: OVER
Method: Panel Least Squares
Date: 01/31/11   Time: 10:25
Sample (adjusted): 1998 2007
Periods included: 10
Cross-sections included: 18
Total panel (balanced) observations: 180

	Coefficient	Std. Error	t-Statistic	Prob.
C	0.077571	0.097279	0.797414	0.4265
FNUM	0.147950	0.172624	0.857068	0.3928
EQUITY	-0.053718	0.037374	-1.437294	0.1527
NONINTA	0.016243	0.039361	0.412664	0.6804
DEPOSITS	-0.119602	0.030401	-3.934204	0.0001
D(GDP)	-0.012877	0.008834	-1.457740	0.1470
GROWTH	0.625052	0.435019	1.436840	0.1528
IGPM	0.102198	0.125671	0.813216	0.4174
REALINT	0.265118	0.159941	1.657596	0.0995
ASSETS	-0.210491	0.188950	-1.114008	0.2670

DUMMY_TEMP	-0.003956	0.006878	-0.575129	0.5661

Effects Specification	

Cross-section fixed (dummy variables)

R-squared	0.869165	Mean dependent var	0.092248
Adjusted R-squared	0.845925	S.D. dependent var	0.069718
S.E. of regression	0.027366	Akaike info criterion	-4.216995
Sum squared resid	0.113833	Schwarz criterion	-3.720313
Log likelihood	407.5295	Hannan-Quinn criter.	-4.015612
F-statistic	37.39899	Durbin-Watson stat	0.985197
Prob(F-statistic)	0.000000		

REG 5

Dependent Variable: LOANLOSS
Method: Panel EGLS (Cross-section random effects)
Date: 01/31/11   Time: 10:25
Sample (adjusted): 1998 2007
Periods included: 10
Cross-sections included: 18
Total panel (balanced) observations: 180
Swamy and Arora estimator of component variances
White cross-section standard errors & covariance (d.f. corrected)

	Coefficient	Std. Error	t-Statistic	Prob.
C	0.231423	0.047682	4.853484	0.0000
FNUM	-0.441578	0.078065	-5.656552	0.0000
EQUITY	-0.010557	0.024027	-0.439388	0.6609
NONINTA	-0.046662	0.051203	-0.911314	0.3634
DEPOSITS	-0.006399	0.024760	-0.258463	0.7964
OVER	0.369474	0.056543	6.534388	0.0000
D(GDP)	0.017956	0.003302	5.437936	0.0000
GROWTH	-1.087043	0.186671	-5.823294	0.0000
IGPM	-0.166198	0.050738	-3.275607	0.0013
REALINT	-0.309342	0.068466	-4.518191	0.0000
ASSETS	0.068926	0.048040	1.434767	0.1532
DUMMY_TEMP	-0.004931	0.003350	-1.471756	0.1430

Effects Specification			
		S.D.	Rho

Cross-section random		0.032072	0.6561
Idiosyncratic random		0.023222	0.3439

Weighted Statistics	

R-squared	0.284137	Mean dependent var	0.005235
Adjusted R-squared	0.237265	S.D. dependent var	0.026296
S.E. of regression	0.022966	Sum squared resid	0.088607
F-statistic	6.061972	Durbin-Watson stat	1.335061

Prob(F-statistic)	0.000000		

Unweighted Statistics			
R-squared	0.332147	Mean dependent var	0.023457
Sum squared resid	0.222741	Durbin-Watson stat	0.531088

HAUSMAN TEST

Correlated Random Effects - Hausman Test
Equation: REG5LOANLOSS
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	11	1.0000

* Cross-section test variance is invalid. Hausman statistic set to zero.

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
FNUM	-0.439556	-0.441578	0.000113	0.8490
EQUITY	-0.010180	-0.010557	0.000053	0.9589
NONINTA	-0.051516	-0.046662	0.000094	0.6162
DEPOSITS	-0.007679	-0.006399	0.000046	0.8498
OVER	0.368845	0.369474	0.001074	0.9847
D(GDP)	0.017601	0.017956	0.000001	0.6354
GROWTH	-1.077257	-1.087043	0.001143	0.7723
IGPM	-0.161970	-0.166198	0.000052	0.5586
REALINT	-0.303330	-0.309342	0.000219	0.6843
ASSETS	0.144406	0.068926	0.013627	0.5179
DUMMY_TEMP	-0.005107	-0.004931	0.000000	0.7235

Cross-section random effects test equation:
Dependent Variable: LOANLOSS
Method: Panel Least Squares
Date: 01/31/11   Time: 10:26
Sample (adjusted): 1998 2007
Periods included: 10
Cross-sections included: 18
Total panel (balanced) observations: 180

	Coefficient	Std. Error	t-Statistic	Prob.
C	0.228883	0.082721	2.766931	0.0064
FNUM	-0.439556	0.146838	-2.993481	0.0032
EQUITY	-0.010180	0.031930	-0.318840	0.7503
NONINTA	-0.051516	0.033419	-1.541522	0.1253
DEPOSITS	-0.007679	0.027079	-0.283581	0.7771

OVER	0.368845	0.068829	5.358891	0.0000
D(GDP)	0.017601	0.007548	2.331715	0.0210
GROWTH	-1.077257	0.371645	-2.898619	0.0043
IGPM	-0.161970	0.106873	-1.515540	0.1317
REALINT	-0.303330	0.136944	-2.215001	0.0283
ASSETS	0.144406	0.160991	0.896978	0.3712
DUMMY_TEMP	-0.005107	0.005843	-0.874123	0.3834

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.755847	Mean dependent var	0.023457
Adjusted R-squared	0.710574	S.D. dependent var	0.043165
S.E. of regression	0.023222	Akaike info criterion	-4.540875
Sum squared resid	0.081430	Schwarz criterion	-4.026454
Log likelihood	437.6787	Hannan-Quinn criter.	-4.332299
F-statistic	16.69516	Durbin-Watson stat	1.448685
Prob(F-statistic)	0.000000		

Appendix 6

Results for fshare, a less significant variable not used on the model:

Dependent Variable: NETM
Method: Panel EGLS (Cross-section random effects)
Date: 02/21/11   Time: 08:55
Sample (adjusted): 1998 2007
Periods included: 10
Cross-sections included: 18
Total panel (balanced) observations: 180
Swamy and Arora estimator of component variances
White cross-section standard errors & covariance (d.f. corrected)

	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.063597	0.116130	-0.547634	0.5847
FSHARE	0.098522	0.119538	0.824188	0.4110
EQUITY	0.181598	0.159995	1.135018	0.2580
NONINTA	0.020519	0.141745	0.144763	0.8851
DEPOSITS	0.020832	0.094208	0.221127	0.8253
OVER	1.018698	0.147701	6.897050	0.0000
D(GDP)	0.001516	0.006653	0.227802	0.8201
GROWTH	0.267421	0.316453	0.845058	0.3993
IGPM	0.132049	0.132073	0.999822	0.3188
REALINT	0.155990	0.135215	1.153643	0.2503
ASSETS	0.076623	0.063892	1.199270	0.2321
DUMMY_TEMP	-0.010853	0.007629	-1.422494	0.1567

Effects Specification

	S.D.	Rho
Cross-section random	0.048260	0.4742

Idiosyncratic random		0.050813	0.5258

Weighted Statistics			
R-squared	0.408224	Mean dependent var	0.042487
Adjusted R-squared	0.369477	S.D. dependent var	0.064620
S.E. of regression	0.051312	Sum squared resid	0.442327
F-statistic	10.53556	Durbin-Watson stat	1.141386
Prob(F-statistic)	0.000000		

Unweighted Statistics			
R-squared	0.599910	Mean dependent var	0.134493
Sum squared resid	0.849054	Durbin-Watson stat	0.594621

Dependent Variable: NONINTIN
Method: Panel EGLS (Cross-section random effects)
Date: 02/21/11   Time: 08:54
Sample (adjusted): 1998 2007
Periods included: 10
Cross-sections included: 18
Total panel (balanced) observations: 180
Swamy and Arora estimator of component variances

	Coefficient	Std. Error	t-Statistic	Prob.
C	0.139725	0.086030	1.624148	0.1062
FSHARE	-0.137778	0.158330	-0.870194	0.3854
EQUITY	-0.183378	0.045157	-4.060938	0.0001
NONINTA	-0.175817	0.043358	-4.054962	0.0001
DEPOSITS	-0.084005	0.037806	-2.221967	0.0276
OVER	0.245983	0.065412	3.760518	0.0002
D(GDP)	-0.006371	0.010588	-0.601722	0.5482
GROWTH	-0.198646	0.447557	-0.443844	0.6577
IGPM	-0.007159	0.186964	-0.038293	0.9695
REALINT	-0.032169	0.188261	-0.170874	0.8645
ASSETS	0.041205	0.093402	0.441161	0.6597
DUMMY_TEMP	0.007970	0.011777	0.676745	0.4995

Effects Specification			
		S.D.	Rho
Cross-section random		0.016365	0.1568
Idiosyncratic random		0.037956	0.8432

Weighted Statistics			
R-squared	0.203561	Mean dependent var	0.010773
Adjusted R-squared	0.151413	S.D. dependent var	0.041667
S.E. of regression	0.038383	Sum squared resid	0.247508
F-statistic	3.903538	Durbin-Watson stat	1.457061

Prob(F-statistic)	0.000048		

	Unweighted Statistics		
R-squared	0.305684	Mean dependent var	0.018215
Sum squared resid	0.294645	Durbin-Watson stat	1.223963

Dependent Variable: BTP
Method: Panel EGLS (Cross-section random effects)
Date: 02/21/11   Time: 08:53
Sample (adjusted): 1998 2007
Periods included: 10
Cross-sections included: 18
Total panel (balanced) observations: 180
Swamy and Arora estimator of component variances

	Coefficient	Std. Error	t-Statistic	Prob.
C	0.078320	0.071959	1.088397	0.2780
FSHARE	-0.076386	0.133446	-0.572411	0.5678
EQUITY	0.148694	0.035959	4.135102	0.0001
NONINTA	-0.053614	0.033762	-1.588009	0.1142
DEPOSITS	-0.064037	0.030184	-2.121583	0.0353
OVER	-0.158632	0.047899	-3.311765	0.0011
D(GDP)	-0.005963	0.008923	-0.668228	0.5049
GROWTH	0.131638	0.377249	0.348941	0.7276
IGPM	0.052780	0.157585	0.334928	0.7381
REALINT	0.019155	0.158589	0.120786	0.9040
ASSETS	0.000840	0.066555	0.012627	0.9899
DUMMY_TEMP	0.000153	0.009926	0.015376	0.9877

	Effects Specification			
			S.D.	Rho
Cross-section random			0.009505	0.0810
Idiosyncratic random			0.032028	0.9190

	Weighted Statistics		
R-squared	0.322705	Mean dependent var	0.027304
Adjusted R-squared	0.278358	S.D. dependent var	0.037509
S.E. of regression	0.031864	Sum squared resid	0.170571
F-statistic	7.276864	Durbin-Watson stat	1.234152
Prob(F-statistic)	0.000000		

	Unweighted Statistics		
R-squared	0.370294	Mean dependent var	0.037445
Sum squared resid	0.182541	Durbin-Watson stat	1.153223

Dependent Variable: OVER
Method: Panel EGLS (Cross-section random effects)
Date: 02/21/11   Time: 08:53
Sample (adjusted): 1998 2007
Periods included: 10
Cross-sections included: 18
Total panel (balanced) observations: 180
Swamy and Arora estimator of component variances
White cross-section standard errors & covariance (d.f. corrected)

	Coefficient	Std. Error	t-Statistic	Prob.
C	0.083234	0.037019	2.248428	0.0258
FSHARE	0.148138	0.028500	5.197797	0.0000
EQUITY	-0.044943	0.056881	-0.790126	0.4306
NONINTA	0.020701	0.051279	0.403706	0.6869
DEPOSITS	-0.116487	0.031634	-3.682302	0.0003
D(GDP)	-0.010111	0.002634	-3.838436	0.0002
GROWTH	0.548131	0.115028	4.765189	0.0000
IGPM	0.153682	0.050961	3.015702	0.0030
REALINT	0.284645	0.042675	6.670047	0.0000
ASSETS	-0.233533	0.102711	-2.273687	0.0242
DUMMY_TEMP	0.002168	0.002425	0.894093	0.3725

Effects Specification

			S.D.	Rho
Cross-section random			0.065002	0.8502
Idiosyncratic random			0.027283	0.1498

Weighted Statistics

R-squared	0.206345	Mean dependent var	0.012138
Adjusted R-squared	0.159383	S.D. dependent var	0.029644
S.E. of regression	0.027179	Sum squared resid	0.124839
F-statistic	4.393893	Durbin-Watson stat	0.889463
Prob(F-statistic)	0.000017		

Unweighted Statistics

R-squared	0.097400	Mean dependent var	0.092248
Sum squared resid	0.785307	Durbin-Watson stat	0.141396

Dependent Variable: LOANLOSS
Method: Panel EGLS (Cross-section random effects)
Date: 02/21/11   Time: 08:52
Sample (adjusted): 1998 2007
Periods included: 10
Cross-sections included: 18
Total panel (balanced) observations: 180
Swamy and Arora estimator of component variances
White cross-section standard errors & covariance (d.f. corrected)

	Coefficient	Std. Error	t-Statistic	Prob.
C	0.017648	0.037077	0.475973	0.6347
FSHARE	-0.036204	0.080358	-0.450531	0.6529
EQUITY	-0.010224	0.025268	-0.404632	0.6863
NONINTA	-0.034064	0.050526	-0.674181	0.5011
DEPOSITS	-0.011119	0.025141	-0.442279	0.6589
OVER	0.359620	0.053538	6.717046	0.0000
D(GDP)	0.006699	0.004030	1.662009	0.0984
GROWTH	-0.276619	0.273464	-1.011537	0.3132
IGPM	0.004635	0.047775	0.097015	0.9228
REALINT	0.006000	0.063824	0.094006	0.9252
ASSETS	0.076740	0.048577	1.579780	0.1160
DUMMY_TEMP	-0.004995	0.006646	-0.751509	0.4534

Effects Specification

			S.D.	Rho
Cross-section random			0.032023	0.6424
Idiosyncratic random			0.023892	0.3576

Weighted Statistics

R-squared	0.245729	Mean dependent var	0.005386
Adjusted R-squared	0.196343	S.D. dependent var	0.026364
S.E. of regression	0.023635	Sum squared resid	0.093846
F-statistic	4.975613	Durbin-Watson stat	1.374266
Prob(F-statistic)	0.000001		

Unweighted Statistics

R-squared	0.318346	Mean dependent var	0.023457
Sum squared resid	0.227344	Durbin-Watson stat	0.567287