

International Financial Crisis and Bank Spread: The Behaviour of the Brazilian Banks

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Abstract

In view of the financial crisis that hit the world in 2008, the banking markets of several countries suffered from the effects provoked. This was not different in Brazil, since the local government worked on several fronts in its economic policy. The present article has the aim to describe the behaviour of the country's largest banks by analysing the indicators of banking spread obtained with the accounting method of structural determinants, between 2005 and 2012. The results pointed to an important counter-cyclical action by the public banks to eliminate the preference for the liquidity adopted by the private banks and to rearrange the sector in terms of volumes operated and reduction of both structural expenses and scale gains. Moreover, it was found that given the crisis scenario, the spread of private banks tended to the percentage adopted by public banks, but after that time the spread resumed growth seen in previous years.

Keywords: *Bank spread, Brazilian banking system, Financial crisis, Private banks, Public banks.*

JEL: G01, G21, G28

Introduction

The Brazilian bank sector suffered profound transformations after the middle of the 1990's, which ranged from loss of inflationary gains due to the Plano Real implementation, entry of foreign banks into the domestic market, and consolidation of the sector through acquisition and merger processes to adjustments to the international crisis scenario, with these occurring after 2007. In view of this trajectory, some issues have become latent and among them one can cite the high rates of spread practised by the Brazilian banks, an issue recurrently appearing in academic and specialised debates.

The intensification of commercial and financial flows in global scale has again put these intuitions to proof after the financial crisis hit the North-American mortgages in the end of the 2008. The impacts and repercussion of the bankruptcy of institutions, governmental aid programs, and macro-prudential anti-cyclic measures produced an uncertain environment and re-structuration of several economic sectors, mainly the financial intermediation sector.

In view of the importance of the credit market in stimulating the companies' investment plans and

their maintenance as well as in supporting the consumption of great part of the families, studies on the behaviour of banks were found to be of great significance because of their contribution to the economic development of the countries. In this sense, the present article describes the behaviour of the Brazilian bank spread, mainly in the period of the greatest impact of the financial crisis, by using data on the pre- and post-crisis (i.e. 2005 to 2012) for analysis of the strategies adopted by public and private banks regarding the new context of the country's bank sector.

The present article is divided into five parts as follows: besides this introduction, Section 2 shows a bibliographic review of the literature on the determinants of interest spread rates, including the impacts of the financial crisis in USA on the Brazilian bank sector; in Section 3, the methodology chosen to meet the objectives proposed is described; in Section 4, results and discussions are presented; and in Section 5, final considerations are made.

Bibliographic Review

Focus of intense discussions in the academic and market environments, the term "bank spread" has

been given more attention since the happenings that hit the financial markets in 2008¹. The agenda addresses the high spread rates and their determinants that, basically, can be understood as the difference between capture rate and application rate of financial intermediation operations performed by banks. According to the World Bank (ref. 2011), Brazil has the third highest spread in the world, 32.8%, which is overcome only by Kyrgyz Republic and Madagascar, respectively, 33.8% and 41.8%, whereas emerging economies such as China have rates slightly above 3%.

The Brazil's Central Bank (BCB) has been signalling since 1999 that government is keen on reducing the interest rates and spreads adopted by banks in their credit operations. A series of studies termed "*Juros e Spread Bancário no Brasil*" was conducted in order to diagnose determinants and take measures to eliminate those factors that contribute to the maintenance of very high rates. Moreover, the BCB follows up the indicators on a monthly basis and take measures to promote more transparency, security and competition in the operations made [1,2].

On the other hand, the bank sector also conducted studies to demystify this theme. The Brazilian Federation of Banks (FEBRABAN), in partnership with the Institute of Accounting, Actuarial and Financial Research (FIPECAFI), started studies to demonstrate the origins, nature and destination of revenues and expenses of banks regarding the spread formation [3]. Both approaches differ in their methods of measurement; while the BCB takes into consideration a sample of operations to compose the indicator, the FIPECAFI uses accounting information as well as a sample of credit operations, but which does not include those operations considered by the BCB.

There is a consensus in the literature indicating that macro-economic variables are important factors to be considered to explain the spread behaviour in the country. In an econometric study by Silva, Oreiro and Paula [4], it was found that the *Selic* rate, among a series of selected variables, was the most significant variable explaining the high spread adopted by the Brazilian bank sector. In this way, the growth of the indicator seems to be supported by the peculiar characteristics of the federal public bonds as attractive and risk-free revenues are included

in the opportunity cost of lending. According to Gelos [5], in an analysis on Latin America's banks, variables affecting their efficiency such as administrative costs and service revenues are also representative for determination of the rates practised by them.

However, Oreiro and Paula [6], found that the set of determinants for Latin American economies presents heterogeneous. According to the authors the empirical evidence suggests that microeconomic factors were the main determinants of spreads in Bolivia. Already in countries like Chile and Colombia, both micro and macroeconomic factors impacted on spreads. In Argentina and Peru micro or macroeconomic factors have not been able to adequately explain. And in the case of Brazil macroeconomic factors were most important in determining this indicator.

Similarly, Vera, Zambrano-Sequin and Faust [7] examined the banking market in Venezuela and identified that specific bank variables such as operating costs and provisions for doubtful accounts, were strongly associated with higher spreads. In this sense, the authors indicated that elements related to the degree of competition must be complemented with other connected to the behavior of costs and risks. For the case of Venezuela the notion that market power and high levels of profitability derived from it may have been used to enhance the relationship between capital and system assets.

The difference in the spread practised in Brazil compared to that in other countries reinforces that some particularities in the Brazil's economic scenario and bank sector should be taken into consideration in the analyses. Based on indicators of financial analysis for bank institutions, Matias [8] compared a sample of Brazilian banks to American, German and Spanish ones. The author found that items such as structural expenses (personnel and administration) and service revenues play a greater role in the spread formation in Brazil than in other countries. In Brazil, there is historically a low volume of operated credit 54.3% (april, 2013) in relation to GNP, whereas in more developed and emerging countries there is a mean percentage ranging from 100% to 200%, which seems to indicate that "[...] banks in Brazil do not have a scale economy [...] they need high spreads to afford their high structural expenses" [8].

One can note, therefore, that changes in the economic scenario affecting somehow interest rates, credit volume, administration costs, and banking intermediation activity can have reflection on oscillations in the spread practised

¹ By using the advanced search tool from Google news on the term "bank spread" in the period 2001-2007 recorded 147 results, while for the period 2008-2012 were 1,370 results found, an increase of 830% between the periods.

by banks. Within this context, the world economic scenario has been suffering great transformations since 2008 as a result of a crisis that had arise from the American financial market and then spread systemically to other countries. The crisis in the USA has become a global one, mainly through financial flows interlinking between developed and emerging economies [9]. The relative paralysis of the credit market in 2008 was then conFig.d as one of the major immediate effects of the crisis on the Brazilian economy.

According to Freitas [10], factors such as capital flight and freezing of interbank market resulted in a gradual stanching of the external credit sources, which in turn culminated in less domestic credit by the Brazilian banks. The author highlights that the losses in operations with exchange derivatives unleashed a paralysing behaviour in the credit offering to companies and families, with investment plans and consumption being delayed, which affected negatively the country in terms of aggregate production. This whole scenario is corroborated by the profile of the banking sector in Brazil, which historically tends to operate on a short-term basis in an already relatively plastered credit market.

On the other hand, the Brazilian government implemented several measures and programs to stimulate the economy and to avoid a possible recession, as seen in other countries. Strategies were carried out, ranging from fiscal exemptions, tax and tariff reductions, changes in the regulations of obligatory resources and term deposits, and finally, reduction in the interest rates.

Despite this mobilisation by the government, particularly regarding the credit market, the expected effects were not immediately achieved. Within the context of uncertainty, the risk-aversion behaviour prevailed and the banks began replacing the credit operations with monetary market bonds. This fact revealed the need of more punctual measures in order to diminish the preference for liquidity. However, credit increased after conditions and guaranties were also improved by the Credit Guarantee Fund (*FGC*) and by the role played by public banks in expanding the credit base and in improving the conditions of several financing lines [10, 11].

Some studies were conducted to assess the behaviour of Brazilian banks during the economic crisis period. Based on accounting indicators, Gonçalves et al. [12] analysed the behaviour of the 10 largest Brazilian banks between June 2008 and September 2009. The authors confirmed the

suppositions made by Freitas [10] on liquidity by using the relationship between bond operations and financial intermediation revenues in order to observe the growth of shares in the gains during the first months of world crisis impact on the country.

In another type of approach, Arantes and Rocha [13] examined the impacts of the 2008 global financial crisis on the efficacy of the bank sector in Brazil. Based on cost and profit variables, the authors found that the crisis had a negative impact on profit efficiency and a positive impact on cost efficiency. In this sense, a retraction in the interbank market suggested that banks use their available resources more efficiently, but on the other hand the loss of economic dynamism and increase in the liquidity preference seem to have reduced their capacity to generate revenues.

In the analyses on the sector, the literature shows that the crisis had a less destructive impact on the Brazilian economic dynamics because of the role played by the public banks. According to Freitas [10] and Silva and Cunha [11], the private banks reduced their volume of credits granted, whereas the public banks increased their volume of lending with support by governmental measures. Such behaviour is corroborated by the results found by Brei and Schclarek [14], who analysed data on financial statements of 764 banks from 50 countries during the 1994-2009 period. The authors found that government-owned banks increased their lending volume in response to financial crises compared to the periods of stability, whereas the private banks decreased their lending volume compared to what they usually practised. The authors also concluded that under a political perspective, the results suggest that governments can play a direct and active counter-cyclical role in their banking systems through public banks.

For Soihet and Cabral [15], economic policies promoted by governments in order to reduce the effect of the crisis had a secondary role in view of the significant performance of the public banks. According to the authors, these institutions managed to revert the credit market retraction by reducing the bank spreads and by increasing the credit lines in the national financial system yet in 2009.

The role played public banks was also highlighted by Correa et al. [16], who reported a significant participation of federal institutions in the recent structural evolution of the national banking sector and in the expansive credit cycle after 2003. Moreover, other authors also reported that federal

financial agents, Banco do Brasil, Caixa Econômica Federal, and Banco Nacional de Desenvolvimento Nacional (BNDES) played an important counter-cycle role in view of the world contaminating scenario the financial crisis impinged on the markets. Such behaviour depended on the increase in both directed and free credit lines, thus attenuating the downturn presented by the private banks in the early period.

In fact, the government has successively promoted reductions in the Selic interest rates since 2011, from 11.91% in September 2011 to 7.14% in November 2012 per year, including fees, tariffs and spreads of the public banks. In attempt to restructure themselves, the private banks also started adjustments to the new context generated by the crisis and consolidated by the government policies. In view of this, therefore, it is necessary to describe the behaviour of the Brazilian bank spread in the period of crisis and assess how public and private banks adapted themselves in order to resume their activities within a new historical context for the country's bank sector.

Methodology

This research was carried out on a descriptive basis and used periodicals and books on the theme, including accounting statement, as bibliographic and documental sources regarding six of the largest banks in Brazil. The banking

institutions were chosen by taking into consideration their participation in the Brazilian banking market, with their total net equity corresponding to 61% of the total share of the national financial system in December 2012. Consolidated balance sheets and statements of annual results for the period 2005-2012 were observed in the sample.

The banks' balance sheets were gathered from their official sites. In order to distinguish the behaviour of the indicators in relation to the origin of capital, the mean net profits were obtained and listed separately, that is, by public and private sectors as well as in aggregate.

The calculation method used was based on Matias [8,17] and consists of an instrument for fundamental financial analysis of the banks. Box 1 shows the calculation formulas.

According to Leal [18], this calculation methodology represents an analytical structural approach to assess the components of the bank spread by decomposition of the accounting profit. Still, for the author, the measurement adopted by the present study can be classified as of sampling reach based on selection of banks, service revenues (and tariffs), and origin of *ex-post* information.

Table 1: Indicators of fundamental financial analysis of the banks.

| Indicators | Description | |
|------------|-------------------------------------|---|
| MAR | Mean application rate | Total financial intermediation revenue on operating assets, which are total assets less permanent assets. |
| MCR | Mean capture rate | Financial intermediation expenses, less provision for doubtful liquidation credits, on operating assets. |
| FS | Financial spread | Difference between MAR and MCR. This calculation includes credit spread and treasury spread. |
| FBS | Fee Banking Services | Service revenues on operating assets. This calculation includes revenues from tariffs. |
| TS | Total spread | Adding FS to FBS. |
| DR | Default rate | Provision for doubtful liquidation credits on operating assets. |
| FER | Fixed expense rates | Total personnel and administrative expenses on operating assets. |
| TR | Tax rates | Direct taxes plus income tax, including mandatory social contribution, on operating assets. |
| NS | Net spread/banking activity results | TS less DR, FER and TR. |

Source: Matias [8]

Results & Discussion

Based on the three indicators calculated for the 2005-2012 period, the present results have shown that the spreads practised by private banks were higher than those practised by public banks in the majority of the cases. An exception of this behaviour can be seen in 2008. As shown in Table

2, one can note that financial (FS) and total (TS) spreads had exhibited the highest differences between the sectors. In the pre-crisis period, that is, 2005 to 2007, the difference regarding TS was higher than that regarding FS.

Table 2: Mean values of financial indicators from 2005 to 2012 for decomposition of the spreads practised by the banking sector in Brazil.

| Year | Financial Spread | | | Total Spread | | | Net Spread or bank activity results | | |
|------|--------------------|--------|---------|--------------------|--------|---------|-------------------------------------|--------|---------|
| | Public and Private | Public | Private | Public and Private | Public | Private | Public and Private | Public | Private |
| 2005 | 8.06% | 6.22% | 8.97% | 11.56% | 9.16% | 12.76% | 3.34% | 2.42% | 3.79% |
| 2006 | 7.06% | 6.04% | 7.56% | 10.26% | 8.92% | 10.93% | 2.62% | 1.79% | 3.03% |
| 2007 | 6.73% | 5.11% | 7.54% | 9.95% | 7.87% | 10.98% | 2.92% | 1.80% | 3.48% |
| 2008 | 4.60% | 4.48% | 4.65% | 6.78% | 6.92% | 6.71% | 0.96% | 1.43% | 0.72% |
| 2009 | 6.48% | 4.43% | 7.51% | 8.82% | 6.71% | 9.88% | 2.19% | 1.34% | 2.61% |
| 2010 | 5.60% | 4.34% | 6.22% | 7.69% | 6.69% | 8.19% | 2.09% | 1.77% | 2.25% |
| 2011 | 5.37% | 4.08% | 6.01% | 7.44% | 6.28% | 8.01% | 1.73% | 1.47% | 1.86% |
| 2012 | 5.43% | 3.61% | 6.34% | 7.45% | 5.46% | 8.44% | 1.39% | 1.10% | 1.53% |

Source: Elaborated by the authors based on data from the banks' balance sheets.

This relationship inverted itself during the crisis in 2008 and in two years of the post-crisis period, 2010 and 2011, but it was maintained in the first post-crisis year in 2009 and in the last year, 2012. Based on these results, one can suppose that the component of service revenues (FBS) would have been the indicator that promoted a relative conversion of the rates in both public and private banks. This fact might be explained by the credit retraction in the market as well as by the measures to reduce fees and tariffs, initiated by public banks and then by the private ones.

Specifically in the 2008, one can note an inversion in total (TS) and net spreads (NS) in the bank sectors. In the pre-crisis period, TS and NS practised by private banks were higher than those by public banks, but the latter recorded higher values for TS and NS in the year of the crisis. In With regard to TS, this fact seems to reflect the expansion of the credit lines by the public banks as a counter-cyclical measure at the expense of the liquidity preference by private banks, thus corroborating Freitas [10], Silva and Cunha [11], and Brei and Schclarek [14].

With regard to NS, on the other hand, this inversion may have been determined by the increase in credit operations by public and/or administrative costs, default rates, tax rates, which were highlighted for private banks because of the large-scale losses. In order to identify and confirm these suppositions, it is necessary to

analyse in detail each type of spread and their components.

The FS reveals the bank's profit from its credit operations and financial transactions (bonds, applications, and bills of exchange), considering financial expenses and provisions regarding the resources used in the operational cycle. In Fig. 1, it is clearly noted that there is a convergence behaviour between the sectors, despite being towards the public indicator. Two behaviours were identified in Fig. 2, which shows the analysis of the mean rates of application and capture (MAR and MCR). Overall, the behaviour of MAR in the public and private banks is opposite in almost the whole period, except 2012. However, one can note that in 2008 the convergence of rates is very explicit as the reduction in MAR among private banks and the increase in MAR by public banks contributed to the approximation of their financial spreads.

With regard to MCR, the behaviour of both private and public banks was found to be consonant in most of the period. However, one can note that in the year of the greatest impact of the crisis, in 2008, the MCR was higher in private banks compared to public ones. This fact suggests a risk flight by the private banks, who relied on the gains from applications and securities with bonds rather than increasing the credit volume, as reported by and Freitas [10].

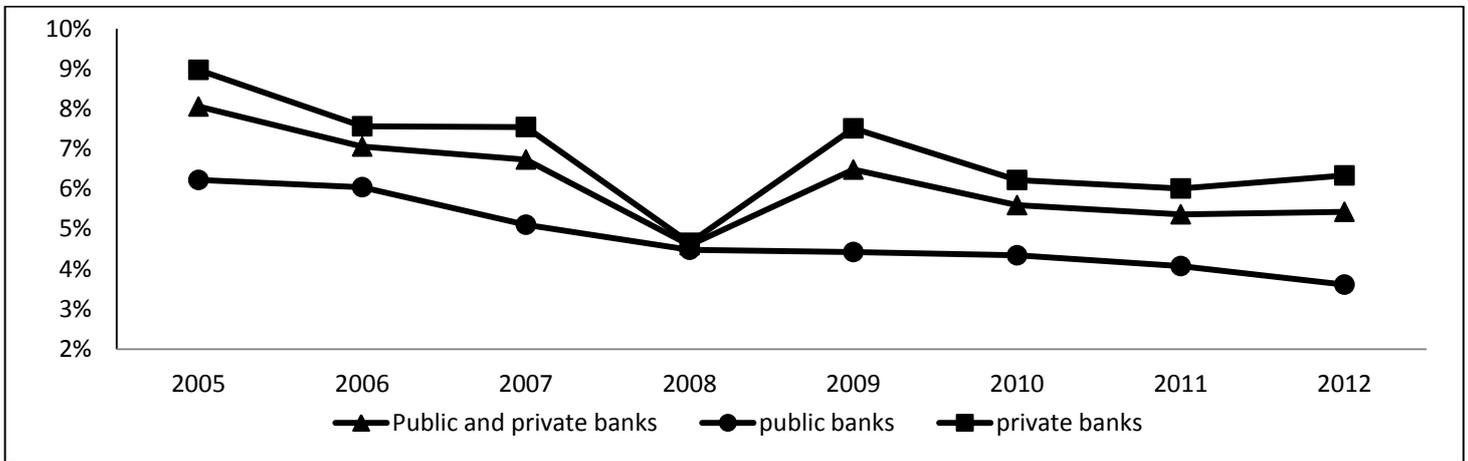


Fig. 1: Mean FS values (%) of private and public banks in Brazil (2005- 2012).

Source: Elaborated by the authors based on data from the banks' balance sheets.

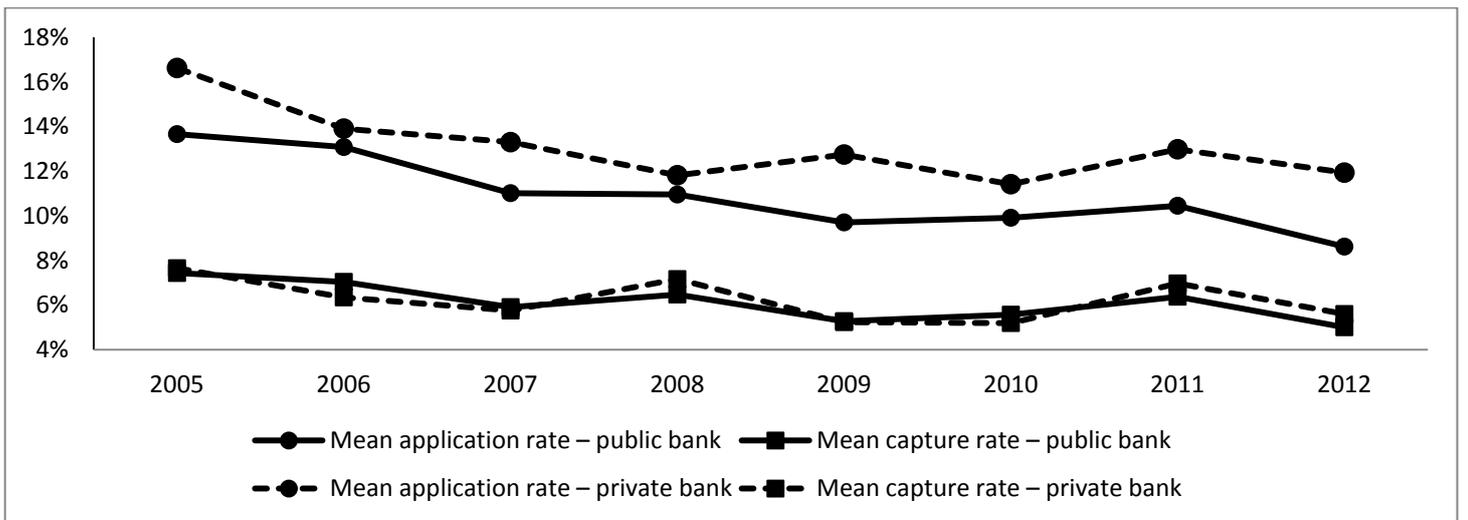


Fig. 2: Mean values of MAR and MCR (%) of private and public banks in Brazil (2005- 2012)

Source: Elaborated by the authors based on data from the banks' balance sheets.

With regard to TS, there is the effect of revenues from services provided, including those from financial intermediation. The present study considers that the revenues from banking services, in Brazil, is a form of interest rates, at least partially, since these rates are a major source of revenues for the banks, such as interest rates on credit operations [8]. In this sense, the behaviour of TS is an indicator that reflects this revenue component, which allows analysing the spread formation under a wider perspective and in accordance with the Brazilian banks' matrix of revenues.

As indicated above, the mean of TS was higher in private banks than in public banks in most of the

period studied. This behaviour was found to be inverted only in 2008, as can be seen in Fig. 3.

The abrupt drop in the TS of private banks, which achieved levels lower than those of public banks, suggests an impact of FBS on this indicator. This fact is confirmed by analysing the FBS of both banking sectors, as can be seen in Fig. 4. One can note that in 2008 the FBS of private banks decreased and remained below that of the public banks, behaviour also observed in 2010. Although the FBS of private banks had dropped in both periods, one can attribute a greater impact of this component on their TS in 2008 because of the credit retraction, whereas in 2010 the repercussion on TS was smaller as a result of the expansion of credit lines.

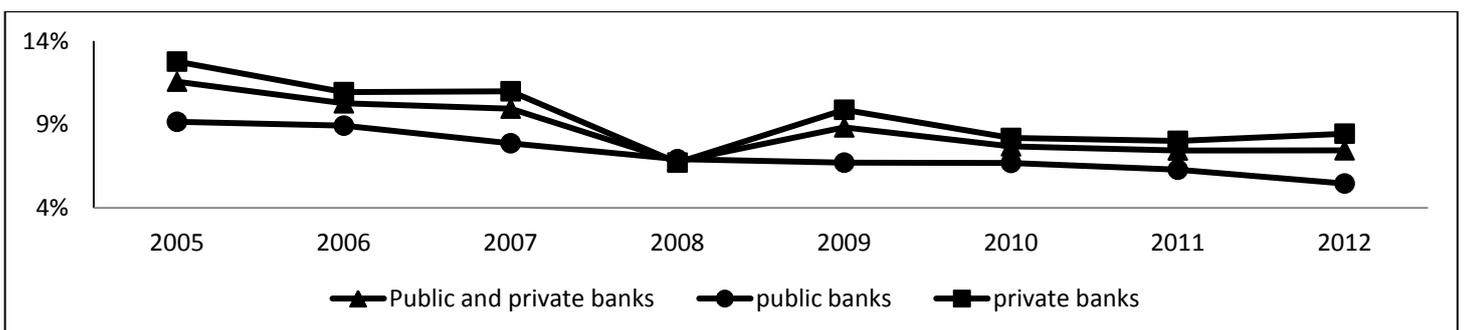


Fig. 3: Mean TS values (%) of private and public banks in Brazil (2005- 2012)

Source: Elaborated by the authors based on data from the banks' balance sheets.

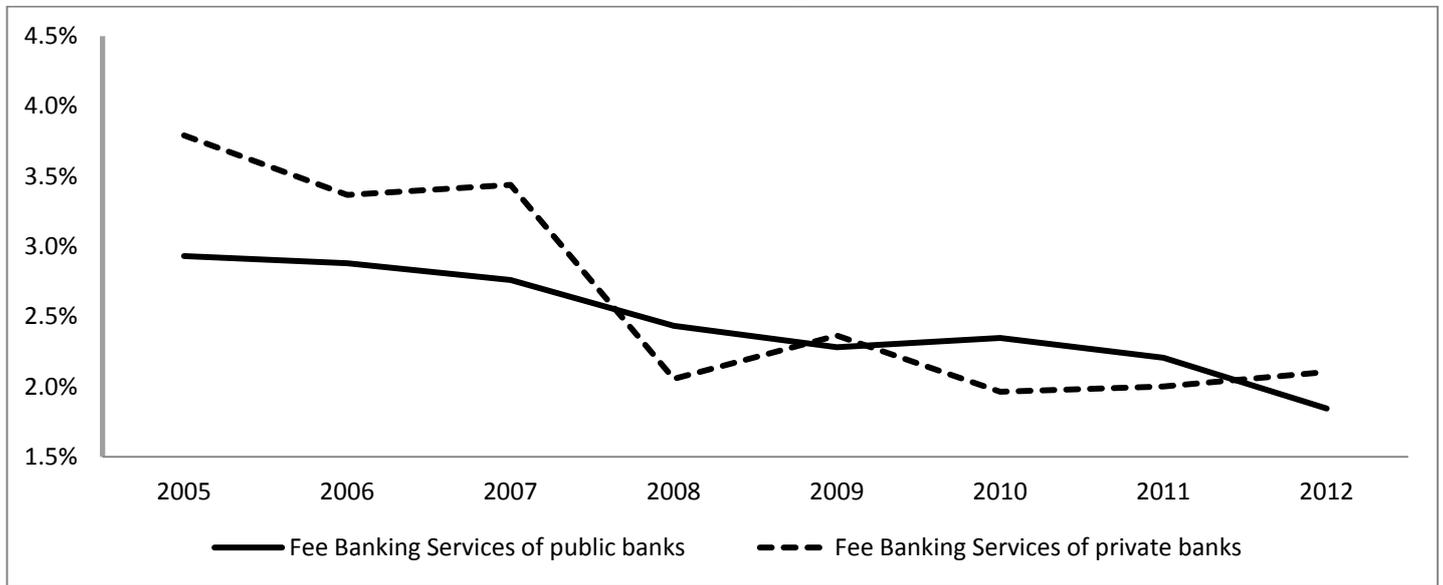


Fig. 4: Mean FBS values (%) of private and public banks in Brazil (2005- 2012)

Source: Elaborated by the authors based on data from the banks' balance sheets.

Finally, data on NS reveal some effects and strategies on the banking activity results in Brazil during the crisis development. The drop in FS and TS was higher when the mean default rates, fixed expense rates, and tax rates (DR, FER and TR) were considered. As seen in Fig. 5, the NS of private banks had a strong drop in 2008, significantly overcoming the already low NS of the public banks. This behaviour was not observed in public banks, who kept a descending trend without major changes.

The impact of these components of costs and expenses on public banks was not greater because of the efforts carried out to reduce structural expenses, as shown in Fig. 6. Both private and public banks revealed a re-arrangement of their expenses with personnel and administrative activities, as reported by Arantes and Rocha [13],

although the former had a greater reduction in FER compared to the latter. With regard to DR, one can observe a relative stability in both sectors, with this indicator having a highlighted behaviour in public banks despite the increase in credit lines, since the greater volume operated had no reflection on a higher level of credits of doubtful liquidation.

In addition, both FER and DR of private banks had an ascending behaviour in the post-crisis years, whereas in the public banks the former indicator remained in drop and the latter indicator was kept constant [7]. With regard to DR, the private banks also had a peak in 2008 followed by a drop in the following years. On the other hand, the public banks had a slight drop and maintenance after the period of crisis.

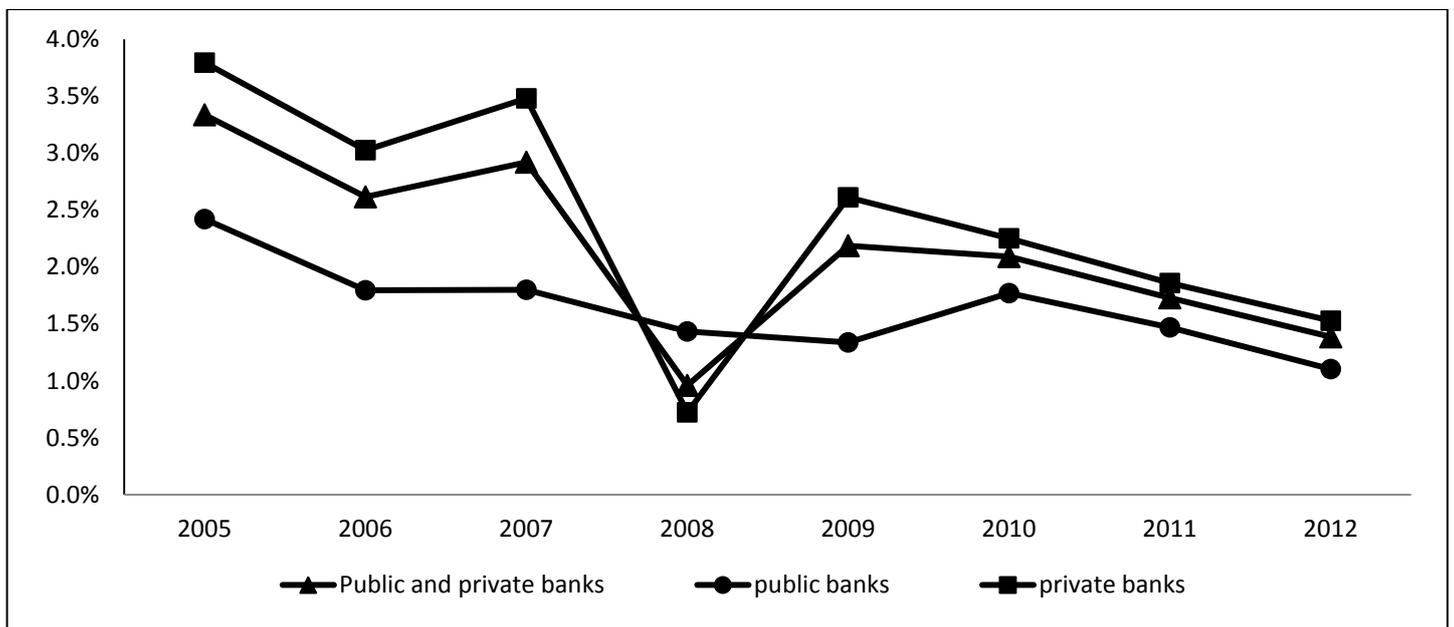


Fig. 5: Mean NS values (%) of private and public banks in Brazil (2005- 2012)

Source: Elaborated by the authors based on data from the banks' balance sheets.

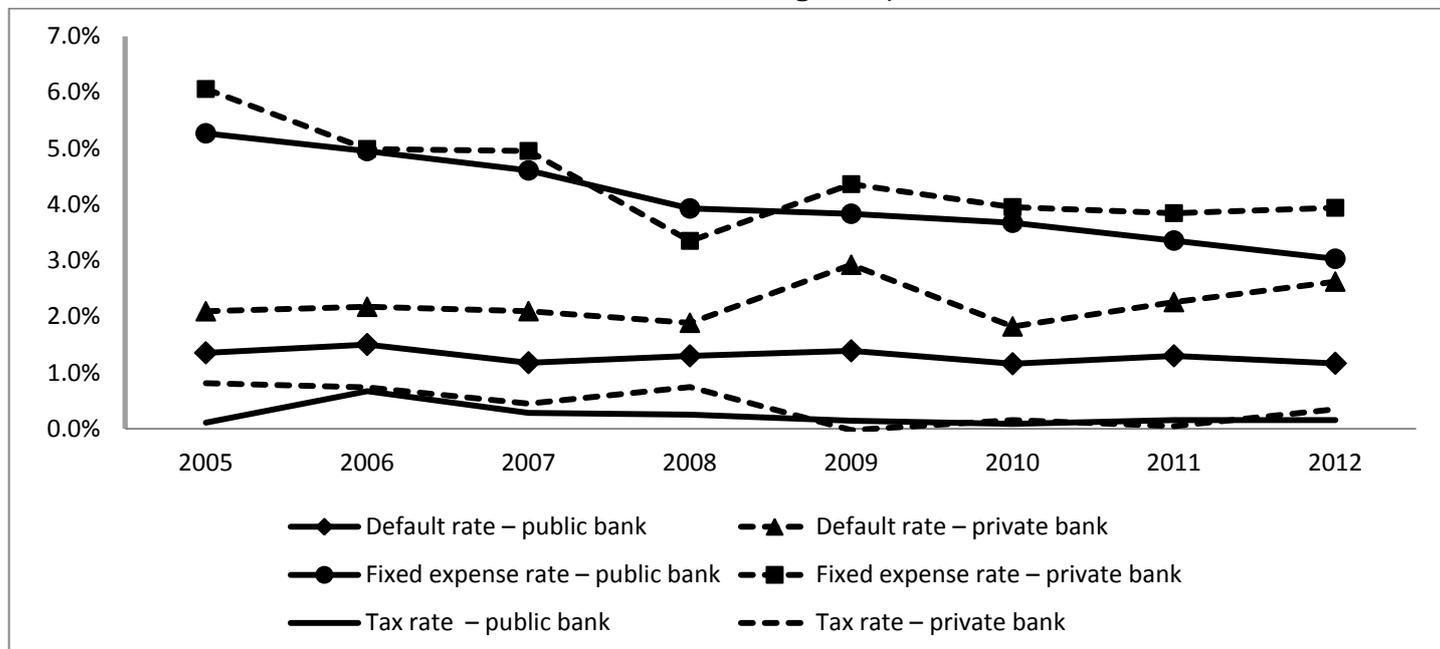


Fig. 6: Mean values of DR, FER and TR (%) of private and public banks in Brazil (2005- 2012)

Source: Elaborated by the authors based on data from the banks' balance sheets.

Final Considerations

The banking and financial institutions have shifted from their classical performance as simple financial transaction intermediators between surplus and deficit agents to a revised one in which they act directly on the economic dynamics. The financial investment conditions and the agents' general level of consumption play, therefore, some of the main roles in the banking activities.

In Brazil, the banking sector has a history of major adjustments to the economic scenario. The re-restructuring of the operational model after 1994 implemented a market with low credit volume in relation to the GNP and high interest rates, a combination that resulted in the highest spread rates practised in the world. This context, however, seems to have been rocked by the systemic crisis started in 2008, which had

repercussions on several economies and sectors, changing paradigms and altering theories and suppositions about the freedom of monetary market and their agents.

Based on the data presented, one can finally conclude that the international financial crisis affected significantly all the spread rates calculated for the major Brazilian banks. The suppositions indicating both liquidity preference by private banks and highlighted intervention by public banks in order to eliminate the credit contraction scenario were confirmed. The search for cost efficiency was also understandable as the attempts to reduce the large-scale losses required such behaviour by the banking institutions.

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References

1. BCB, Banco Central do Brasil (2000) Juros e spread bancário: avaliação de um ano do projeto. Departamento de Estudos e Pesquisas (DEPEP). Retrieved June 27, 2013, from <http://www.bcb.gov.br/ftp/jurospspread112000.pdf>
2. BCB, Banco Central do Brasil (2011) Relatório de economia bancária e crédito. Departamento de Estudos e Pesquisas (DEPEP), Departamento Econômico (DEPEC). Retrieved June 27, 2013, from http://www.bcb.gov.br/pec/depep/spread/REBC_2011.pdf
3. FIPECAFI, Fundação Instituto de Pesquisas Contábeis, Atuariais e Financeiras (2005). Estudo sobre a apuração do spread da indústria bancária (2005) Retrieved June 27, 2013, from http://www.febraban.org.br/7Rof7SWg6qmyvwJcFwF7I0aSDf9jyV/sitefebraban/fipecafi_port_net.pdf
4. Silva GJC, Oreiro JL, Paula LF. Spread bancário no Brasil: uma avaliação empírica recente. In Sistema Financeiro: uma análise do setor bancário brasileiro In Luiz Fernando de Paula and José Luis Oreiro, editors. (2007) Sistema Financeiro: uma análise do setor bancário brasileiro. Elsevier, Rio de Janeiro. p. 191-219.
5. Gelos G (2006) Banking spreads in Latin America. IMF Working Paper, WP/06/44. Retrieved June 26, 2013, from

http://papers.ssrn.com/sol3/papers.cfm?abstract_id=892935##

6. Oreiro J, Paula LF (2010) Macroeconomic determinants of bank spread in Latin America: a recent analysis with special focus on Brazil, *International Review of Applied Economics*, 24:5, 573-590, DOI: 10.1080/02692170903426062
7. Vera L, Zambrano-Sequín L, Faust A (2007) The efficiency-stability trade-off: the case of high interest rate spreads in Venezuela. *The Developing Economies*, 45 (1), 1-26. Retrieved October 24, 2013, from <http://onlinelibrary.wiley.com/doi/10.1111/j.1746-1049.2007.00028.x/abstract>
8. Matias AB Condições estruturais do sistema bancário brasileiro: spread, taxa de juros e concorrência. Carlos Antonio Rocca, editors. (2007) *Mercado de capitais, agenda de reformas e ajuste fiscal*. Elsevier, Rio de Janeiro. p.33-60.
9. Bresser-Pereira LC et al. (2009) Dossiê da crise. *Revista de Economia Política*, 29 (113), 133-149. Retrieved June 25, 2013, from <http://www.scielo.br/pdf/rep/v29n1/08.pdf>
10. Freitas MCP (2009) Os efeitos da crise global no Brasil: aversão ao risco e preferência pela liquidez no mercado de crédito. Dossiê crise internacional II. *Estudos Avançados*, IEA/USP, São Paulo, 23 (66), 125-145. Retrieved June 20, 2013, from <http://revistas.usp.br/index.php/eav/article/view/10415>
11. Silva GF, Cunha PHF (2012) Atuação do Banco Central do Brasil na crise de 2008/2009 e o regime de metas de inflação, paper presented at the Fourth Encontro Internacional da Associação Keynesiana Brasileira, São Paulo, Brasil. Retrieved June 25, 2013, from http://www.akb.org.br/upload/130820121554143355_Glauco%20Freire%20da%20Silva.pdf
12. Gonçalves RS et al. (2012) Comportamento dos dez maiores bancos brasileiros durante a crise do subprime: uma análise por meio de indicadores contábeis. *REPEC*, Brasília, 6 (2), 170-186. Retrieved June 25, 2013, from <http://www.repec.org.br/index.php/repec/article/view/215>
13. Arantes TM, Rocha BP (2012) Eficiência dos bancos brasileiros e os impactos da crise financeira global de 2008, paper presented at the Fortieth Encontro Nacional de Economia, Porto de Galinhas, Brasil. Retrieved June 25, 2013, from http://www.anpec.org.br/encontro/2012/inscricao/files_I/i7-86ea8cbb7078fccc8ed41b25bdde1887.pdf
14. Brei M, Schclarek A (2013) Public bank lending in times of crisis. *Journal of Financial Stability*, in press, 2013. Retrieved October 22, 2013, from <http://dx.doi.org/10.1016/j.jfs.2013.01.002>
15. Soihet E, Cabral CMN (2012) Crise de 2008 e o papel determinante dos bancos públicos na recuperação da economia brasileira, paper presented at the Fourth Encontro Internacional da Associação Keynesiana Brasileira, São Paulo, Brasil. Retrieved June 25, 2013, from http://www.akb.org.br/upload/210820121431143974_Elena%20Soihet.pdf
16. Correa PRR et al. (2010) A Estrutura do Setor Bancário Brasileiro e o Ciclo Recente de Expansão do Crédito: O Papel dos Bancos Públicos, paper presented at the Thirty-eighth Encontro Nacional de Economia, Salvador, Brasil. Retrieved June 25, 2013, from <http://www.anpec.org.br/encontro2010/inscricao/arquivos/000-22dde5ba072ede09d99837a4eea5973c.pdf>
17. Matias AB (2006) Condições estruturais do sistema bancário brasileiro: o spread bancário brasileiro. *Estudos CODEMEC*, n. 54, Abr. São Paulo: IBMEC.
18. Leal RM Estrutura e determinantes do spread bancário no Brasil após 1994: uma análise da literatura empírica. In Luiz Fernando de Paula and José Luis Oreiro, editors. (2007) *Sistema Financeiro: uma análise do setor bancário brasileiro*. Elsevier, Rio de Janeiro. p. 221-251.