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Behavior of the Ten Largest Brazilian Banks During the Subprime Crisis: an Analysis Based on Financial Indicators[1]

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Abstract
The aim of this paper is to demonstrate the behavior of the ten largest Brazilian banks between June 2008 and September 2009, based on the analysis of financial indicators. Therefore, 16 three-monthly ratios were calculated, extracted from financial statement information, which characterizes a documentary research. The ratios were separated in five categories: liquidity, capital, profitability, income and market. The obtained results appointed that most financial institutions in the sample were able to manage their resources so as to gain conditions to maintain credit initially. Then, as from the first term of 2009, driven by public banks, they increased their credit operations. In addition, most banks revealed an anti-cyclical trend to encourage productive activities, preferably activities with higher liquidity levels, to the detriment of profitability, which reveals a more conservative attitude. Finally, it was verified that government initiatives, the Brazilian economic balance and the resources the banks offered helped to produce an environment to reactivate business activities during the most acute period of the subprime crisis.

Keywords: Financial Statement Analysis; Financial Institutions; Subprime crisis.

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1. INTRODUCTION

In recent years, mainly as from the second semester of 2003, the Brazilian economy has gone through a strong credit expansion, sustained by a positive global economic scenario (OLIVEIRA, 2006), driven by an economic growth of more than 5% in 2007 and 2008 (IBGE, 2009). Banks played a significant role in this process, increasing their leverage and risk propensity.

At the end of 2006, this growth panorama was hit by a crisis in the North American real estate sector: the so-called subprime crisis. This is basically characterized by overvaluation, followed by a devaluation of real estate, and particularly affected financial institutions with high leverage in this market, generating an abrupt lack of liquidity in the global economy (DEMYANYK; HEMERT, 2011).

This crisis hit the Brazilian economy as from the third term of 2008, slowing down all economic sectors, consumption and investment (SILBER, 2008). Banks, as financial intermediaries that play a dynamic role in the economy, by distributing resources from surplus to loss-making sources, had to adapt their positions to reduce losses in a negative scenario.

The management of asset and liability accounts, which make credit expansion or retraction feasible, determines the posture financial agents adopt (SAUNDERS, 2007). Thus, the aim in this paper is to demonstrate how the ten largest Brazilian banks behaved between June 2008 and September 2009, based on the analysis of financial indicators.

Specific goals are to: a) identify the trends the banks assumed during the crisis; b) disclose whether the crisis interfered in their equity structures, in their asset and liability composition and in their liquidity levels; and c) identify the posture the financial institutions adopted, whether they were conservative, preferred liquidity or prioritized investment results with higher risk and return levels.

What justifies this study is the fact that it offers an approach to analyze financial institutions' financial statements, and also discusses possible impacts of the global crisis in the Brazilian economy, permitting a reassessment of the measures adopted to cope with it, in view of the global recovery.

Differently from international accounting studies that focused on the reflexes of the subprime crisis in the recognition and measurement of financial operations, as well as on the regulation of the financial system (RAYAN, 2008; LAUX; LEUX, 2009; TAYLOR, 2009), this research is relevant to the extent that it contributes to understand Brazilian banks' behavior during the economic subprime crisis regarding the positions they assumed, with a view to mitigating its effects and facilitating the recovery or maintenance of their profitability.

2. THEORETICAL FOUNDATIONS

2.1 Brazilian economic situation with the crisis (2002-2008)

In a positive macroeconomic scenario in the global economy, mainly between 2002 and 2005, global economic growth supported opportunities for large investments and drove banks to adopt their classic pro-cyclical posture in the economy (OLIVEIRA, 2006). In other words, at times of economic growth, they tend to expand credit. In recession phases, on the other hand, they decrease their risk level, investing in more liquid securities and restricting market credit.

In Brazil, this behavior of financial institutions became perceptible as from the second semester of 2003 (BACEN, 2009a), when bank credit started to recover in the country, mainly driven by credit to private persons in the form of payroll-linked loans, and credit to companies, like working capital and secured account (BACEN, 2009b). According to Silber (2008), the international economic prosperity experienced until 2006 was shaken by the situation of the US real estate sector, the so-called subprime crisis, initially perceived as a banking crisis that provoked a gradual flattening in the credit supply and a deleveraging of North American banks. Consequently, production strongly slowed down, mainly in developed countries, sending the global economy into recession.

In a second phase, the crisis reached proportions that could evolve to a systemic collapse, when large companies and banks, like Lehman Brothers, informed about their losses and went bankrupt, causing uncertainty in the market and serving as a fuse for different central banks to strongly intervene (HELLWIG, 2009).

In an analysis of the consequences of these factors, Cruz (2008a) affirms that the international credit reduction made room for a lack of funding for production and product exportation activities in Brazil, which was mainly perceived in the primary sector.

What made this picture even more drastic is that the global economic slowdown led to a rapid devaluation of commodity prices and, consequently, a strong decrease in revenues in foreign currency. This context of uncertainty that drove the exchange rate, provoking the deterioration of the Brazilian currency in 2008, motivated an abrupt subtraction in inter-banking loans and large Brazilian companies with leverage in derivatives operations' disclosure of substantial losses.

Finally, demonstrating the drop in production levels, at first, according to the Brazilian Institute of Geography and Statistics, car manufacturing activities decreased by 33% when comparing November 2008 with the same period in 2007, generating idle industrial capacity and increased unemployment rates.

As a result of this context, in principle, financial companies adopt more conservative strategies as a way to protect their positions and maintain a minimal profitability level, with a view to remunerating investor capital.

2.2 Financial statement analysis in banks

Translating a company's economic and financial situation through its publications and being able to extract potential information that can influence future decisions comprises some of the factors that make financial statement or balance sheet analysis such a relatively and clearly used practice in the market.

According to Assaf Neto (2006 p.55), "based on the provided financial information, balance sheet analysis is aimed at reporting the current economic-financial position, the determinant causes of the presented evolution and future trends."

Good balance sheet analysis is important for different users: creditors, investors in general, public agencies and stockholders, besides its vital role for management.

To try and understand an institution's economic-financial situation and obtain support to justify the decision-making process, various analysis models and techniques can be used.

One of the most used techniques is the analysis based on economic-financial ratios, mainly obtained from information in the financial statements. According to Myer (1976), this technique has been used for more than a century, as there is evidence that, in 1908, North American bankers were already demanding a liquidity analysis (Short Term Asset/Liabilities of Borrower) for credit concession. Through the ratios, analysts attempt to measure, compare and project economic, financial or equity performances. Therefore, the ratios should be characterized by objectivity, measurability, understandability and comparability (LYRA, 2008).

Among reasons to use ratios in analyses, the following can be mentioned: a) permit control of the effect of different company sizes in the study; b) make data comply better with the premises underlying the statistical tools; and explore an empirical regularity observed between a financial ratio and an estimated variable of interest (FOSTER, 1986).

In search of indicators that can predictively translate possible financial system problems, more specifically concerning possible bankruptcies in financial institutions, Gilbert, Meyer and Vaughan (2000) tried to analyze the role the model of the American Central Bank (FED) played. After testing and analyzing the model known as CAMEL[2], the authors concluded that it can be an important instrument for use by the monetary authority in the supervision of financial institutions.

2 CAMEL – capital, assets, management, earnings and liquidity.

Despite the existence of models and indicators, Iudícibus (1998) affirms that, because of the characteristics inherent in financial statement analysis and analysts themselves, each user can reach slightly or completely different conclusions based on the same information set.

Particularities exist in banking activities that distinguish it from other business sectors, one of which is the fact of having money, in its different forms, as its classical product. Financial agents basically have two functions: financial intermediation and financial service delivery, whose administration demands peculiar techniques and responsibilities (SILVA, 1998). Therefore, the analysis of banks' financial statements should use techniques, models, ratios, etc. that adapt to the characteristics of the banking industry and produce useful information for the decision process.

Because of their characteristics, financial institutions should have available resources to live up to their commitments. Therefore, there are minimal capital requirements, which are adjusted according to the institution's exposure to credit, market and operational risk, in line with the Basel Accord (BIS, 2006). Thus, besides the normally used financial indicators, analysts should heed the adequacy of the financial institution's capital for its operations.

To understand the calculation of the Basel Ratio, proposed in the Basel Accord, one needs to understand the concepts of required reference stockholders' equity (RRSE) and reference stockholders' equity (RSE). The RSE is the measure of regulatory capital used to check for compliance with the operational limits of financial institutions and conglomerates and other institutions authorized to function by the Brazilian Central Bank. CMN Resolution No. 3.444, 2007 sets rules for its calculation.

The RRSE is the reference stockholders' equity required from financial institutions and conglomerates, deriving from their exposure to the risks inherent in their activities. CMN Resolution No. 3.490, 2007 provides clarifications on how to obtain this value.

In Brazil, the reference stockholders' equity, which is the relation of net equity based on weighted assets according to the financial institutions' risk, should correspond to an average 11%, which is higher than the minimum rate required in the Basel Accord, which is 8% (RODRIGUES; PINTO, 2004; DE MEDEIROS; PANDINI, 2007).

3. RESEARCH METHOD AND STRUCTURE

This is a quantitative research with descriptive goals (RICHARDSON et al., 1999; GIL, 1999). Documentary data collection techniques were used. According to Longaray and Beuren (2004, p.89), "documentary research is based on material that have not received analytic treatment yet or can be re-elaborated according to the research aims."

Information for the study was collected from the financial statements the banks published on their websites. The period defined for analysis was between June 2008 and September 2009 (indicators from the second, third and fourth terms of 2008 and first, second and third terms of 2009), which was appointed as the moment when the crisis most strongly affected developing economies (SILBER, 2008; CRUZ, 2008b). The Brazilian economic retraction ratifies this finding, which moves from positive growth in the second term of 2008 (6.2%) to negative growth in the same period of 2009 (-1.2%) (IBGE, 2009).

To analyze how the financial sector, more specifically the banking sector reacted to this economic retraction movement, a set of financial indicators will be used (see Figure 1), based on Assaf Neto (2006), Oliveira (2006) and Anjos (2008), for the ten largest Brazilian banks listed by the Brazilian Central Bank (BACEN, 2009a), based on their total asset volume in September 2009.

The selected indicators will be calculated through the ratio between absolute figures collected from the financial statements, measuring the proportion between one quantity and the other. Using this technique, the performance of these variables will be compared and observed during different terms.

Liquidity Indicators	Definition	Justification
Voluntary Liquidity (X1)	Availability / Deposits on Demand	Identifies a bank's immediate financial ability to cover demand drafts on the closure date of the financial year.
Immediate Liquidity (X2)	(Avail. + Interfinanc.Applic) / Deposits on Demand	Identifies that investments are preferred which guarantee a favorable and solvent position to cope with market "jolts".
Loans/Deposits (X3)	Loans / Deposits	Identifies the relevance of deposits in bank funding, which enhances the observation of X1 and X2, thus avoiding biased perceptions.
Participation of Loans (X4)	Credit Operations / Total Assets	Indicates the percentage of a bank's total assets applied in loan operations. Higher loan ratios in relation to total assets reveal the institution's low liquidity level and preference given to monetary gains (more profitable).
Capital Indicators	**Definition**	**Justification**
Financial Independence (X5)	Net Equity / Total Assests	Identifies what part of assets is funded by own capital.
Indebtedness (X6)	Total Liabilities / Net Equity	Permits detecting how its growth is levered, involves the security the company offers to capital from third parties.
Basel Ratio (X7)	(RSEx100) / (RRSE/0.11)	Risk indicator for international banking activities.
Profitability Indicators	**Definition**	**Justification**
Mean Funding Cost (X8)	Market Funding / Financial Exp. of Market Funding	Permits assessing the composition of the investment portfolio and understanding the strategy adopted based on the funding cost.
Net Margin (X9)	Net Profit / Income from Intermediations	Permits assessing the profitability level of financial intermediation activities.
Return on total investment (X10)	Net Profit / Total Investiment	Expresses the results of business opportunities the bank used. Efficiency measure, mainly influences by the quality of asset and financial expense management.
Return on equity (ROE) (X11)	Net Profit / Net Equity	Permits measuring whether financial leverage is producing wealth or destroying company value.
Income Analysis	**Definition**	**Justification**
ISS / Financial Intermediation (FI) (X12)	Income from Security and Stocks / Income from Intermediations	Permits measuring the participation of income deriving from securities and stock trade, from derivatives operations and from income from credit and leasing on total financial intermediation income. Permit identifying what business is prioritized based on the representativeness of the income.
Derivatives/ Financial Intermed. (FI) (X13)	Income from Derivatives / Income from Intermediations	
Credit and Leasing/ (FI) (X14)	Income from Cred. and Leasing / Income from Intermediations	
Market Analysis	**Definition**	**Justification**
Profit per Share (PPS) (X15)	Net Profit / Numbers of Stocks	Assesses company results in relation to stocks owned.
Price/Profit (X16)	Market Value os Stock / PPS	Indicates an estimated term for investors to recover the applied capital.

Figure 1: Selected Financial indicators for Analysis

Source: Based on Assaf Neto (2006), Oliveira (2006) and Anjos (2008)

3.1 Sample and research limitations

To reach the intended goals, data were collected in the management reports and balance sheets published on the websites of the Brazilian banks in the sample, excluding BNDES because of its atypical behavior, as governmental policies direct this federal entity. The other information source was the BACEN website, which presents the main accounts of all selected banks' statements in decreasing order of assets: *Banco do Brasil, Itaú, Bradesco, Caixa Econômica Federal, Santander, HSBC, Votorantim, Safra, Citibank* and *Banrisul*.

The representativeness of the sample companies should be highlighted. It comprises two federal public banks (*Banco do Brasil* and *Caixa Econômica Federal-CEF*), four Brazilian private banks (*Itaú, Bradesco, Votorantim* e *Safra*), three private banks under foreign control (*Santander, HSBC* and *Citibank*) and one public state-owned bank (Banrisul), whose assets correspond to 75.87% of total assets in the National Financial System.

The limitations of the market indicators should also be underlined, as the *CEF* was ignored to calculate these indicators, considering that it is not a limited liability corporation. Another restriction in this analysis was that the stocks of *HSBC, Votoratim, Safra* and *Citibank* are not traded on BM&FBovespa and were therefore ignored when calculating the Price/Profit ratio.

For this indicator, common stock prices were used on the final working day of the months under analysis. Calculations for the first three semesters of *Banrisul* and *Santander* were impaired as prices for 2008 were not available on their websites on the consultation day.

4. DATA ANALYSIS

Next, the most relevant aspects are presented in the study of the liquidity, capital structure, profitability, income and stock analysis indicators of the sample banks.

The voluntary liquidity indicator (Table 1) evolved positively in almost all banks across the analysis period, except in *Citibank,* with a significant reduction. This expanded liquidity indicates a conservative posture as, by increasing their cash levels, the institutions gained liquidity, prioritizing security amidst an international liquidity crisis. This conservatism, however, tends to increase costs due to the loss of business opportunities in which this capital is not invested.

The fact that *Banco Votorantim* showed high ratios does not mean a preference for liquidity. The bank only operatives in wholesaling and its demand deposit levels are irrelevant in comparison with its total deposits.

Table 1: Financial indicator – voluntary liquidity

Banks	Jun/08	Sept/08	Dec/08	Mar/09	Jun/09	Sept/09	Mean
BB	13,46%	16,32%	10,89%	15,76%	12,53%	16,58%	14,26%
Itaú	29,61%	30,04%	48,47%	42,01%	32,62%	36,35%	36,51%
Bradesco	19,04%	26,24%	32,54%	28,65%	32,32%	28,26%	27,84%
Banrisul	16,06%	19,08%	19,96%	21,63%	19,67%	21,16%	19,59%
CEF	18,98%	21,07%	19,93%	18,82%	19,20%	20,99%	19,83%
Santander	38,08%	33,30%	34,45%	30,49%	51,24%	30,32%	36,31%
HSBC	19,16%	22,01%	32,73%	32,84%	16,06%	25,68%	24,75%
Votorantim	148,99%	272,68%	90,32%	185,51%	321,87%	127,43%	191,13%
SAFRA	24,48%	33,89%	27,99%	55,56%	38,77%	30,47%	35,19%
Citibank	24,63%	16,12%	12,15%	12,98%	4,60%	4,80%	12,55%
Média*	**22,61%**	**24,23%**	**26,57%**	**28,75%**	**25,22%**	**23,85%**	

***Banco Votorantim, as an outlier, was excluded from the calculation**

Concerning the average trend in the *voluntary liquidity* indicator, a rise is observed, from 22.61% in Jun/2008 to a peak in the first term of 2009 (28.75%), followed by a reduction in subsequent terms (Jun/2009 – 25.22% and Sept/2009 – 23.85%). This average behavior ratifies the financial institutions' position when they chose greater liquidity in their operations, indicating conservative behavior in view of the crisis period.

The immediate liquidity indicator (Table 2) increased in most banks, as a result of the substantial increase in inter-financial applications, particularly in *Banco Safra,* whose ratio varied by more than twelve percentage points between Jun/08 and Sept/09. *Santander* and *Citibank*, in turn, showed a reduction in this indicator, although the latter achieved a considerable recovery in the final term. The distortions in the indicator for *Banco Votorantim* are due to the same causes mentioned above. These characteristics identify a behavior aimed at guaranteeing less risky positions and increased liquidity levels.

Table 2: Financial indicator – immediate liquidity

Banks	Jun/08	Sept/08	Dec/08	Mar/09	Jun/09	Sept/09	Mean
BB	1,43	1,89	2,52	2,98	2,85	3,34	2,50
Itaú	3,86	4,61	4,73	5,02	5,48	5,89	4,93
Bradesco	3,04	2,41	3,01	3,99	3,57	3,59	3,27
Banrisul	3,09	4,16	2,70	3,82	4,21	3,62	3,60
CEF	1,72	2,30	2,70	3,60	3,13	4,11	2,92
Santander	6,36	2,80	2,87	3,39	2,95	2,62	3,50
HSBC	2,21	2,57	3,21	3,24	3,34	3,87	3,07
Votorantim	163,41	114,41	64,77	207,30	246,35	98,20	149,07
SAFRA	6,28	16,20	2,74	27,87	25,05	18,58	16,12
Citibank	2,80	1,92	0,50	0,84	0,33	2,20	1,43
Média	**3,10**	**2,96**	**3,11**	**3,72**	**3,65**	**3,86**	

***Banco Votorantim, as an outlier, was excluded from the calculation**

As for the mean behavior of the analyzed companies, in the first term of 2009, again, a higher indicator is observed when compared with the previous terms (second, third and fourth terms of 2008), demonstrating institutions' more conservative position in that period. It is noteworthy that, in the third term of 2009, the immediate liquidity indicator is higher than for the first two terms of the same year.

The loans/deposits relation (Table 3) in *BB, Itaú* and *Bradesco* declined during the first terms of the analysis, but slightly recovered during the other terms. This ratio showed a modest increase in *CEF, Santander* and *Banrisul*. The other banks showed retraction in this respect. The low variation of this indicator demonstrates the level of insecurity in the market, despite the BACEN's incentives.

Table 3: Financial indicator – loans/deposits

Banks	Jun/08	Sept/08	Dec/08	Mar/09	Jun/09	Sept/09	Mean
BB	0,90	0,81	0,75	0,72	0,75	0,81	0,79
Itaú	1,03	0,80	0,78	0,82	0,84	0,87	0,86
Bradesco	1,01	0,96	0,84	0,81	0,81	0,83	0,88
Banrisul	0,72	0,77	0,76	0,78	0,76	0,76	0,76
CEF	0,43	0,44	0,48	0,52	0,56	0,60	0,51
Santander	0,88	0,89	0,93	0,96	0,92	0,92	0,92
HSBC	0,57	0,52	0,50	0,49	0,48	0,48	0,51
Votorantim	1,55	1,54	1,88	1,56	1,45	1,40	1,56
SAFRA	2,17	1,77	1,11	1,03	1,08	1,27	1,41
Citibank	1,16	1,29	1,16	1,21	0,88	0,79	1,08
Média	**1,04**	**0,98**	**0,92**	**0,89**	**0,85**	**0,87**	

Credit and leasing operations in relation to total assets, or participation in loans (Table 4), did not prove any trend in the research sample, with hardly significant variations. An exemption is due for *CEF*, with an 8.69% increase across the study period; for *BB* and *Itaú*, which, despite large increases in credit operations, did no show expressive ratios due to the great increase in their total assets due to incorporations during the period. This suggested a controversial posture of public banks, which played a significant role in credit expansion in Brazil during the subprime crisis.

Table 4: Financial indicator – participation in loans

Banks	Jun/08	Sept/08	Dec/08	Mar/09	Jun/09	Sept/09	Mean
BB	43,72%	41,92%	40,24%	38,21%	39,75%	39,52%	40,56%
Itaú	26,45%	25,09%	27,46%	28,62%	28,83%	28,95%	27,57%
Bradesco	36,01%	36,75%	35,27%	32,70%	32,38%	33,04%	34,36%
Banrisul	40,56%	40,66%	42,95%	42,13%	41,03%	41,43%	41,46%
CEF	24,05%	25,06%	27,06%	28,55%	30,66%	32,74%	28,02%
Santander	32,94%	32,90%	33,76%	34,12%	33,99%	34,36%	33,68%
HSBC	31,13%	28,45%	29,35%	30,23%	29,42%	29,24%	29,64%
Votorantim	44,16%	43,74%	48,79%	42,40%	38,28%	40,98%	43,06%
SAFRA	33,40%	31,98%	24,53%	21,49%	23,69%	28,61%	27,28%
Citibank	21,29%	22,51%	24,17%	21,35%	22,66%	21,30%	22,21%
Média	**33,37%**	**32,91%**	**33,36%**	**31,98%**	**32,07%**	**33,02%**	

The liquidity indicators under analysis did not show any sudden change in the postures the FIs assumed, but a small increase in most banks' voluntary and immediate liquidity levels. Also, a conservative position for loans was identified, mainly in private and foreign capital banks, despite governmental measures to contain the rising cost and retraction of credit, like the reduction of the compulsory deposit rate and the launch of broader rediscount lines as from Nov/08.

The low variation in loan/deposit rates and the participation in loans of most sample banks, probably due to the reduction in industrial and exportation activities, as well as the uncertainties, indicate that the stimuli did not exert the expected effect during the analysis period.

The financial independence rate dropped in 7 banks (Table 5), particularly *BB* and *CEF*, with 1.51 and 1.11 percentage points between Jun/08 and Jun/09. *Santander*, in turn, showed a strong growth by 7.69, mainly influenced by the incorporation of *ABN AMRO Real* in Sept/08.

Table 5: Financial indicator – financial independence

Banks	Jun/08	Sept/08	Dec/08	Mar/09	Jun/09	Sept/09	Mean
BB	6,54%	6,27%	5,90%	5,49%	5,68%	5,03%	5,82%
Itaú	9,50%	8,43%	7,10%	7,61%	8,37%	8,39%	8,23%
Bradesco	9,70%	9,52%	8,72%	8,37%	8,85%	9,16%	9,05%
Banrisul	12,44%	11,58%	12,14%	11,77%	11,46%	11,48%	11,81%
CEF	4,72%	4,42%	4,29%	4,15%	4,17%	3,61%	4,23%
Santander	8,34%	15,17%	14,29%	14,71%	15,00%	16,03%	13,92%
HSBC	6,07%	5,25%	5,39%	5,37%	5,34%	5,40%	5,47%
Votorantim	8,60%	7,84%	8,77%	7,75%	7,20%	7,79%	7,99%
SAFRA	6,50%	6,89%	6,21%	6,50%	6,89%	7,15%	6,69%
Citibank	10,49%	10,65%	10,89%	9,49%	11,59%	10,80%	10,65%
Média	**8,29%**	**8,60%**	**8,37%**	**8,12%**	**8,46%**	**8,48%**	

In Brazil, most banks have operated with indebtedness levels equaling more than 10 times the value of their own capital (Table 5). Concerning this indicator, *CEF* stands out, whose mean level exceeds 22 points, mainly due to its large saving funds, which allow the institution to adopt more levered levels. The greatest variations occurred in *BB* and *Santander*, with an increase by 4.59 and a reduction by 5.75 percentage points, respectively.

Table 6: Financial indicator – indebtedness

Banks	Jun/08	Sept/08	Dec/08	Mar/09	Jun/09	Sept/09	Mean
BB	14,30	14,95	15,95	17,21	16,60	18,89	16,32
Itaú	9,52	10,87	13,09	12,13	10,95	10,91	11,25
Bradesco	9,31	9,51	10,46	10,94	10,30	9,92	10,07
Banrisul	7,04	7,63	7,23	7,49	7,73	7,71	7,47
CEF	20,19	21,62	22,29	23,08	22,97	26,71	22,81
Santander	10,99	5,59	6,00	5,80	5,67	5,24	6,55
HSBC	15,49	18,06	17,54	17,61	17,71	17,52	17,32
Votorantim	10,62	11,75	10,41	11,91	12,88	11,84	11,57
SAFRA	14,39	13,52	15,11	14,39	13,52	12,98	13,98
Citibank	8,54	8,39	8,18	9,54	7,63	8,26	8,42
Média	**12,04**	**12,19**	**12,63**	**13,01**	**12,60**	**13,00**	

The Basel ratio (Table 7) signals that the small reduction in independence levels has not substantially affected the FIs' comfortable equity situation, with much higher values than the committee's recommendations (11%). The mean indicator in the entire sample exceeded 13%. *Banco Santander* stands out, with a mean 22.93% and a 14.70% growth between the first and last semester analyzed.

Table 7: Financial indicator – Basel Ratio

Banks	Jun/08	Sept/08	Dec/08	Mar/09	Jun/09	Sept/09	Mean
BB	13,08	13,57	15,55	15,04	15,71	13,29	14,37
Itaú	17,07	14,69	16,13	16,63	16,89	16,73	16,36
Bradesco	14,35	16,21	16,93	16,58	17,75	17,92	16,62
Banrisul	22,24	17,68	20,09	18,51	18,43	18,03	19,16
CEF	22,36	19,09	20,63	19,94	18,8	16,08	19,48
Santander	13,57	21,68	22,88	25,3	25,85	28,27	22,93
HSBC	13,11	12,12	12,3	13,26	13,81	13,55	13,03
Votorantim	14,12	13,58	13,51	13,15	12,42	11,84	13,10
SAFRA	11,88	12,11	14,68	16,91	16,69	16,32	14,77
Citibank	13,17	16,82	16,18	15,38	16,78	15,06	15,57
Média	**15,50**	**15,76**	**16,89**	**17,07**	**17,31**	**16,71**	

It should be highlighted that, during the study period, *Nossa Caixa* and *Votorantim*[3] were incorporated by *Banco do Brasil*, in March and September 2009, respectively. Also, in December 2008, the merger between *Itaú* and Unibanco took place. These groups were largely encouraged by the government which, through the measures for larger institutions to incorporate the portfolios of small banks, created the opportunity to expand these conglomerates. This strengthened these banks' structures and, thus, furthered their capacity to assume risks.

The mean funding cost shows a seasonal behavior, as proven in Table 8. During the period between Jun/08 and Dec/08, the participation of the funding cost in long-term deposits increases, against a smaller representativeness between Sept/08 and Mar/09. What causes this behavior are the reduced funding expenses during these terms. This behavior is expected, as the financial cost of invested capital became cheaper, due to the increase in term deposits, while funding expenses did not increase to the same extent.

Table 8: Financial indicator – mean funding cost

Banks	Jun/08	Sept/08	Dec/08	Mar/09	Jun/09	Sept/09	Mean
BB	-12,51%	-6,32%	-11,50%	-4,75%	-8,68%	-4,04%	-7,97%
Itaú	-20,57%	-9,94%	-13,94%	-7,00%	-13,37%	-5,82%	-11,77%
Bradesco	-14,20%	-8,74%	-14,75%	-6,60%	-12,83%	-5,73%	-10,48%
Banrisul	-8,51%	-5,07%	-10,45%	-4,60%	-8,44%	-3,75%	-6,80%
CEF	-15,26%	-9,02%	-18,49%	-8,75%	-16,63%	-7,21%	-12,56%
Santander	-12,69%	-5,40%	-18,72%	-6,72%	-13,04%	-4,80%	-10,23%
HSBC	-5,66%	-3,29%	-7,15%	-3,43%	-6,25%	-2,69%	-4,75%
Votorantim	-12,64%	-9,99%	-31,42%	-7,80%	-13,48%	-5,97%	-13,55%
SAFRA	-36,36%	-18,14%	-34,92%	-10,41%	-18,25%	-8,45%	-21,09%
Citibank	-8,69%	-5,98%	-13,06%	-5,51%	-7,89%	-3,61%	-7,46%
Média	**-14,71%**	**-8,19%**	**-17,44%**	**-6,56%**	**-11,89%**	**-5,21%**	

The net margins (Table 9) found in 5 FIs (*BB, Itaú, Bradesco, Banrisul* and *CEF*) indicate a drop in the real gain between Sept/08 and Mar/09, with a recovery during the other terms. *Santander, HSBC* e *Votorantim* showed continuous losses and *Safra* and *Citibank* behaved differently, the second with positive and negative variations that reached 100 percentage points.

3 In September 2009, 50% of Banco Votorantim was consolidated in the balance sheet of Banco do Brasil, according to the Brazilian Central Bank.

Table 9: Financial indicator – net margin

Banks	Jun/08	Sept/08	Dec/08	Mar/09	Jun/09	Sept/09	Mean
BB	18,22%	12,30%	14,07%	11,26%	13,28%	12,47%	13,60%
Itaú	14,96%	11,54%	8,40%	7,57%	8,55%	8,82%	9,97%
Bradesco	17,05%	12,73%	11,11%	9,98%	11,60%	10,91%	12,23%
BNDES	19,34%	10,25%	12,32%	9,86%	9,91%	14,04%	12,62%
CEF	17,13%	8,55%	7,68%	5,02%	6,54%	10,54%	9,24%
Santander	8,51%	6,32%	3,01%	3,25%	3,98%	3,33%	4,73%
HSBC	11,91%	5,28%	6,97%	6,23%	3,03%	2,46%	5,98%
Votorantim	11,30%	4,35%	3,55%	5,84%	6,47%	3,09%	5,77%
SAFRA	9,32%	19,70%	5,29%	7,70%	9,91%	5,39%	9,55%
Citibank	56,23%	4,76%	3,88%	104,54%	55,81%	-2,95%	37,05%
Média*	**14,19%**	**10,11%**	**8,04%**	**7,41%**	**8,14%**	**7,90%**	

***Citibank, as an outlier, was excluded from the calculation**

The return on total investments and return on equity (Tables 10 and 11) registered a strong involution in all banks analyzed in the study period. The increase in total investments and equity, without an equivalent variation in net profits, contributed to the drop in these indicators.

Table 10: Financial indicator – return on total investments

Banks	Jun/08	Sept/08	Dec/08	Mar/09	Jun/09	Sept/09	Mean
BB	0,99%	0,42%	0,95%	0,29%	0,69%	0,30%	0,60%
Itaú	1,22%	0,47%	0,58%	0,33%	0,80%	0,38%	0,63%
Bradesco	1,18%	0,53%	0,89%	0,41%	0,95%	0,42%	0,73%
Banrisul	1,32%	0,43%	1,11%	0,40%	0,76%	0,51%	0,75%
CEF	0,96%	0,26%	0,45%	0,14%	0,36%	0,25%	0,41%
Santander	0,62%	0,15%	0,23%	0,13%	0,31%	0,13%	0,26%
HSBC	0,79%	0,19%	0,52%	0,25%	0,24%	0,09%	0,35%
Votorantim	0,82%	0,21%	0,41%	0,20%	0,45%	0,10%	0,36%
SAFRA	0,72%	1,01%	0,60%	0,28%	0,68%	0,30%	0,60%
Citibank	3,06%	0,18%	0,33%	3,38%	3,98%	-0,09%	1,81%
Média	**1,17%**	**0,39%**	**0,61%**	**0,58%**	**0,92%**	**0,24%**	

On average, it can be observed that the start (September 2008) of the crisis was one of the most downward periods in sector profitability, with a mean indicator of 0.39% and a mild recovery in subsequent terms until June 2009. This drop in profitability justifies the banks' behavior of choosing operations with higher liquidity levels, and of reducing credit concessions, as the concession criteria became stricter, together with the cost increase for borrowers.

Table 11: Financial indicator – return on net equity

Banks	Jun/08	Sept/08	Dec/08	Mar/09	Jun/09	Sept/09	Mean
BB	15,14%	6,69%	16,07%	5,26%	12,11%	5,88%	10,19%
Itaú	12,79%	5,62%	8,22%	4,33%	9,51%	4,56%	7,50%
Bradesco	12,18%	5,54%	10,19%	4,85%	10,71%	4,63%	8,02%
Banrisul	10,60%	3,73%	9,17%	3,39%	6,59%	4,43%	6,32%
CEF	20,38%	5,92%	10,55%	3,48%	8,57%	7,05%	9,33%
Santander	7,48%	1,01%	1,59%	0,87%	2,09%	0,81%	2,31%
HSBC	13,01%	3,53%	9,68%	4,72%	4,42%	1,61%	6,16%
Votorantim	9,50%	2,67%	4,70%	2,61%	6,18%	1,32%	4,50%
SAFRA	11,10%	14,67%	9,65%	4,27%	9,89%	4,14%	8,95%
Citibank	29,19%	1,71%	3,02%	35,58%	34,37%	-0,81%	17,18%
Média	**14,14%**	**5,11%**	**8,28%**	**6,94%**	**10,44%**	**3,36%**	

The profitability indicators clearly evidenced the difficulty the banks faced to manage their assets and liabilities, probably caused by the global economic slowdown during that period. As a result of the credit crisis, funding and investment became more expensive; consumption decreased and productive activities dropped; and all economic areas showed retraction, including that of financial institutions.

Although various banks showed record net profits, includi*ng BB, Itaú* and *Bradesco,* as observed, these resulted from equity increases deriving from mergers and incorporations, an not from operational activities. This permitted significant gains in asset management, but without improvements in profitability rates.

In the Securities and Stocks/Financial Intermediations ratio (Table 12), most banks' conservative position can be observed, as the representativeness of gains from securities and stocks increased considerably during the three most impacting periods of the external crisis (Sept/08 till Mar/09), returning to the levels of Jun/08 in subsequent terms. Based on the behavior of six sample banks (*BB, Itaú, Bradesco, CEF, HSBC* e *Votorantim*), it can be inferred that liquidity and, consequently, less profitability were preferred.

Table 12: Financial indicator – Securities and Stocks/Financial Intermediation

Banks	Jun/08	Sept/08	Dec/08	Mar/09	Jun/09	Sept/09	Mean
BB	31,04%	37,91%	40,42%	38,53%	36,01%	31,91%	35,97%
Itaú	17,02%	21,36%	24,09%	24,35%	19,82%	19,49%	21,02%
Bradesco	16,24%	28,07%	28,49%	26,21%	22,25%	20,00%	23,54%
Banrisul	25,65%	22,96%	25,37%	28,24%	27,29%	25,72%	25,87%
CEF	50,69%	55,09%	56,81%	58,14%	55,44%	46,20%	53,73%
Santander	39,85%	20,33%	30,00%	25,30%	28,21%	28,03%	28,62%
HSBC	19,42%	26,75%	24,83%	26,61%	25,53%	25,20%	24,72%
Votorantim	24,03%	36,14%	33,11%	37,77%	31,33%	30,02%	32,07%
SAFRA	26,49%	19,21%	20,75%	36,01%	36,03%	16,74%	25,87%
Citibank	26,30%	23,86%	22,76%	30,08%	31,16%	32,48%	27,77%
Média	**27,67%**	**29,17%**	**30,66%**	**33,12%**	**31,31%**	**27,58%**	

In line with this analysis, the figures found for the ratio between income from derivatives and intermediations (Table 13) signaled losses in most banks, except for Itaú, which obtained a positive mean of 1.35, against strong losses as a result of this activity in Sept/08 and Dec/08; HSBC, which also accumulated gains at the end of the interregnum, but a heavy loss in Dec/08; and Citibank with a mean 2.38%, but which, differently from previous periods, presented losses in Jun/08 and Sept/09. The other institutions accumulated losses, particularly *Votorantim* with a mean loss of 8.37%, and *Safra* with 5.76%.

Table 13: Financial indicator – derivatives/financial intermediation

Banks	Jun/08	Sept/08	Dec/08	Mar/09	Jun/09	Sept/09	Mean
BB	-0,67%	-0,56%	-3,33%	-0,42%	-1,69%	-4,18%	-1,81%
Itaú	7,77%	-11,06%	-14,69%	4,30%	11,85%	9,91%	1,35%
Bradesco	11,14%	-17,34%	-20,70%	3,74%	8,30%	9,31%	-0,93%
Banrisul	0,34%	-1,04%	-1,00%	-0,10%	0,93%	0,32%	-0,09%
CEF	3,06%	-3,06%	-4,56%	-4,21%	-2,19%	-0,01%	-1,83%
Santander	3,21%	-12,49%	-14,94%	8,87%	7,70%	0,20%	-1,24%
HSBC	2,68%	-0,83%	-5,61%	4,80%	4,93%	-1,89%	0,68%
Votorantim	27,91%	-18,78%	-27,67%	-26,04%	-6,16%	0,50%	-8,37%
SAFRA	-2,25%	-5,80%	-6,34%	-10,93%	-9,18%	-0,07%	-5,76%
Citibank	-4,31%	14,62%	11,51%	11,90%	-0,09%	-16,67%	2,83%
Média	**4,89%**	**-5,63%**	**-8,73%**	**-0,81%**	**1,44%**	**-0,26%**	

To finish the analysis of income, credit and leasing/intermediations, in Table 14, some degree of balance was found in 9 banks, with small variations, except in some periods, like *Itaú* in Sept/08 and Dec/08, driven by income from leasing activities. Only *Votorantim* showed an actual increase as, with credit income as a characteristic of wholesaling operations, this institution is able to maintain lower liquidity levels, dislocating its resources to investments in intermediations.

Table 14: Financial indicator – credit and leasing/financial intermediation

Banks	Jun/08	Sept/08	Dec/08	Mar/09	Jun/09	Sept/09	Mean
BB	65,48%	58,76%	58,62%	60,70%	64,35%	68,37%	62,71%
Itaú	73,45%	81,78%	80,48%	69,99%	67,84%	70,02%	73,93%
Bradesco	69,20%	71,02%	72,02%	66,53%	66,53%	69,87%	69,19%
Banrisul	63,74%	59,63%	59,73%	66,61%	67,51%	69,81%	64,50%
CEF	33,07%	33,69%	34,46%	37,02%	37,97%	44,23%	36,74%
Santander	52,17%	76,57%	69,83%	65,25%	63,52%	64,77%	65,35%
HSBC	74,61%	70,39%	69,63%	66,29%	67,35%	72,69%	70,16%
Votorantim	46,97%	77,16%	85,02%	86,99%	74,83%	69,48%	73,41%
SAFRA	72,49%	68,60%	65,46%	71,45%	72,32%	82,95%	72,21%
Citibank	64,46%	58,50%	52,88%	53,25%	57,45%	62,68%	58,20%
Média	**61,56%**	**65,61%**	**64,81%**	**64,41%**	**63,97%**	**67,49%**	

It can be inferred that the banks displayed the expected behavior for the period of uncertainties the internal market was getting into, as they increased their applications in securities and stocks and restricted or maintained credit at first, despite governmental incentives. Besides, some institutions sought profitable applications in exchange operations in the most turbulent periods and, as early as in Sept/09, they started to return to the positions of Jun/08.

The profit per share (Table 15) demonstrates that a retraction occurred in all financial institutions' mean gain per stock. This behavior was expected due to the stock exchange's devaluation, one of the most evident consequences of the crisis in Brazil.

Table 15: Financial indicator – profit per share

Banks	Jun/08	Sept/08	Dec/08	Mar/09	Jun/09	Sept/09	Mean
BB	1,57	0,73	1,87	0,65	1,56	0,77	1,19
Itaú	1,39	0,64	0,90	0,49	1,05	0,50	0,83
Bradesco	1,34	0,63	1,15	0,56	1,32	0,59	0,93
Banrisul	0,75	0,27	0,69	0,26	0,52	0,36	0,47
Santander	0,00	0,00	0,00	0,00	0,00	0,00	0,00
HSBC	0,42	0,12	0,32	0,14	0,14	0,05	0,20
Votorantim	0,01	0,00	0,00	0,00	0,01	0,00	0,00
SAFRA	409,97	634,58	366,67	169,46	416,90	177,78	362,56
Citibank	0,04	0,00	0,00	0,06	0,06	0,00	0,03
Média	**0,69**	**0,30**	**0,62**	**0,27**	**0,58**	**0,28**	

***Banco Safra, as an outlier, was excluded from the calculation**

In its financial statements, *banco Safra* disseminated the grouping of its stock in Mar/08, at a ratio of 1,000 for 1 new stock. As its capital is divided in few stocks, the gains registered stand out in comparison with other banks.

Although the Price/Profit ratio (Table 16) is commonly used to determine the payback in years, in this research, its periodicity is three-monthly. The valuation of stocks in the final terms was observed. As the average profit per share dropped in all banks, the Price/Profit rose, which increased the term for the return on investments.

Table 16: Financial indicator – price/profit

Banks	Jun/08	Sept/08	Dec/08	Mar/09	Jun/09	Sept/09	Mean
BB	16,44	30,98	7,84	26,01	13,55	41,25	22,68
Itaú	12,30	22,27	12,38	20,55	9,38	23,05	16,66
Bradesco	21,80	42,85	17,37	34,31	18,23	49,55	30,69
Banrisul	-	-	-	27,52	15,91	31,89	25,11
Santander	-	-	-	101,30	46,00	215,34	120,88
Média	**6,32**	**12,01**	**4,70**	**13,55**	**7,13**	**18,22**	

***Mean elaborated after excluding Banco Santander, which was an outlier**

In *Banco Santander*, the Profit per share was very low and this ratio is used as a denominator to calculate Price/Profit. The results obtained for this bank were and ignored for analysis purposes.

5. FINAL CONSIDERATIONS

In view of the indicators used in this study, it was verified that, in spite of a controversial scenario for credit expansion due to the market's instability, credit operations in Brazil increased, at first driven by public banks and then followed by private banks and private institutions under foreign control, as from the first term of 2009.

It was also observed that operations management, with their assets and liabilities, sustained this credit evolution. Equity restructurings, resulting from different incorporations and fusions during the period, were important to highlight a posture of investment, during a recession that hit all economic sectors and "knocked down" company values in the stock market.

Based on income analysis, it can be deducted that, despite losses on derivatives and market insecurity, most financial intermediates did not drastically increase their participation in security and stock operations, which prioritize liquidity over monetary gain. In other words, most banks displayed an anticyclical trend to encourage productive activities in times of economic depression.

In conclusion, governmental actions, the economic stability that consolidated trust in the Brazilian market and the posture the financial intermediates assumed during the period contributed for the impacts of the subprime crisis to be processed with less economic damage, confirmed in a current situation that gives signs of recovered growth.

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