LOSS RECOGNITION TIMELINESS IN BRAZILIAN BANKS: THE INFLUENCE OF STATE OWNERSHIP

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Abstract

This paper investigates the effect of state ownership on the conditional conservatism of financial reports of Brazilian banks. State controlled banks in Brazil face additional monitoring from government authorities and managers risk litigation as individuals with potential effects on their personal wealth. Thus we hypothesize that state ownership would have a positive marginal effect on conditional conservatism in this institutional environment. Using a times series conditional conservatism model our results confirm our expectations and show that state ownership has a positive effect on the conditional conservatism of earnings in Brazil. Using a logit model we also corroborate this effect after controlling for the effect of unconditional conservatism and earnings smoothing****.

Keywords: Bank Regulation, State-Ownership, Asymmetric Loss Recognition Timeliness, Conditional Conservatism, Brazil

JEL Classification Code: M41, G21, N26

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***** We thank seminar participants at the 2008 Asian-Pacific Conference on International Accounting Issues and the 2008 meeting of the Brazilian Association of Graduate Programs in Business Administration (Enanpad) for useful comments.*

1 Introduction

The relation between firm ownership structures and the informativeness of accounting reports is a topic frequently investigated in the accounting literature. Past research has shown, for example, that ownership concentration reduces the informativeness of accounting numbers (Fan and Wong, 2002; Firth et al. 2007) among other findings. The importance of the theme emerges from the preeminent role that agency problems create in modern corporations and also from the key role that financial reports play in reducing information asymmetry between firm insiders and outsiders. In this paper we intend to contribute to this literature by investigating the relation between conditional conservatism and state ownership using a sample of firms originated in a very unique institutional setting: Brazilian banks.

The relation between state ownership and accounting quality is of considerably interest because state-shareholders affect the incentives managers face to produce accounting reports. States can be more concerned with public policies and their impact on some specific segments of society than with profitability. State ownership gain even more relevance in financial institutions due to the essential role they play in modern economies. States can use financial institutions to promote a variety of public policies. Unlike other non-financial companies poor financial performance in financial institutions can have enormous effects in the economy as a whole. This potential overall impact increases significantly the importance of information about the economic health of these institutions. The involvement of the state in business is pointed to in the literature as a factor that influences conservatism. One form of state involvement in business is through regulation. Bushman and Piotroski (2006) observed that in common law countries the involvement of the state in business leads to faster recognition of good news than of bad news. In other words, government involvement discourages conservatism. On the other hand, they found that government involvement in companies in code law countries motivated timely recognition of losses. Pinnuck and Potter (2009) have shown that local governments reduce the demand for informative

accounting reports. However their sample was based on Australian municipalities which were not listed in any exchange. More directly related to our research question, Chen et al. (2008) show that local governments interfere in financial statements of listed Chinese companies with the intent to manage earnings to attain certain thresholds. Their evidence supports the notion that governmental intervention in accounting reduces the quality of accounting reports.

We had access to a unique database of Brazilian public and private banks over the period of June 1997 to June 2010. We investigate the general level of conservatism in the whole sample of Brazilian banks and also the effect of state ownership on conservatism. We are interested in the effect of state control on conservatism specifically in Brazilian financial institutions for several reasons. Initially there is almost no evidence on this relation in the literature and the Brazilian scenario with several state-owned banks gives us an opportunity to investigate deeper in this question. Second, state sponsored economic policies implemented through state-owned banks are said to have a relevant role in the Brazilian good performance in the last financial crisis. It is well accepted in Brazil that special credit lines implemented by state banks helped the Brazilian financial system when international markets dried. This special function could affect banks performance and consequently impact their accounting choices relating to conservatism. Additionally, state-owned banks in Brazil face special regulations which impose greater legal responsibility on their managers which could potentially affect their accounting choices.

We raise two related hypothesis. First we hypothesize that earnings of financial institutions in Brazil will not be conservative. Following previous research (Lopes and Walker, 2010) we believe that financial reports in Brazil are not designed to inform external parties and consequently possess very little informative power. We believe earnings of financial institutions in Brazil will follow the general low informativeness level that other companies in Brazil possess. This is mainly driven by a low demand for informative accounting reports in a country where equity-outsider financing is not the main source of funds to firms. Second, contrary to what previous research suggests, we expect to see a positive marginal relation between state-ownership and conservatism in Brazilian banks. We expect this because managers of state-controlled banks face stricter regulations in Brazil which include the possibility of being sued as individuals and exposition of their personal wealth if they fail to provide reliable reports. State banks face additional monitoring from government authorities and substantive legal risks. We expect state ownership to affect the personal incentives managers face to provide conservative reports and to avoid litigation.

We follow Ball (2001: 128) which says "if forced to nominate a single place from which to start changing a country´s system of public financial reporting and disclosure, I would advocate liberalizing the rules governing stockholders and lender litigation. The risk of litigation motivates managers and auditors alike to increase transparency and, in particular, to disclose bad decisions and report losses in a timely fashion." Government-controlled financial institutions in Brazil unlike private banks have special access to public sources of funds and consequently managers have to face additional scrutiny related to their lending decisions. Managers of such state institutions can be personally held liable to bad loans and face criminal and civil penalties which can result in personal financial losses. We believe that managers of these government-sponsored institutions will be more timely in recognizing losses in their financial reports and consequently produce more conditionally conservative financial reports.

We adopted a time-series conditional conservatism model as first used by Basu (1997) and expansion adopted by Ball and Shivakumar (2005) as well the accruals-based model proposed by Ball and Shivakumar (2005, 2006) – the majority of the banks in our sample were not listed and consequently we did not have data on stock returns – and found that earnings of state-owned banks are conservative and earnings of private banks are not conservative. Using an alternative specification we found a positive marginal effect of state ownership on conditional conservatism. Additionally we examined the effect unconditional (ex-ante) conservatism and earnings smoothing in the previous results. According to Gassen et al. (2008) conditional conservatism, unconditional conservatism and earnings smoothing are interrelated and the behavior of the latter can influence the former. Prior results are confirmed using a logit model which clarifies the relation between conservatism and earnings smoothing.

The results in this paper are potentially interesting to a broad audience because they address the impact of an important institutional feature (litigation risk) on a relevant set of institutions: state-controlled banks. The recent financial crisis has shown how mismanagement of financial institutions can have wider impacts on the non-financial sectors of the economy. These effects stress the need for a better understanding of the financial health of such organizations. The massive state intervention that was necessary to recover those institutions also show the need for a better system for monitoring banks and similar institutions because the benefits and rewards of their activities are mainly private but the costs of failure are frequently public. This works shed some light on the main drivers of conservative behavior on financial institutions and suggest that the fear of litigation can be an important force in producing more conservative accounting reports.

We believe we contribute to the literature by providing new evidence on the accounting practices of financial institutions immersed in a very dynamic and increasingly important emerging economy. We also

contribute to provide more evidence on the role of state intervention on the properties of accounting reports. Given the special nature of state-owned financial institutions in Brazil it is interesting to uncover the effects of additional responsibilities and risk of litigation on the behavior of managers in relation to accounting practices. Unreliable accounting reports by banks are frequently blamed as one of the main causes of the recent financial crisis which severely affected many American and European financial institutions. Banks are said to have not reported earnings conservatively and to have accounted for fictitious profits originated from non-genuine sales of receivables and also not to have properly established provisions for bad debts. The financial crisis also increased pressure over accounting standard setters like the IASB and the FASB to relax market-to-market rules and to allow some illiquid assets to be carried at amortized cost. In this context it is important to identify elements which affect manager's behavior especially in relation to conservatism.

The article is organized as follows: Section 2 presents the Brazilian financial system and the hypotheses; Section 3 describes the research design and presents the results obtained and Section 4 concludes.

2 The Brazilian Financial System and Hypothesis Development

The Brazilian financial system is composed of an ample set of institutions that intermediate the transfer of funds between savers and borrowers and render financial services. These run the full gamut from investment banks to full service retail banks, including credit unions, leasing companies and savings and loan institutions. The main financial institutions are banks. The central regulators of the Brazilian financial system are the National Monetary Council and the Brazilian Central Bank. The former sets the general directives and issues the rules that regulate the financial system as a whole while the latter oversees banks' activities in the market.

From the standpoint of the origin of equity capital, Brazilian banks can be classified based on their controlling shareholder (by requirement of the Central Bank, there must be a controlling group) as private or state-owned. Private banks can be owned by local or foreign controlling groups (there is no limit on foreign capital) while the state-owned banks are owned by either states or the federal government (though they can have minority private capital). The main difference between public and private banks in Brazil is that public banks receive substantial funding from the state and have to be accountable for their use. There is more scrutiny over the use of these resources especially over the behavior of bad loans. We believe this additional attention to loans related to government funding increases the incentives managers have to behave conservatively and thus anticipate bad loans.

The Brazilian financial system has been undergoing substantial consolidation in recent years. Since the mid-1990s, large national and foreign financial groups have been buying up smaller private banks and banks owned by state governments. As a consequence, the number of banks fell from 192 in 1997 to 126 in 2010 (34.4%). Among the factors behind this consolidation are the privatization of banks owned by state governments, the search for economies of scale and market power by large players, the opening of the market to foreign banks and various international economic crises. This consolidation process has caused the participation of government-controlled banks in the overall financial system to decline. Nevertheless, their market share is still relevant, as shown in Table 1.

Table 1. Total Assets and Credit Portfolio: Official and Private Banks

Date	Total Assets		Credit Portfolio	
	State-Owned Banks	Private Banks	State-Owned Banks	Private Banks
1995	52.6%	47.4%	62.4%	37.6%
1996	50.5%	49.5%	58.3%	41.7%
1997	50.0%	50.0%	54.0%	46.0%
1998	50.4%	49.6%	57.6%	42.4%
1999	48.2%	51.8%	52.1%	47.9%
2000	43.2%	56.8%	45.9%	54.1%
2001	40.3%	59.7%	35.1%	64.9%
2002	44.0%	56.0%	38.5%	61.5%
2003	45.3%	54.7%	41.6%	58.4%
2004	43.0%	57.0%	39.5%	60.5%
2005	41.6%	58.4%	38.2%	61.8%
2006	39.3%	60.7%	38.3%	61.7%
2007	36.0%	64.0%	36.1%	63.9%
2008	36.6%	63.4%	39.2%	60.8%
2009	42.5%	57.5%	46.9%	53.1%

Source: Brazilian Central Bank

The remaining presence of state-owned banks (mostly federal) is mainly associated with the role played by the government in promoting economic development and the reticence of the private sector to offer certain types of credit, particularly long-term housing and agricultural loans. Official banks, according to government economic authorities, play an important role in the credit market, through the exercise of countercyclical fiscal policies. Indeed, despite the worsening of the international financial crisis starting in September 2008, the volume of lending in Brazil has not fallen, as was originally feared, due largely to stepped-up lending by official banks to compensate for the retraction of private banks. Another factor is that due to the tightly regulated financial market in Brazil, the country's banks were forbidden to engage in many of the risky transactions to which banks in most developed countries fell prey, meaning they were relatively less affected by the crisis.The share of overall lending by official banks climbed from 36.1% in December 2007 to 46.9% in December 2009, which raised the share of these institutions in total financial system assets to 42.5%.

Table 2 shows the main banks in Brazil, according to the level of their assets in relation to the total for the financial system. As can be seen, of the five largest banks, three are controlled by the federal government, representing 40.0% of total assets. This concentration also occurs with the private banks with 38.7% of all assets owned by the 3 largest banks.

Table 2. Largest Banks in Brazil

Position	Bank	Control	Assets/Financial System
1	Banco do Brasil	State Owned	19.6%
2	Itaú	Private	16.6%
3	Bradesco	Private	12.6%
4	BNDES	State Owned	10.7%
5	Caixa Econômica Federal	State Owned	9.7%
6	Santander	Private	9.5%
7	HSBC	Private	2.8%
8	Votorantim	Private	2.5%
9	Safra	Private	2.0%
10	Citibank	Private	1.2%
	Others State Owned		2.5%
	Others Private		10.3%

Source: Brazilian Central Bank – December/2009

The three most important of these banks are Banco do Brasil (BB), Caixa Econômica Federal (CEF) and the Banco Nacional para o Desenvolvimento Econômico e Social (National Bank for the Economic and Social Development, BNDES). According to data from the Central Bank, in December 2009 the assets controlled by these three institutions represented 40.0% of the assets held by the financial system as a whole. These figures show the relevance of state-owned banks in the Brazilian economy.

Banco do Brasil is a publicly traded corporation with shares traded on the São Paulo Stock Exchange (BM&FBOVESPA), but it is controlled by the federal government, which holds 65.6% of its capital. Besides its activities as a commercial bank, Banco do Brasil executes government policies, particularly in agribusiness lending. It is the main financier of agribusiness in Brazil, with 61.9% of the national financial system's credit portfolio in this sector (June 2009). Most of Banco do Brasil's funding for agribusiness credit come from the federal budget (National Treasury) and specific government funds and programs, such as the Constitutional Fund to Finance the Midwest (Fundo Constitucional de Financiamento do Centro-Oeste - FCO), the Worker Support Fund (Fundo de Amparo ao Trabalhador - FAT), the Fund to Defend the Coffee Economy (Fundo de Defesa da Economia Cafeeira - FUNCAFÉ), the Program to Generate Rural Employment and Income (Programa de Geração de Emprego e Renda Rural - PROGER RURAL) and the National Program to Strengthen Family Farming (Programa Nacional de Fortalecimento da Agricultura Familiar - PRONAF).

Caixa Econômica Federal (CEF), in turn, is wholly owned by the federal government (it is not listed). Besides acting as a commercial bank, it also acts as an agent of government policies. Besides administering official funds and passing on resources from government social programs, it is the main institution engaged in financing low and middle income housing, basic sanitation and urban infrastructure. In June 2009, Caixa Econômica Federal accounted for 72% of all mortgages in Brazil. The main sources of resources in this area are the federal budget, the Severance Indemnity Guarantee Fund (Fundo de Garantia do Tempo de Serviço - FGTS) and the Worker Support Fund (Fundo de Amparo ao Trabalhador - FAT).

The National Bank for Economic and Social Development (BNDES), as its name suggests, is a

development bank wholly owned by the federal government. It is responsible for executing the government's long-term business financing policy. The BNDES's credit lines are the main source of long-term funding of capital expenditures in Brazil. The resources of the BNDES come mainly from the Worker Support Fund (FAT) and the National Development Fund (FND). As public policy agents of the government, official banks taken as a whole extend credit mainly from public moneys (though except for the BNDES, they obtain substantial funding from deposits as well).

The lending activities of official federal banks are regulated and supervised not only by the Central Bank (as are all banks), but also by the Office of the Comptroller General and the Federal Audit Tribunal, while banks controlled by state governments are overseen by the respective state audit tribunals. The managers of official banks therefore are strongly regulated and overseen by various government entities in their decisions on allocation of funds. As a consequence, the legal exposure of the managers of state-owned banks is greater than that of their private-sector peers. Managers of state banks in Brazil face risk of litigation which can potentially freeze their personal assets and even involve criminal charges. We believe that this additional level of oversight is capable of affecting manager's behavior. More specifically we believe managers of state banks will have greater incentives to anticipate recognition of bad news than their colleagues in private banks. Our expectation of conservatism in state-owned banks has however to be put in the context of the general level of conservatism for all companies in the country. Brazil has characteristics leading to low informational quality in accounting reports, such as mediocre corporate governance; a code law system with low enforcement, meaning low protection for investors; accounting standards set by the government; accounting strongly influenced by tax rules; and relatively underdeveloped debt and equity markets (LOPES and WALKER, 2010). With respect to the equity market in particular, there is insufficient motivation for banks to report conservative earnings, since the number of banks with liquid shares traded on the BM&FBOVESPA is small. Ball et al. (2008) conducted a study to test the hypothesis that it is the debt market rather than the equity market that demands timely reporting of losses and conditional conservatism, based on a sample of 22 countries including Brazil. The results confirmed their hypothesis that Brazil is one of the countries with the lowest level of timely loss recognition (19th) and conditional conservatism (18th) in the sample studied. These results also confirm Lopes and Walker (2010) which specifically investigated Brazil.

Thus we believe that the better explanation for the conservative behavior of managers of state-controlled banks is their higher exposure to legal risk. In Brazil, most of the private banks are managed by their controlling shareholders. The typical agency conflict between top managers and shareholders do not occur in Brazil. The high ownership concentration creates the situation where the main shareholders are directly involved in the management of their institutions. Thus managers of private banks do not face the external scrutiny that managers of state-controlled banks face especially in relation to the risk of being sued by their management.

We follow Ball (2001) reasoning that managers and auditors of institutions exposed to greater litigation risks would be more likely to report losses on a timely fashion and consequently to produce more conditionally conservative financial reports. Government-sponsored financial institutions in Brazil present an ideal sample to test this hypothesis because their managers face substantial risks or prosecution for bad decisions unlike their private counterparts. In agreement with our understanding Lubberink and Huijgen (2000) state the function of conservative financial reports is to reduce the ex ante risk of future conflicts related to the distribution of cash flows among the contracting parties. They report evidences that risk averse managers are more likely to report conservative reports. According to them the main driver of conservative reporting practices is the degree of risk aversion by managers because optimistic numbers can result in legal conflicts ex post related to the distribution of wealth. Our hypothesis goes along the same dimension stating that managers of public banks will be more risk averse because they face larger risks of being held accountable for bad decisions especially the ones related to bad debts which will naturally result in a higher propensity to report bad news on a more timely manner – conditional conservatism.

Considering the general institutional environment in Brazil and the additional responsibilities faced by managers of state-owned institutions we raise the following hypotheses:

Ha: The earnings reported by the banks in Brazil do not show evidence of conditional conservatism.

Hb: The earnings reported by state-owned banks in Brazil present a greater degree of conditional conservatism than the earnings of the private banks.

We therefore expect state ownership to have a positive effect on the recognition of bad news by Brazilian banks due to its effect on the incentives managers face to report more credible accounting reports.

3 Research Design and Results

The population from which the sample was taken includes all the banks authorized by the Brazilian Central Bank. In June 2010, the total assets of the banks that make up our sample represented 97.7% of the total assets of the country's financial system. Since the models used to test the research hypotheses

include variables with time lags, banks that did not have accounting data available for at least four consecutive dates during the period being studied (June 1997 to June 2010) were excluded from the sample. The final sample used in the study comprises 276 different banks, including 240 private banks and 36 state-owned banks. Due to the reduced number of publicly traded banks in the Brazilian market, it was not possible to use market price data. Thus, we relied only on the specific data from the accounting reports, which permitted wider coverage for the study in terms of the number of banks.

The data were extracted from the balance sheets publicly available from the Brazilian Central Bank. Individual balance sheets were collected for the individual financial institutions and consolidated balance sheets for financial conglomerates. These balance sheets are semiannual, as the banks are obliged by the Brazilian Central Bank to publish their financial statements every six months, related to June and December of each year. Accounting data from 27 six-month periods were used (June 1997 – June 2010). We considered each set of accounting statements from each bank in each six-month period as an observation, so the sample covered 3,745 observations. Table 3 shows the number of banks per six-month period in the sample. The maximum number of banks was in June 1997 (192) and the minimum number in December 2008 (114).

Table 3. Banks per Semester

Semester	State Owned	Private	Total
Jun/97	35	157	192
Dec/97	31	155	186
Jun/98	29	145	174
Dec/98	27	148	175
Jun/99	24	148	172
Dec/99	20	146	166
Jun/00	19	142	161
Dec/00	17	135	152
Jun/01	17	130	147
Dec/01	17	129	146
Jun/02	17	118	135
Dec/02	17	118	135
Jun/03	17	117	134
Dec/03	17	118	135
Jun/04	16	117	133
Dec/04	16	118	134
Jun/05	16	118	134
Dec/05	16	116	132
Jun/06	15	113	128
Dec/06	15	112	127
Jun/07	15	107	122
Dec/07	15	105	120
Jun/08	15	104	119
Dec/08	14	100	114
Jun/09	12	108	120
Dec/09	12	109	121
Jun/10	12	114	126

Table 4 shows the descriptive statistics of net and operating income, accruals and operating cash flow of the whole sample, as well as those of the state-owned banks and private banks separately. As already mentioned, these variables are scaled by the total assets at the beginning of the period. The descriptive statistics show that net and operating income have the same look for each sub-samples of banks. As expected, the mean earnings of state-owned banks are lower than those of private ones and negative. Moreover, such differences have statistically significance. The variance of earnings is greater in state-owned banks than private ones and skewness of both sub-samples confirms their diversity; positive for primate banks and negative for the others. State-owned banks are responsible for the minimum values of net income and operating income in the sample, and private banks are responsible for the maximum values of those variables.

We also show the descriptive for accruals and operating cash flow, already scaled by assets in previous periods. The differentiation remains between state-owned and private banks: means are statistically different; again lower for state-owned banks, which

present more variance than private banks. Other interesting diverse characteristic is that state-owned banks present negative mean for both variables, which suggests asymmetrically loss recognition timeliness while private banks don't. Private banks however have negative mean for accruals and positive for operating cash flows, suggesting that accruals were used to be only adjustments for differed cash flows.

Table 4. Descriptive Statistics

Statistic	State-Owned Banks			
	Net Income	**Operating Income**	**Accruals**	**Operating Cash Flow**
Mean	-0.0212	-0.0180	-0.0173	-0.0104
Median	0.0062	0.0090	-0.0056	0.0121
St. Deviation	0.1170	0.1144	0.0472	0.1160
Minimum	-12.967	-12.937	-0.6394	-12.576
Maximum	0.0952	0.0876	0.0617	0.1031
Skewness	-57.601	-59.478	-81.528	-63.647
Kurtosis	410.383	442.584	883.802	481.654
Statistic	**Private Banks**			
	Net Income	**Operating Income**	**Accruals**	**Operating Cash Flow**
Mean	0.0117	0.0168	-0.0116	0.0188
Median	0.0100	0.0135	-0.0034	0.0167
St. Deviation	0.0483	0.0516	0.0375	0.0460
Minimum	-0.5196	-0.4906	-11.368	-0.7446
Maximum	0.8022	0.6797	0.4361	0.3630
Skewness	0.7717	0.3780	-109.963	-36.415
Kurtosis	617.505	299.052	2,850.060	509.661
Statistic	**Total Sample**			
	Net Income	**Operating Income**	**Accruals**	**Operating Cash Flow**
Mean	0.0073	0.0122	-0.0124	0.0148
Median	0.0093	0.0127	-0.0039	0.0158
St. Deviation	0.0629	0.0646	0.0390	0.0613
Minimum	-12.967	-12.937	0.4361	-12.576
Maximum	0.8022	0.6797	-11.368	0.3630
Skewness	-51.140	-46.600	-104.255	-76.896
Kurtosis	951.519	781.650	2,362.134	1.099.572
stat[a]	11.98*	12.33*	3.22*	10.54*

[a] t-statistic for two-tailed test of difference between private and state-owned bank means.
* represents significance at 1%.

To test the research hypothesis, we applied the models of Basu (1997) and Ball and Shivakumar (2005, 2006), in both their original and adapted forms. The coefficients of the models were obtained from estimators based on the system generalized method of moments (System GMM), to deal with the problem of endogeneity of the regressors.

In accounting research involving panel data, the model parameters are generally estimated based on ordinary least squares (OLS) or the fixed effects (FE) or random effects (RE) approaches. For the coefficients estimated by these methods to be consistent, it is necessary for the error term not to be correlated with the explanatory variables, to satisfy the exogeneity condition. To examine this condition of exogeneity of the regressors, we applied the test suggested by Wooldridge (2002, p. 285). The results indicated that the regressors of the models used are not exogenous. According to the author, endogeneity usually originates from problems of simultaneity of the explanatory variable with the response variable, omission of relevant explanatory variables and errors in measuring the variables.

Because of this, we decided to use the GMM, as proposed by Arellano and Bover (1995) and Blundell and Bond (1998), to estimate the models' parameters,

since this method permits treating the problem of endogeneity, even if strictly exogenous instruments are not available. In the GMM, the lagged first differences of the series are utilized as instruments in the equations in levels and the lagged levels of the series are used as instruments in the first-difference equations.

Besides examining the exogeneity of the regressors, we employed other procedures to check the adequacy of the estimation method, especially the Hansen-Sargan over-identification test (J), the first- and second-order autocorrelation tests (m_1 and m_2) and the Hansen-Sargan statistical difference test (J_1 - J_2). The results of these tests indicated the adequacy of the data used in the study to the GMM assumptions.

The model of Basu (1997) detects the presence of conditional conservatism through the reversion of temporary components of earnings. The author assumes that companies that face bad news are more likely to be timely in recognizing the losses than are those that face good news to recognize economic gains. Positive variations in previous profits are used to represent good news and negative variations are used to represent bad news. The model segments the observations between positive and negative variations in previous profits to verify the asymmetry in the recognition of economic gains and losses in earnings. The model is described in the following manner:

$$\Delta NI_{it} = \alpha_0 + \alpha_1 D\Delta NI_{it-1} + \alpha_2 \Delta NI_{it-1} + \alpha_3 \Delta NI_{it-1} * D\Delta NI_{it-1} + \varepsilon_{it} \quad (1)$$

where ΔNI_{it} represents variation in income of bank i from semester t-1 to semester t, weighted by total assets at the beginning of semester t;

$D\Delta NI_{it-1}$ is a dummy variable that takes on the value 1 if $\Delta NI_{it-1}<0$ and 0 otherwise;

ΔNI_{it-1} represents variation in income of bank i from semester t-2 to semester t-1, weighted by total assets at the beginning of semester t-1;

ΔNI_{it-1} *DΔNI_{it-1} is the interaction variable that detects the effects of previous negative income variations;

$\acute{\varepsilon}_{it}$ is the regression error term.

Under the hypothesis of conditional conservatism, the negative variations in previous income (bad news) are recognized more timely in the earnings than the positive variations in previous income (good news). As the recognition of good news in earnings is deferred until the moment of the cash flow, the gains derived are a persistent component of profits that tends not to be reverted in the subsequent period. As a consequence, the coefficient α_2 is expected statistically to equal zero ($\alpha_2 = 0$). On the other hand, the timely recognition of bad news in earnings makes the ensuing losses transitory components of profits, which are reverted in the following period. Because of this, the expectation is that the sum of the coefficients α_2 and α_3 will be less than zero ($\alpha_2 + \alpha_3 < 0$). The statistical significance of the coefficient α_3 reveals the difference in the recognition of good and bad news in earnings. More timely recognition of losses than gains implies that the coefficient α_3 will be less than zero ($\alpha_3 < 0$). There is no prediction as to the behavior of the model's linear coefficients α_0 and α_1.

We tested the hypotheses of conservatism in the accounting earnings in relation to both the net income and the operating income reported by the banks. Table 5 presents the results of the application of the first model (Equation 1) to the whole sample of state-owned and private banks. The coefficient α_2 is not statistically different than zero at 5%, indicating that the gains are persistent in the bank earnings series. The parameter α_3 is negative and statistically significant at 5%, and the sum of the coefficients α_2 and α_3 is also negative. This result reveals that the losses observed by banks are reversed in subsequent periods, making them a transitory component in the earnings series. Hence, there is evidence of conditional conservatism in the earnings of banks that operate in the Brazilian market, which leads us to reject the first hypothesis (H_a).

After analyzing the sample as a whole, we applied the first model (Equation 1) to the sub-samples of state-owned and private banks. Table 6 presents the results of applying the first model (Equation 1) to private banks. The coefficient α_2 is statistically significant at 5% and shows a negative result, which indicates that the gains are anticipated and are reverted in the following period; therefore, they are a transitory component of earnings. The coefficient α_3 is not statistically significant. The sum of the coefficients α_2 and α_3 is negative, derived from the negative α_2 and indicating that gains are timely recognized and reverted in the following period. Yet the positive result of the coefficient α_3 reveals that losses are not recognized in a timelier manner than gains. As a consequence, there is no evidence of the presence of conditional conservatism in the private banks' earnings.

Table 5. Equation 1 for State-Owned and Private Banks

$\Delta NI_{it} = \alpha_0 + \alpha_1 D\Delta NI_{it-1} + \alpha_2 \Delta NI_{it-1} + \alpha_3 \Delta NI_{it-1} * D\Delta NI_{it-1} + \varepsilon_{it}$					
	Expect	**Net Income**		**Operating Income**	
		Coefficient	**P-value**	**Coefficient**	**P-value**
Intercept (α_0)	?	-0.019***	(0.000)	-0.016***	(0.000)
$D\Delta NI_{i-1}$ (α_1)	?	0.030***	(0.000)	0.025***	(0.000)
ΔNI_{it-1} (α_2)	0	0.110*	(0.086)	-0.074	(0.191)
$\Delta NI_{it-1} * D\Delta NI_{it-1}$ (α_3)	-	-0.190**	(0.020)	-0.166**	(0.016)
$\alpha_2 + \alpha_3$	-	-0.080		-0.240	
Wald Statistic		153.23		343,49	
Nº Observations		3,745			

Dependent variable: ΔNI_{it} represents variation in income of bank i from semester t-1 to semester t, weighted by total assets at the beginning of semester t.
Variables: $D\Delta NI_{it-1}$ is a dummy variable that takes on the value 1 if $\Delta NI_{it-1} < 0$ and the value 0 otherwise; ΔNI_{it-1} variation in income of bank i from semester t-2 to semester t-1, weighted by total assets at the beginning of semester t-1; $\Delta NI_{it-1} * D\Delta NI_{it-1}$ is a interaction variable that detects the effects of previous negative income variations.
Estimation method: System GMM.
***, ** and * denote significance at 1%, 5% and 10%, respectively.

Table 6. Equation 1 for Private Banks

$\Delta NI_{it} = \alpha_0 + \alpha_1 D\Delta NI_{it-1} + \alpha_2 \Delta NI_{it-1} + \alpha_3 \Delta NI_{it-1} * D\Delta NI_{it-1} + \varepsilon_{it}$					
	Expect	**Net Income**		**Operating Income**	
		Coefficient	**P-value**	**Coefficient**	**P-value**
Intercept` (α_0)	?	-0.011***	(0.000)	-0.013***	(0.000)
$D\Delta NI_{i-1}$ (α_1)	?	0.023***	(0.000)	0.025***	(0.000)
ΔNI_{it-1} (α_2)	0	-0.189**	(0.016)	-0.224***	(0.006)
$\Delta NI_{it-1} * D\Delta NI_{it-1}$ (α_3)	-	0.106	(0.238)	0.100	(0.281)
$\alpha_2 + \alpha_3$	-	-0.083		-0.124	
Wald Statistic		196.68		288.41	
Nº Observations		3.252			

Table 7. Equation 1 for State-Owned Banks

$\Delta NI_{it} = \alpha_0 + \alpha_1 D\Delta NI_{it-1} + \alpha_2 \Delta NI_{it-1} + \alpha_3 \Delta NI_{it-1} * D\Delta NI_{it-1} + \varepsilon_{it}$					
	Expect	**Net Income**		**Operating Income**	
		Coefficient	**P-value**	**Coefficient**	**P-value**
Intercept` (α_0)	?	-0.020***	(0.000)	-0.020***	(0.000)
$D\Delta NI_{i-1}$ (α_1)	?	0.003	(0.707)	0.151	(0.109)
ΔNI_{it-1} (α_2)	0	0.072	(0.356)	0.185**	(0.047)
$\Delta NI_{it-1} * D\Delta NI_{it-1}$ (α_3)	-	-0.852***	(0.000)	-0.631***	(0.001)
$\alpha_2 + \alpha_3$	-	-0.780		-0.446	
Wald Statistic		46.82		23.22	
Nº Observations		493			

Dependent variable: ΔNI_{it} represents the variation in income of bank i from semester t-1 to semester t, weighted by total assets at the beginning of semester t.
Variables: $D\Delta NI_{it-1}$ is a dummy variable that takes on the value 1 if $\Delta NI_{it-1} < 0$ and the value 0 otherwise; ΔNI_{it-1} variation in income of bank i from semester t-2 to semester t-1, weighted by total assets at the beginning of semester t-1; $\Delta NI_{it-1} * D\Delta NI_{it-1}$ is a interaction variable that detects the effects of previous negative income variations.
Estimation method: System GMM.
*** and ** denote significance at 1% and 5% , respectively.

Additionally, we employed Ball and Shivakumar (2005) approach which expanded Basu's (1997) model to test whether the degree of conservatism in earnings was different between public and private companies. The authors included an interactive binary variable in the model that categorizes companies according to their form or ownership (DPR = 1 if the company is unlisted, 0 if it is listed). To adapt the model to the objectives of this study, we adjusted the dummy variable to categorize the banks according to the origin of their ownership. Thus, the dummy variable takes on the value one (DPR = 1) for private banks and zero (DPR = 0) for state-owned banks. The model is described in the following manner:

$$\Delta NI_{it} = \alpha_0 + \alpha_1 D\Delta NI_{it-1} + \alpha_2 \Delta NI_{it-1} + \alpha 3 D\Delta NI_{it-1} * \Delta NI_{it-1} + \alpha_4 DPR + \alpha_5 DPR * D\Delta NI_{it-1} + \\ + \alpha_6 DPR * \Delta NI_{it-1} + \alpha_7 DPR * D\Delta NI_{it-1} * \Delta NI_{it-1} + \varepsilon_{it}, \quad (2)$$

where ΔNI_{it} represents the variation in income of bank i from semester t-1 to semester t, weighted by total assets at the beginning of semester t;

$D\Delta NI_{it-1}$ is a dummy variable that takes on the value 1 if $\Delta NI_{it-1} < 0$ and 0 otherwise;

ΔNI_{it-1} represents the variation in income of bank i from semester t-2 to semester t-1, weighted by total assets at the beginning of semester t-1;

$\Delta NI_{it-1} * D\Delta NI_{it-1}$ is the interaction variable that detects the effects of previous negative income variations for state-owned banks;

DPR is a dummy variable that takes a value of 1 for private banks and 0 for state-owned banks;

DPR*$D\Delta NI_{it-1}$ represents the impact on the intercept of the model;

DPR*ΔNI_{it-1} is the interaction variable that detects the effect of previous positive income variations for private banks;

DPR*$D\Delta NI_{it-1}$ *ΔNI_{it-1} is the discriminatory variable for the values relating to previous negative income variations for private banks;

$\acute{\varepsilon}_{it}$ is the regression error term.

As in the previous model (Equation 1), the coefficient α_2 is expected to equal zero ($\alpha_2 = 0$), due to the persistence of the gains deriving from good news. In the same way, the coefficient α_3 is expected to be less than zero ($\alpha_3 < 0$) and the sum of the coefficients α_2 and α_3 is also expected to be less than zero ($\alpha_2 + \alpha_3 < 0$), referring to the timely recognition of losses deriving from bad news (which make them a transitory component of profits) by the state-owned banks, according to the second hypothesis.

The second hypothesis (H_b) predicts that the earnings of state-owned banks will be more conservative than the earnings of private banks. As a consequence, private banks are expected to show less timely recognition of losses deriving from bad news than state-owned banks, which implies that the coefficient α_7 will be greater than zero ($\alpha_7 > 0$). For the purposes of this study, hypotheses are not presented about the behavior of coefficients α_0, α_1, α_4, α_5 and α_6 of the model.

The second model (Equation 2) was applied to the whole sample of banks. Table 8 shows the results. The coefficient α_2 is not statistically significant for net income at 5% and for operating income at 1%, which indicates that gains are a consistent component of earnings that is not reversed in the following periods by the state-owned banks. The coefficient α_3 is negative and statistically significant at 1%, indicating that the recognition of losses is timelier than of gains for this category of banks. As the sum of the coefficients α_2 e α_3 is less than zero, the losses are a transitory component of earnings, which tends to be reverted in the following periods, indicating conservative behavior on the part of state-owned banks. The coefficient α_7 is positive and statistically significant at 1%, revealing that the timely recognition of losses is lower – or nonexistent – in private banks than in state-owned banks. In this way, the results of the state-owned banks are more conservative than the results of the private ones, as predicted in the second hypothesis (H_b).

To make the results more robust, we applied the accruals model proposed by Ball and Shivakumar (2005, 2006) to the bank data. Because recognition of unrealized profits and losses occurs through adjustments to accruals, their behavior can reveal the presence of conservative practices. The authors consider that timely recognition of losses causes a positive and asymmetric correlation between accruals and operating cash flows, attenuating the negative correlation predicted by Dechow et al. (1998). The model proposed by Ball and Shivakumar captures the relationship between accruals and contemporaneous operating cash flows, which are segregated into positive and negative values.

Table 8. Equation 2 for State-Owned and Private Banks

$$\Delta NI_{it} = \alpha_0 + \alpha_1 D\Delta NI_{it-1} + \alpha_2 \Delta NI_{it-1} + \alpha 3 D\Delta NI_{it-1} * \Delta NI_{it-1} + \alpha_4 DPR + \alpha_5 DPR * D\Delta NI_{it-1} + \\ + \alpha_6 DPR * \Delta NI_{it-1} + \alpha_7 DPR * D\Delta NI_{it-1} * \Delta NI_{it-1} + \varepsilon_{it}$$

	Expect	Net Income		Operating Income	
		Coefficient	P-value	Coefficient	P-value
Intercept` (α_0)	?	-0.020***	(0.000)	-0.020***	(0.000)
$D\Delta NI_{i-1}$ (α_1)	?	0.003	(0.634)	0.015**	(0.048)
ΔNI_{it-1} (α_2)	0	0.072	(0.243)	0.185**	(0.014)
$\Delta NI_{it-1} * D\Delta NI_{it-1}$ (α_3)	-	-0.852***	(0.000)	-0.631***	(0.000)
DPR (α_4)	?	0.008*	(0.098)	0.007	(0.134)
$DPR * D\Delta NI_{it-1}$ (α_5)	?	0.020***	(0.007)	0.010	(0.207)
$DPR * \Delta NI_{it-1}$ (α_6)	?	-0.261**	(0.011)	-0.410***	(0.000)
$DPR * D\Delta NI_{it-1} * \Delta NI_{it-1}$ (α_7)	+	0.958***	(0.000)	0.732***	(0.000)
$\alpha_2 + \alpha_3$		-0.780		-0.446	
$\alpha_2 + \alpha_6$		-0.189		-0.225	
$\alpha_2 + \alpha_3 + \alpha_6 + \alpha_7$		-0.083		-0.124	
Wald Statistic		255.08		301.89	
Nº Observations		3,745			

Dependent variable: ΔNI_{it} represents the variation in income of bank i from semester t-1 to semester t. weighted by total assets at the beginning of semester t.
Variables: $D\Delta NI_{it-1}$ is a dummy variable that takes on the value 1 if $\Delta NI_{it-1} < 0$ and the value 0 otherwise; ΔNI_{it-1} variation in income of bank i from semester t-2 to semester t-1. weighted by total assets at the beginning of semester t-1; $\Delta NI_{it-1} * D\Delta NI_{it-1}$ is a interaction variable that detects the effects of previous negative income variations; DPR is a dummy variable that takes a value of 1 for private banks and a value of 0 for state-owned banks; $DPR * D\Delta NI_{it-1}$ represents the impact on the intercept of the model; $DPR * \Delta NI_{it-1}$ is a interaction variable that detects the effect of previous positive income variations for private banks; $DPR * D\Delta NI_{it-1} * \Delta NI_{it-1}$ is a discriminatory variable for the values relating to previous negative income variations for private banks.
Estimation method: System GMM.
***, ** and * denote significance at 1%, 5% and 10%, respectively.

$$ACC_{it} = \beta_0 + \beta_1 DCFO_{it} + \beta_2 CFO_{it} + \beta_3 DCFO_{it} * CFO_{it} + \beta_4 DPR_i + \beta_5 DPR_i * DCFO_{it} + \\ + \beta_6 DPR_i * CFO_{it} + \beta_7 DPR_i * DCFO_{it} * CFO_{it} + \varepsilon_{it}, \quad (3)$$

where ACC_{it} are the accruals of bank i in semester t, weighted by beginning total assets;
$DCFO_{it}$ is a dummy variable that takes on the value 1 if $CFO_{it}<0$ and 0 otherwise;
CFO_{it} is the operating cash flow of bank i in semester t, weighted by beginning total assets;
$DCFO_{it}*CFO_{it}$ is an interaction variable for negative operating cash flows;
DPR_i is a dummy variable that takes a value of 1 for private banks and 0 for state-owned banks;
DPR_i*DCFO_{it} is an interaction of private banks with negative operating cash flows;
DPR_i*CFO_{it} is an interaction of private banks with operating cash flows;
$DPR_i*DCFO_{it}*CFO_{it}$ is an interaction between private banks with negative operating cash flows and operating cash flows;
$\acute{\varepsilon}_{it}$ is the regression error term.

Given the negative correlation between accruals and operating cash flows, the coefficient β_2 should be negative. In the presence of conservatism, the losses recognized by the accrual regime are more probable in periods when there are negative operating cash flows, so accruals will be more closely related to negative than with positive cash flows, implying that the coefficient β_2 should be negative. Besides this, a negative β_7 indicates that private banks are more likely to recognize losses as being temporary, i.e., state-owned banks are more conservative.

Table 9 shows the results of applying the model (Equation 3) to the data on public and private sector banks. The coefficient β_2 is negative and statistically significant at 1%, confirming the negative relationship between accruals and operating cash flows. The

coefficient β_3 is positive and statistically significant at 5%, showing that accruals are more related to negative cash flows than to positive flows. Finally, the coefficient β_7 is negative and statistically significant at 5%, confirming the hypothesis that state-owned banks advance recognition of losses by accruals, meaning they are more conservative.

Table 9. Accruals and Operating Cash Flows for State-Owned and Private Banks

$$ACC_{it} = \beta_0 + \beta_1 DCFO_{it} + \beta_2 CFO_{it} + \beta_3 DCFO_{it} * CFO_{it} + \beta_4 DPR_i + \\ + \beta_5 DPR_i * DCFO_{it} + \beta_6 DPR_i * CFO_{it} + \beta_7 DPR_i * DCFO_{it} * CFO_{it} + \varepsilon_{it}$$

		Coefficient	P-value
Intercept` (β_0)	?	-0.003	(0.440)
$DCFO_{it}$ (β_1)	?	-0.004	(0.348)
CFO_{it} (β_2)	-	-0.069***	(0.000)
$DCFO_{it} * CFO_{it}$ (β_3)	+	0.133**	(0.014)
DPR_i (β_4)	?	0.014***	(0.001)
$DPR_i * DCFO_{it}$ (β_5)	?	0.003	(0.394)
$DPR_i * CFO_{it}$ (β_6)	?	0.069***	(0.000)
$DPR_i * DCFO_{it} * CFO_{it}$ (β_7)	-	-0.133**	(0.014)
$\beta_2 + \beta_3$		0.064	
$\beta_2 + \beta_6$		0.001	
$\beta_2 + \beta_3 + \beta_6 + \beta_7$		0.001	
Wald Statistic		620.30	
Nº Observations		3,745	

Dependent variable: ACC_{it} represents accruals of bank i in the semester t, standardized by beginning total assets. Accruals are defined as earnings before exceptional items and extra-ordinary items minus cash from operations.

Variables: CFO_{it} is cash from operations of bank i in the semester t, standardized by beginning total assets; $DCFO_{it}$ is a dummy variable that takes on the value 1 if $CFO_{it} < 0$ and the value 0 otherwise; $DCFO_{it} * CFO_{it}$ is an interaction variable for negative operating cash flows at semester t; DPR_i is a dummy variable that takes a value of 1 for private banks and a value of 0 for state-owned banks; $DPR_i * DCFO_{it}$ is an interaction of private banks with negative operating cash flows; $DPR_i * CFO_{it}$ is an interaction of private banks with operating cash flows; $DPR_i * DCFO_{it} * CFO_{it}$ is an interaction between private banks with negative operating cash flows and operating cash flows.

Estimation method: System GMM.

*** and ** denote significance at 1% and 5% , respectively.

After applying the models of Basu (1997) and Ball and Shivakumar (2005, 2006) to detect the presence of conditional (ex-post) conservatism in the earnings reported by state-owned and private banks, we examined the effect of unconditional (ex-ante) conservatism and earnings smoothing on these results. According to Gassen et al. (2008), conditional conservatism, unconditional conservatism and earnings smoothing are interrelated practices, so the latter two can influence the degree of conditional conservatism observed for state-owned and private banks. For this purpose we applied a logistic regression model to the sample data to test whether conditional conservatism, unconditional conservatism and income smoothing explain the characteristics of state-owned and private banks. In the logistic model utilized the dependent variable assumes the value of 1 for state-owned bank and 0 for private ones.

Conditional conservatism is expressed by the coefficient α_3 of model of Basu (1997), multiplied by the values assumed by the respective variable for each bank in each period. Unconditional conservatism, as suggested by Gassen et al. (2008), is measured by the accruals up to period t-1, represented by the predictions for losses on bad loans. The income smoothing, in turn, is measured by the quotient between the standard deviation of earnings and the standard deviation of cash flow, as used by Francis et al. (2004).

The logistic model can be expressed as follows:

$$P(State-Owned=1)=\beta_0+\beta_1*CC_{it}+\beta_2*UC_{it}+\beta_3*SMOOTH_{it}+\varepsilon_{it}, \quad (4)$$

where CC_{it} represents the conditional conservatism of bank i in semester t, measured by the Basu's model $(\alpha_3\Delta NI_{it-1}*D\Delta NI_{it-1})$;

UC_{it} represents the unconditional conservatism of bank i in semester t, measured by the loan loss provisions in the semester t-1, weighted by total assets;

$SMOOTH_{it}$ represents the income smoothing of bank i in the semester t, measured by the ratio between the standard deviation of earnings and the standard deviation of cash flow;

ε_{it} is the regression error term.

We expect state-owned banks to present greater unconditional conservatism because of the worse quality of their loan portfolios and tendency to adopt conditional conservatism, according to our first hypothesis. Besides this, we expect private banks to report their earnings in more persistent form, by smoothing, since they need to protect themselves politically because of their history of high profits, greater than those of state-owned banks, as discussed by Paula and Alves Jr. (2003). We did not include these expectations about unconditional conservatism and smoothing in the research hypotheses because these are control variables in relation to the phenomenon studied.

Table 10 presents the results from applying the logistic model, whose variables are measures of conditional conservatism, unconditional conservatism and income smoothing. The coefficient β_1 is negative and statistically significant at 5% for net income, which confirms the hypothesis that conditional conservatism among state-owned banks is more pronounced than among private banks. For operating income this coefficient is not statistically significant. The coefficient β_2 is positive and statistically significant at 5% for net income, indicating that unconditional conservatism is also greater in state-owned banks than private ones. This result again likely comes from the worse quality of the loan portfolios of state-owned banks, which leads them to make larger provisions for bad loans, and their practice of conditional conservatism. The coefficient β_3 is negative and statistically significant at 5% for both net income and operating income.

Table 10. Discriminants for State-Owned and Private Banks

$P(State-Owned=1)=\beta_0+\beta_1*CC_{it}+\beta_2*UC_{it}+\beta_3*SMOOTH_{it}+\varepsilon_{it}$					
	Expect	**Net Income**		**Operating Income**	
		Coefficient	**P-value**	**Coefficient**	**P-value**
Intercept`(β_0)	?	-0.034	(0.844)	1.753***	(0.000)
CC_{it} (β_1)	-	-10.928**	(0.020)	-1.039	(0.912)
UC_{it} (β_2)	+	2.276***	(0.002)	1.366	(0.101)
$SMOOTH_{it}$ (β_3)	+	-2.443***	(0.000)	-4.511***	(0.000)
Chi-square statistic		140.69		322.3	
Nº Observations		3,725			
Dependent variable: Y equals 1 for state-owned banks and 0 for private banks. Variables: CC_{it} represents the conditional conservatism of bank i in the semester t, measured by the Basu's model: $\alpha_3\Delta NI_{it-1}*D\Delta NI_{it-1}$; UC_{it} represents the unconditional conservatism of bank i in the semester t-1, measured by the credit loss provisions weighted by total assets; $SMOOTH_{it}$ represents the income smoothing of bank i in the semester t, measured by the ratio between the standard deviation of earnings and the standard deviation of cash flow. Estimated Method: LOGIT *** and ** denote significance at 1% and 5%, respectively.					

The average values of conditional conservatism, unconditional conservatism and income smoothing for the state-owned and private banks are presented in Table 11. These numbers corroborate the findings of the logistic regression, with all the means statistically significant.

Table 11. Conditional Conservatism, Unconditional Conservatism and Income Smoothing: Means of State-Owned Banks and Private Banks

	Net Income		Operating Income	
	State-Owned Banks	**Private Banks**	**State-Owned Banks**	**Private Banks**
Conditional Conservatism	-0.0031	-0.0024	-0.0018	-0.0017
Unconditional Conservatism	0.0282	0.0182	0.0282	0.0182
Income Smoothing	0.7224	0.8378	0.7263	0.8722
Conditional conservatism is measured by the Basu's model: $\alpha_3 \Delta NI_{it-1} * D\Delta NI_{it-1}$, unconditional conservatism is measured by the credit loss provisions weighted by total assets and Income Smoothing is measured by the ratio between the standard deviation of earnings and the standard deviation of cash flow. The means are different for the two segments at a level of 1%.				

Besides the exam of the degree of conservatism between state-owned and private banks, we carried out two complementary tests. The first test evaluates the effect of the prudential regulation in the degree of banks´ conservatism, and the second test examines if banks listed in stock market are more conservative than non-listed banks.

Table 12. Equation 2 for high Basel Index banks and low Basel Index banks

$$\Delta NI_{it} = \alpha_0 + \alpha_1 D\Delta NI_{it-1} + \alpha_2 \Delta NI_{it-1} + \alpha 3 D\Delta NI_{it-1} * \Delta NI_{it-1} + \alpha_4 BAS + \alpha_5 BAS * D\Delta NI_{it-1} + \\ + \alpha_6 BAS * \Delta NI_{it-1} + \alpha_7 BAS * D\Delta NI_{it-1} * \Delta NI_{it-1} + \varepsilon_{it}$$

	Expect	**Net Income**		**Operating Income**	
		Coefficient	**P-value**	**Coefficient**	**P-value**
$Intercept`(\alpha_0)$	?	-0.003	(0.583)	-0.014	(0.245)
$D\Delta NI_{i-1}(\alpha_1)$	?	0.001	(0.844)	0.035**	(0.017)
$\Delta NI_{it-1}(\alpha_2)$	0	-0.516**	(0.022)	-0.347	(0.288)
$\Delta NI_{it-1} * D\Delta NI_{it-1}(\alpha_3)$	-	-0.129	(0.771)	0.199	(0.555)
$BAS(\alpha_4)$	?	0.000	(0.970)	0.005	(0.661)
$BAS * D\Delta NI_{it-1}(\alpha_5)$	?	-0.001	(0.836)	-0.026*	(0.081)
$BAS * \Delta NI_{it-1}(\alpha_6)$	?	0.445*	(0.065)	0.362	(0.284)
$BAS * D\Delta NI_{it-1} * \Delta NI_{it-1}(\alpha_7)$	0	-0.292	(0.581)	-0.613	(0.164)
$\alpha_2 + \alpha_3$		-0.645		-0.148	
$\alpha_2 + \alpha_6$		-0.071		0.015	
$\alpha_2 + \alpha_3 + \alpha_6 + \alpha_7$		-0.492		-0.399	
Wald Statistic		622.94		140.03	
Nº Observations		1,498			

Dependent variable: ΔNI_{it} represents the variation in income of bank i from semester t-1 to semester t. weighted by total assets at the beginning of semester t.
Variables: $D\Delta NI_{it-1}$ is a dummy variable that takes on the value 1 if $\Delta NI_{it-1} < 0$ and the value 0 otherwise; ΔNI_{it-1} variation in income of bank i from semester t-2 to semester t-1. weighted by total assets at the beginning of semester t-1; $\Delta NI_{it-1} * D\Delta NI_{it-1}$ is a interaction variable that detects the effects of previous negative income variations; BAS is a dummy variable that takes a value of 1 for banks with low Basel Index and a value of 0 for banks with high Basel Index; $BAS * D\Delta NI_{it-1}$ represents the impact on the intercept of the model; $BAS * \Delta NI_{it-1}$ is a interaction variable that detects the effect of previous positive income variations for low Basel Index banks; $BAS * D\Delta NI_{it-1} * \Delta NI_{it-1}$ is a discriminatory variable for the values relating to previous negative income variations for low Basel Index banks.
Estimation method: System GMM.
***, ** and * denote significance at 1%, 5% and 10%, respectively.

In Brazil, the minimum Basel index required by the Central Bank is 11%, while in most countries this figure is 8%. Besides this, the Basel index of Brazilian banks in general is a good deal higher than required by the Central Bank. In June 2010 the median index for the country's banks was 20.09%. Despite these figures, we tested the hypothesis that banks with Basel indexes near the regulatory minimum would be more aggressive in their earnings disclosures (less conservative) than other banks. To do this, we ranked the banks according to their Basel index and divided the sample into five groups, each with 20% of the banks. Then we tested whether the banks in the first group (lowest Basel indexes) are more conservative than those in the fifth group (highest Basel indexes), using a dummy variable that captures whether the bank is in the fist or fifth group. We applied this test both in the model of Basu (1997) and that of Ball and Shivakumar (2005, 2006).

The results are reported in Tables 12 and 13. Both the coefficient α_7 of Basu's model and the coefficient β_7 of the BS model are not statistically significant at 5%, revealing that the earnings reported by banks with the lowest Basel indexes are not less conservative (more aggressive) than the profits of banks with higher Basel indexes.

Table 13. Equation 3 for high Basel Index banks and low Basel Index banks

$ACC_{it} = \beta_0 + \beta_1 DCFO_{it} + \beta_2 CFO_{it} + \beta_3 DCFO_{it} * CFO_{it} + \beta_4 BAS_i + + \beta_5 BAS_i * DCFO_{it} + \beta_6 BAS_i * CFO_{it} + \beta_7 BAS_i * DCFO_{it} * CFO_{it} + \varepsilon_{it}$			
		Coefficient	**P-value**
Intercept` (β_0)	?	0.017***	(0.002)
$DCFO_{it}$ (β_1)	?	0.002	(0.594)
CFO_{it} (β_2)	-	-0.001***	(0.000)
$DCFO_{it} * CFO_{it}$ (β_3)	+	0.001**	(0.010)
BAS_i (β_4)	?	-0.004	(0.441)
$BAS_i * DCFO_{it}$ (β_5)	?	-0.009	(0.101)
$BAS_i * CFO_{it}$ (β_6)	?	0.004	(0.500)
$BAS_i * DCFO_{it} * CFO_{it}$ (β_7)	0	-0.031	(0.124)
$\beta_2 + \beta_3$		0.000	
$\beta_2 + \beta_6$		0.003	
$\beta_2 + \beta_3 + \beta_6 + \beta_7$		-0.027	
Wald Statistic		361.08	
Nº Observations		1,498	

Dependent variable: ACC_{it} represents accruals of bank i in the semester t, standardized by beginning total assets. Accruals are defined as earnings before exceptional items and extra-ordinary items minus cash from operations.

Variables: CFO_{it} is cash from operations of bank i in the semester t, standardized by beginning total assets; $DCFO_{it}$ is a dummy variable that takes on the value 1 if $CFO_{it} < 0$ and the value 0 otherwise; $DCFO_{it} * CFO_{it}$ is an interaction variable for negative operating cash flows at semester t; BAS_i is a dummy variable that takes a value of 1 for banks with low Basel Index and a value of 0 for banks with high Basel Index; $BAS_i * DCFO_{it}$ is an interaction of low Basel Index banks with negative operating cash flows; $BAS_i * CFO_{it}$ is an interaction of low Basel Index banks with operating cash flows; $BAS_i * DCFO_{it} * CFO_{it}$ is an interaction between low Basel Index banks with negative operating cash flows and operating cash flows.

Estimation method: System GMM.

*** and ** denote significance at 1% and 5% , respectively.

As cited previously, studies already showed that in Brazil listed companies are not more conservative than unlisted ones, because the market does not demand the informational quality attributes necessary for the accounting statements to be used to monitor firms' contractual relationships. We tested this point in banks applying the models of Basu (1997) and Ball and Shivakumar (2005, 2006) to data, using a dummy variable that captures whether the bank is listed or not. The results are reported in Tables 14 and 15 below. Both the coefficient α_7 of Basu's model and the coefficient β_7 of the Ball and Shivakumar´s model are not statistically significant at 5%, showing that the earnings reported by listed banks are more conservative than the profits of unlisted banks.

Table 14 – Equation 2 for listed and unlisted banks

$$\Delta NI_{it} = \alpha_0 + \alpha_1 D\Delta NI_{it-1} + \alpha_2 \Delta NI_{it-1} + \alpha 3 D\Delta NI_{it-1} * \Delta NI_{it-1} + \alpha_4 DPR + \alpha_5 DPR * D\Delta NI_{it-1} + \\ + \alpha_6 DPR * \Delta NI_{it-1} + \alpha_7 DPR * D\Delta NI_{it-1} * \Delta NI_{it-1} + \varepsilon_{it}$$

	Expect	Net Income		Operating Income	
		Coefficient	P-value	Coefficient	P-value
Intercept`(α_0)	?	-0.009**	(0.012)	-0.008	(0.444)
$D\Delta NI_{i-1}$ (α_1)	?	0.001	(0.920)	-0.024	(0.416)
ΔNI_{it-1} (α_2)	0	-0.042	(0.727)	-0.067	(0.158)
$\Delta NI_{it-1} * D\Delta NI_{it-1}$ (α_3)	-	-0.825***	(0.000)	-1.918**	(0.035)
DPR (α_4)	?	-0.004	(0.417)	-0.008	(0.112)
$DPR * D\Delta NI_{it-1}$ (α_5)	?	0.014*	(0.059)	0.052	(0.733)
$DPR * \Delta NI_{it-1}$ (α_6)	?	-0.087	(0.728)	-0.050	(0.169)
$DPR * D\Delta NI_{it-1} * \Delta NI_{it-1}$ (α_7)	0	0.443	(0.194)	1.848***	(0.000)
$\alpha_2 + \alpha_3$		-0.867		-1.985	
$\alpha_2 + \alpha_6$		-0.129		-0.117	
$\alpha_2 + \alpha_3 + \alpha_6 + \alpha_7$		-0.511		-0.187	
Wald Statistic		431.24		288.01	
No. of Observations		3,745			

Dependent variable: ΔNI_{it} represents the variation in income of bank i from semester t-1 to semester t. weighted by total assets at the beginning of semester t.

Variables: $D\Delta NI_{it-1}$ is a dummy variable that takes on the value 1 if $\Delta NI_{it-1} < 0$ and the value 0 otherwise; ΔNI_{it-1} variation in income of bank i from semester t-2 to semester t-1. weighted by total assets at the beginning of semester t-1; $\Delta NI_{it-1} * D\Delta NI_{it-1}$ is a interaction variable that detects the effects of previous negative income variations; DPR is a dummy variable that takes a value of 1 for unlisted banks and a value of 0 for listed banks; $DPR * D\Delta NI_{it-1}$ represents the impact on the intercept of the model; $DPR * \Delta NI_{it-1}$ is a interaction variable that detects the effect of previous positive income variations for unlisted banks; $DPR * D\Delta NI_{it-1} * \Delta NI_{it-1}$ is a discriminatory variable for the values relating to previous negative income variations for unlisted banks.

Estimation method: System GMM.

***, ** and * denote significance at 1%, 5% and 10%, respectively.

4 Conclusions

This study examined conditional conservatism in the earnings of banks that operate in the Brazilian market, from a sample of state-owned and private banks during the period from June 1997 to June 2007. The reversal-based model of temporary components of income proposed by Basu (1997) was used to identify conditional conservatism. The results indicate that the earnings of banks, considering the sample as a whole, show evidence of conditional conservatism, as expressed by the timelier recognition of economic losses in relation to gains. These results are similar both for net income and operating income, which indicates there are no differences between them in relation to the practice of conditional conservatism on the part of managers.

However, when studying the state-owned and private banks in separate samples, there is evidence that earnings of state-owned banks are more conservative than those of private banks, as expected. In this way, the earnings of state-owned banks reflect economic losses more timely than economic gains, a characteristic not observed in the private banks.

Table 15. Equation 3 for listed and unlisted banks

$ACC_{it} = \beta_0 + \beta_1 DCFO_{it} + \beta_2 CFO_{it} + \beta_3 DCFO_{it} * CFO_{it} + \beta_4 DPR_i + + \beta_5 DPR_i * DCFO_{it} + \beta_6 DPR_i * CFO_{it} + \beta_7 DPR_i * DCFO_{it} * CFO_{it} + \varepsilon_{it}$			
		Coefficient	**P-value**
Intercept` (β_0)	?	0.006***	(0.005)
$DCFO_{it}$ (β_1)	?	-0.016***	(0.003)
CFO_{it} (β_2)	-	-0.111***	(0.009)
$DCFO_{it} * CFO_{it}$ (β_3)	+	-0.001	(0.890)
DPR_i (β_4)	?	0.002	(0.377)
$DPR_i * DCFO_{it}$ (β_5)	?	0.015***	(0.006)
$DPR_i * CFO_{it}$ (β_6)	?	0.111***	(0.009)
$DPR_i * DCFO_{it} * CFO_{it}$ (β_7)	0	0.001	(0.756)
$\beta_2 + \beta_3$		-0.112	
$\beta_2 + \beta_6$		0.000	
$\beta_2 + \beta_3 + \beta_6 + \beta_7$		0.000	
Wald Statistic		24.49	
Nº Observations		3,745	

Dependent variable: ACC_{it} represents accruals of bank i in the semester t, standardized by beginning total assets. Accruals are defined as earnings before exceptional items and extra-ordinary items minus cash from operations.
Variables: CFO_{it} is cash from operations of bank i in the semester t, standardized by beginning total assets; $DCFO_{it}$ is a dummy variable that takes on the value 1 if $CFO_{it} < 0$ and the value 0 otherwise; $DCFO_{it} * CFO_{it}$ is an interaction variable for negative operating cash flows at semester t; DPR_i is a dummy variable that takes a value of 1 for unlisted banks and a value of 0 for listed banks; $DPR_i * DCFO_{it}$ is an interaction of unlisted banks with negative operating cash flows; $DPR_i * CFO_{it}$ is an interaction of unlisted banks with operating cash flows; $DPR_i * DCFO_{it} * CFO_{it}$ is an interaction between unlisted banks with negative operating cash flows and operating cash flows.
Estimation method: System GMM.
*** and ** denote significance at 1% and 5% , respectively.

We interpret the conditional conservatism in the earnings of state-owned banks as deriving from the greater legal exposure of their managers. Since state-owned banks operate as agents of government policies, their managers make decisions about the allocation of governmental resources in operations that are regulated and monitored by government control bodies. To reduce their exposure to penalization by these bodies, managers of state-owned banks seem to be more conservative in the valuation of profits than the managers of private banks. Such regulation and enforcement power by government bodies are so intensive that this leads to a reversion in the trend of the Brazilian institutional environment that does not require the attribute of conservatism as a sign of informational quality in earnings. It is important to say that the absence of signs of conservatism in the earnings of banks as a whole reflects the absence of market demands for informationally efficient accounting numbers. Finally, this greater conservatism of state-owned banks is observed even after controlling for variables that capture unconditional conservatism and income smoothing. Both these attributes are also stronger in state-owned than in private banks.

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