

Accounting conservatism and the cost of bank credit in Brazil

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ABSTRACT

This study investigates whether the adoption of conservative accounting practices leads to a reduction of the cost of bank credit for Brazilian companies. The study is based on a sample of 1,300 firms and 813 thousand loan contracts, in the period from 2000 to 2009. We used models that associated the cost of credit to measures of conservatisms and a set of control variables. We did not obtain any statistically significant evidence of a relationship between the conservatism measures and the interest rates charged on bank loans, confirming the research hypothesis. The Brazilian institutional environment of weak legal protection of creditors and the low demand for good-quality accounting information restrict the benefits generated by conservatism and cause lenders not to stimulate the adoption of conservative practices by companies, by lowering their interest rates. Since companies do not perceive benefits associated with reporting conservative numbers, the use this practice is restricted in Brazil.

Keywords: Accounting; conservatism; bank credit; cost of capital.

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1 INTRODUCTION

Creditors are important users of the information generated by accountability, since the accounting statements subsidize the assessment of the borrowers' payment capacity and the decision on the granting of credit. The reports are also used to monitor the companies' risk during the validity of the credit operations, aiming the identification of the deterioration signs in their financial situation. If the creditors notice quickly the elevation in the borrower risk, they can take steps to exert their contractual rights and protect the applied capitals. The agility in the risk increase identification is a determining factor for the creditor result, since in many situations, it is possible to renegotiate the contractual operation terms and aggregate new guarantees, decreasing or even removing the losses.

The need of timely information on events affecting unfavorably the payment capacity of the borrowers makes the creditors to demand from the companies the timely acknowledgment of losses in the accounting statements, even if such losses have not been paid-in. To that effect, the creditors want the companies to take conservative accounting practices.

The empirical surveys investigate the conservatism in the situations in which the companies recognize gains and losses not paid-in in the accounting statements. When the company faces unfavorable events, the estimated losses are timely acknowledged, but when favorable events are seen, the expected gains are only recorded when they are effectively paid-in. This practice, known as conditional conservatism, results from the highest requirement degree of the company to recognize gains than losses not paid-in in the accounting statements. Watts (2003a, 2003b) characterizes conservatism as the differential in the checkability required by the company for acknowledging gains regarding losses.

The use of conservative practices accelerates the violation of the covenants and allows the creditors to exert their rights in a quicker form, increasing the contractual operation efficiency (BALL *et al*, 2008). The timely acknowledgment of losses also decreases the informational asymmetry between creditors and borrowers, because it makes the economic shocks affecting negatively the payment capacity of a company to be reflected immediately on the accounting statements. According to Wittenberg-Moerman (2008), the timely acknowledgment of losses makes the changes in the borrowers' credit quality be quickly disclosed, which increases the transparency of the operation and allows that the monitoring is made more efficiently.

The decrease in informational asymmetry decreases the possibility of agency conflicts resulting from opportunist behaviors of the managers and of the owners. Those agents control the company's cash flows and may take decisions guided to their own interests, expropriating the creditors' wealth. Postponing the acknowledgment of losses, the current profits are higher, which allows increasing the distribution of dividends and of compensation schemes, at the expense of the creditors' wealth. Additionally, the conservatism leads to the sub-evaluation of the company assets, which are used to satisfy the creditors' rights in an eventual liquidation of the corporation. Sunder *et al* (2009) consider that the sub-evaluation decreases the uncertainty of the creditors regarding the amount of the company assets and increases its value as credits guarantee.

The benefits generated by the conditional conservatism may lead the creditors to create incentives to motivate the companies to use such practices, by decreasing the interest rates in the operations. Studies performed in countries with developed economies have achieved evidences that the use of conservative practices decreases the credit cost, like the example of the studies of Ahmed *et al* (2002), Bauwhede (2007), Jieying Zhang (2008), Jingjing Zhang (2008), Fredriksson (2008) and Sunder *et al* (2009).

This survey investigates if the conditional conservatism affects the bank credit cost of the companies in Brazil. The paper examines the possible existence of incentives by the banks so that the credit borrowing companies take conservative practices, timely acknowledging the not paid-in losses and denying the acknowledgment of the not paid-in profits.

The formulated assumption is that the companies using conservative practices do not achieve bank credit at lower costs. Even though the theoretical forecasts and of the international evidences showing that the conservatism leads to the decrease in the credit cost, the Brazilian institutional environment does not encourage the accounting information quality, which implies decreased levels of conservatism. Besides, the low legal protection level of the creditors impacts the efficiency of the credit contracts, which decreases the creditors' interest on such practices.

The study was made from an unheard-of bass consolidating accounting data of 1,300 companies from 2000 to 2008, and data from approximately 813 thousand bank credit contracts signed by those companies from 2005 to 2009. With the specification of econometric models associating the credit cost to conservatism measures and to different

control variables, evidences that the use of conservative practices leads to the decrease in the credit cost were not obtained, confirming the assumption of research.

Even though conservatism is not a recent practice, the factors that have motivated it and its economic consequences are still much debated. In Brazil, several surveys have examined aspects that explain the companies' conservatism level, as participation in the capital market, corporate governance and regulation. However, the conservatism effect in the credit market had not yet been investigated in a deep form, in spite of the relevance of that segment in the financing of the companies' activities.

This survey contributes to close a gap in literature, which is the discussion of the effect of the accounting practices in the credit market. Under the vision of the companies, the study helps the understanding of the factors determining the capital cost, so that the actions may be taken aiming the maximization of their economic value, also regarding the accounting practices. For the regulators and elaborators of accounting practices, the survey brings evidences about the economic consequences of the accounting choices of the companies, which may subsidize future decisions of those agencies.

The study brings some innovations regarding the methodological procedures. The utilization of the Banco Central Credit Information System (SCR) data allowed a higher accuracy in the calculation of the bank credit cost and a higher control of other factors that affect that cost. Regarding the econometric treatment, the study contributes to the discussion of the endogeneity problem in the regressors. The parameters of the used model are estimated by the Systemic GMM method, enabling the treatment of endogeneity even if there are no strictly exogenous instruments available.

Besides this section, the article has other four sections. Section 2 develops the assumption and exposes its grounds. Section 3 presents the employed research method. Section 4 presents and discusses the results, and section 5 is reserved to the conclusions and final considerations.

2 ASSUMPTION DEVELOPMENT

The Brazilian institutional environment is not favorable to the informational quality of the accounting statements. The private entities have traditionally had little influence on the preparation of the accounting rules in Brazil, which are strongly influenced by the tributary legislation and by all the other regulating agencies. As a result, the accounting statements do not contain sufficient qualitative attributes for their employment as a subsidy to the

contractual relations between the company and the external resources suppliers. A corollary of this scenario is the decreased level of conservatism of the accounting statements. A study made by Li (2009) in 31 countries, from 1991 to 2006 has shown that Brazil is among the less conservative nations, exceeding only the Philippines, India and South Africa.

The bank credit market is little developed in Brazil, due to the decreased offer of long-term resources for the companies and to the high interest rates of the operations. The companies' demands for investment resources are almost exclusively supplied by Banco Nacional de Desenvolvimento Econômico e Social (BNDES). Besides, the general credit offer is small in Brazil, comparatively to the countries with developed economies. According to data of the International Monetary Fund (IMF) the credits to the private sector, from 2000 to 2008 in Brazil have represented, in average, 41% of the GDP, against 141% in the G-10 countries.

The main factor that may lead the creditors to demand conservatism is the highest efficiency of the credit contracts. When the company anticipates the acknowledgment of losses in the accounting statements, there is a quicker violation of the covenants, allowing the creditors to take measures to protect their capitals. However, the contractual efficiency is linked to the conditions in which the creditor has access to the company assets in case of non-payment of the credits. If the creditor does not have access to the assets in conditions allowing the recovery of the capitals, the timely identification of the risk increase may not improve its position. Thus, the levels in which the creditors' rights are protected by the legal system and by the judiciary system of the country is a determining factor to explain the interest of those agents in conservatism.

The Brazilian judicial system has its origin in the roman tradition of the Code Law, in which the main source of law is the law. La Porta *et al* (1997, 1998) have evidenced that the legal enforcement and the protection level given by the law to the creditors are smaller in the countries of judicial origin in the Code Law, than in the Common Law countries. The writers have noticed that Brazil, specifically, is among the countries with smaller legal protection to the creditors. The rate that measures the creditors' rights attributed by the writers to Brazil is one, in a scale of zero (smaller protection) to four (higher protection).

It is pointed out that the writers' studies were made before the restructuring of the Brazilian bankruptcy legislation, completed in 2005 with the Law of Bankruptcy and Recovery of Companies (Law no. 11101). The restructuring inserted several changes in the

bankruptcy proceeding, benefiting the creditors in many aspects, especially by the change in the order of classification of the credits in case of bankruptcy. The creditors with real guarantee started to have priority regarding the tax authorities, which did not happen in the previous standard. In spite of the benefits, Araújo and Funchal (2009) state that the new law does not preserve the priority of the creditors on the assets given in guarantee. The Brazilian standard is different from the international prevailing practice, because it predicts that the assets should remain with the debtor in case of company bankruptcy, instead of being immediately transferred to the creditors.

Another aspect that weakens the creditors' protection is the judicial system inefficiency. Pinheiro and Cabral (1998) point several factors revealing the inefficiency of the Judicial System, such as the morosity and the high procedural costs. Anderson (1999) points out that the institutions in Brazil are primitive and insufficiently developed to protect the contractual parties. Those conditions make the creditors face difficulties to recover the borrowed capitals in case of the company insolvency, impacting the contracts efficiency.

The theoretical forecasts and the international empirical evidences suggest that the use of conservative practices by the companies leads to the decrease in the bank credit cost. However, the Brazilian institutional environment of low accounting information quality and weak legal protection of the creditors does not generate incentives for the credit suppliers to encourage the use of conservative practices by the companies, by decreasing the interest rates in the credit operations. Thus, it is expected that the most conservative companies in Brazil do not achieve bank credit at lower costs.

3 RESEARCH METHOD

3.1 Empiric model

A linear regression model was specified to examine the research assumption, considering the bank credit cost as a function of the conservatism and of a set of control variables:

$$K_{i,t} = \alpha_{i,t} + \beta Cons_{i,t} + \delta'x_{i,t} + \psi_t + \varepsilon_{i,t} \quad (1)$$

Where $K_{i,t}$ is the bank credit cost; $Cons_{i,t}$ is a conservatism measure; $x_{i,t}$ is a vector of control variables; ψ_t are time dummies and $\varepsilon_{i,t}$ is the error term.

The parameter β captures the impact of conservatism on the bank credit cost of the companies, once all the other factors affecting that cost are controlled. This coefficient allows

the research assumption to be rejected or not. The assumption that conservatism does not impact the bank credit cost of the companies is equivalent, statistically speaking, to $\beta = 0$.

3.2 Sample and data

The study investigates a sample of 1,300 credit borrowing companies, involving both open capital companies and closed capital companies. Since the open companies also capture resources in the share market, their accounting statements are influenced by the demand of the investors and of the creditors, which can make the research problem exam harder. In order to avoid that bias, open capital companies and closed capital companies were investigated.

The accounting data were obtained from the bases of *Fundação Instituto de Pesquisas Contábeis, Atuariais e Financeiras* (FIPECAFI) and of *Comissão de Valores Mobiliários* (CVM). FIPECAFI's bank contains data of the largest companies in the country that have published their accounting statements and are used for the production of the yearbook *Exame – Melhores e Maiores*. The CVM bank in its turn, contains data of the open capital companies.

The data of the credit operations was extracted from the *Sistema de Informações de Crédito do Banco Central* (SCR). Instituted in 1997 the SCR contains data of the credit operations granted by the financial institutions to natural persons and legal entities. The data of all credit operations contracted by the sample companies from 2005 to 2009 were used. Due to specific pricing criteria, the operations granted or acquired from other banks were not taken into account, as well as those renegotiated or recovered of loss, the co-obligations, the sureties and the guarantees. The data were extracted from the SCR in an encrypted form, without identification of the companies and of the financial institutions.

Table 1 shows the number of operations and the total value of reviewed credits. It is an expressive volume of operations, exceeding 813 thousand contracts and R\$ 431 billion, borrowed by the companies in 150 banks.

Table 1 – Sample composition per number and value of the operations

Year	No. of operations	%	Amount (R\$ thousand)	%
2005	181,465	22.3%	66.979.958	15.5%
2006	166,606	20.5%	76.771.061	17.8%
2007	183,467	22.5%	87.704.876	20.3%
2008	163,798	20.1%	111.954.297	25.9%
2009	118,462	14.6%	88.453.860	20.5%
Total	813,798	100.0%	431.864.052	100.0%

3.3 Analysis windows

Five moving windows were used for applying the model, as used by Francis *et al* (2004). Each window includes five consecutive years from 2000 to 2008. The conservatism was measured in each window, and the credit cost was calculated in each year subsequent to the windows, from 2005 to 2009. For example, the first analysis window involves the period from 2000 to 2004 and the respective credit cost calculated in the year 2005.

3.4 Bank credit cost

Generally the surveys calculate the capital cost of third parties of the companies by means of the ratio between financial expenses and financial liabilities. However, there are situations in which this method may lead to inaccurate estimates, such as: (i) amount accounted for as financial expenses that are not related to the debts, such as interests paid to suppliers and discounts granted to clients; (ii) financial charges on funding of the fixed assets incurred during the asset construction, accounted for in the asset; and (iii) expressive variations in the indebtedness level during the year, forcing the utilization of average values. Due to that, the bank credit cost was calculated based on the data of the credit operations contracted by the companies. Such data allow the effective credit cost analysis, considering interest and financial charges collected by the banks.

The bank credit cost was calculated regarding the operations contracted in each year and not regarding the stock of debts. This method allows the more stringent investigation of the conservatism effect, because the impact of the passed funding decisions is controlled. The cost calculation was made in two ways: one considers all credit operations contracted by the company (free and directed resources) and the other considers only the operations with free resources. The operations with free resources, of higher concern for the survey, are those the interest rates of which are freely convened between the bank and the borrower. The operations with directed resources, in their turn, have the interest rates and all the other conditions set in governmental rules or programs, generally intended to the agricultural business, housing and infrastructure sectors.

The credit cost is given by the average of the total financial charges of the operations in each month, weighted by the respective monthly balances. The financial charges involve the preset interest rate, the indexer variation (in the case of preset operations, floating or price indexes) and the exchange variation (in the case of the operations in foreign currency).

$$K_{i,t} = \frac{\sum_{j=1}^r \sum_{m=1}^n \text{Saldo}_{j,t,m} (1 + \text{Taxa}_{j,t}) (1 + \text{Index}_{p,t,m}) (1 + \text{Camb}_{v,t,m})}{\sum_{j=1}^r \sum_{m=1}^n \text{Saldo}_{j,t,m}} \quad (2)$$

In which j corresponds to the credit operation, r to the number of operations, m to the month, n to the number of operation months, p to the indexer and v to the currency; $K_{i,t}$ is the credit cost, $\text{Saldo}_{j,t,m}$ is the monthly operation balance, $\text{Taxa}_{j,t}$ is the preset interest rate, $\text{Index}_{p,t,m}$ is the indexer variation and $\text{Camb}_{v,t,m}$ is the currency variation.

3.5 Conservatism measures

In order to decrease the mensuration and increasing the results reliability, five conservatism measures are used. The refusal or non-refusal of the research assumption shall weight more in case all metrics produce the same result. Discussions about the advantages and the limitations of the measures can be obtained in Ryan (2006) and Givoly et al (2007). Since the sample includes closed capital companies, metrics based on the share market were not used, such as the association model between profits and returns of Basu (1997) and the market-to-book rate (FELTHAM; OHLSON, 1995). Next, the five used conservatism measures are presented:

a) Persistence and transitoriness of the profits: the first measure is the coefficient β_1 of the profit transitory components model of Basu (1997). The companies facing bad news are more prone to acknowledge losses in their outcomes in a timely manner, than those facing good news acknowledge the profits (BASU, 1997). The acknowledgment of the profits is granted until the cash flows are performed in the subsequent periods, which makes them a persistent component in the temporal series of profits. As to the timely acknowledgment of the losses, it makes them to impact only the contemporary outcome, which makes them a transitory component in the series. The model measures persistence and transitoriness by segregating the positive variations from the negative variations in the series of profits of the company. Coefficient β_1 negative reveals the reversal of the losses in the series, showing the presence of the conservatism.

$$\Delta X_{i,t} = \alpha_0 + \alpha_1 D + \beta_0 \Delta X_{i,t-1} + \beta_1 D \Delta X_{i,t-1} + \varepsilon_{i,t} \quad (3)$$

In which $\Delta X_{i,t}$ and $\Delta X_{i,t-1}$ are the variations in the profits sized by the assets value, D is a dummy variable assuming value 1, if $\Delta X_{i,t-1}$ is negative, and value 0, if otherwise and $\varepsilon_{i,t}$ is the error term.

b) Accounting accruals and operating flow cashes: the second measure is the coefficient β_3 of the accounting accruals model of Ball e Shivakumar (2005). According to the writers, the timely acknowledgment of the economic losses and gains in the profits causes a positive and asymmetric correlation between the accounting accruals and the contemporary flow cashes, mitigating the negative correlation predicted by Dechow *et al* (2008). In the event of conservatism, the losses acknowledged by the competence regime shall be more likely in the periods in which the operating flow cashes are negative. Therefore, the accounting accruals shall be more related to the negative cash flows than the positive ones, which makes the model coefficient β_3 .

$$AC_{i,t} = \beta_0 + \beta_1 DCFO_{i,t} + \beta_2 CFO_{i,t} + \beta_3 DCFO_{i,t} CFO_{i,t} + \varepsilon_{i,t} \quad (4)$$

In which $AC_{i,t}$ are the accounting accruals, $CFO_{i,t}$ is the operating cash flow, $DCFO_{i,t}$ is a dummy variable assuming value 1, if $CFO_{i,t} < 0$, and value 0, otherwise and $\varepsilon_{i,t}$ is the error term. The accounting accruals and the operating cash flow are sized by the assets value.

The accounting accruals (AC) and the operating cash flow (FCO) were calculated according to the expressions (5) and (6):

$$AC_{i,t} = \Delta Est_{i,t} + \Delta Cli_{i,t} + \Delta OAC_{i,t} - \Delta For_{i,t} - \Delta OPC_{i,t} - Dep_{i,t} \quad (5)$$

In which $\Delta Est_{i,t}$ is the inventories variation, $\Delta Cli_{i,t}$ is the variation in the clients' account, $\Delta OAC_{i,t}$ is the variation in other circulating assets, $\Delta For_{i,t}$ is the variation in the suppliers' account, $\Delta OPC_{i,t}$ is the variation in other circulating liabilities and $Dep_{i,t}$ is the depreciation.

$$FCO_{i,t} = LL_{i,t} + Dep_{i,t} - RBI_{i,t} - REP_{i,t} + DFLP_{i,t} - RFLP_{i,t} - RNO_{i,t} - \Delta ACO_{i,t} + \Delta PCO_{i,t} \quad (6)$$

In which $LL_{i,t}$ is the net profit, $Dep_{i,t}$ is the depreciation, $RBI_{i,t}$ is the result of the writing-down in the fixed assets, $REP_{i,t}$ is the result of the equity, $DFLP_{i,t}$ are the long-term financial expenses, $RFLP_{i,t}$ are the long term financial proceeds, $RNO_{i,t}$ is the non-operating result, $\Delta ACO_{i,t}$ are the variations in the operating current assets, and $\Delta PCO_{i,t}$ are the variations in the operating current liabilities.

It should be pointed out that the models (3) and (4) were applied to the data of the companies grouped by economic sector, in each analysis window, according to the procedure

used by Wittenberg-Moerman (2008). Next, the conservatism measures obtained in each sector were attributed to the respective companies.

c) Non-operating accounting accruals: the third measure is the non-operating accounting accruals suggested by Givoly and Hayn (2000). For those writers, the operating accounting accruals tend to be reverted with the time, since the periods in which the profit is higher (lower) than the cash flow in general are followed by periods with negative (positive) accounting accruals. Thus consistently negative accounting accruals are an indication of conservatism. The non-operating accounting accruals of the company are sized by the value of the assets and totalized in the five years of each analysis window.

$$Cons_{i,j} = \sum_{t=1}^5 ACNO_{i,t} / Ativo_{i,t} \quad (7)$$

Where j corresponds to the analysis window and t to the year in each window, $Cons_{i,j}$ is the conservatism measure, $ACNO_{i,t}$ are the non-operating accounting accruals and $Ativo_{i,t}$ is the total asset.

The non-operating accounting accruals (ACNO) are calculated by the difference between the total accounting and the operating accruals:

$$ACNO_{i,t} = (LL_{i,t} + Dep_{i,t} - FCO_{i,t}) - (\Delta Cli_{i,t} + \Delta Est_{i,t} + \Delta OACO_{i,t} - \Delta For_{i,t} - \Delta OPCO_{i,t}) \quad (8)$$

Where $LL_{i,t}$ is the net profit, $Dep_{i,t}$ is the depreciation, $FCO_{i,t}$ is the operating flow, $\Delta Cli_{i,t}$ is the variation in clients, $\Delta Est_{i,t}$ is the variation in the inventories, $\Delta OACO_{i,t}$ is the variation in other operating current assets, $\Delta For_{i,t}$ is the variation in the suppliers' account and $\Delta OPCO_{i,t}$ is the variation in other operating current liabilities.

d) Asymmetry in the distribution of profits: the fourth measure is the difference between the asymmetries of the profits and cash flows distributions, as proposed by Givoly and Hayn (2000). The timeliest acknowledgment of the not paid-in losses makes the distribution of the profits more negatively asymmetric than that of the cash flows. Thus, negative differences between the asymmetries of the distributions of profits and of cash flows are used to measure conservatism. Negative differences indicate the presence of conservative practices.

$$Cons_{i,j} = AssLL_{i,j} - AssFCO_{ij} \quad (9)$$

Where j corresponds to the analysis window, $Cons_{i,j}$ is the conservatism measure, $AssLL_{i,j}$ is the asymmetry of the net profit distribution and $AssFCO_{i,j}$ is asymmetry of the operating cash flow distribution.

e) Average rank: the fifth measure aggregates the four previous magnitudes, in order to decrease the noises produced by the individual measures, as used by Beatty *et al* (2008) and Sunder *et al* (2009). The four measures were ordained and ranked by company in each window, and next, the average of the infidel measures ranks was calculated.

$$Cons_{i,j} = \frac{1}{4} \sum_{k=1}^4 RCons_{i,j}^k \quad (10)$$

Where j corresponds to the analysis window and k to the individual conservatism measure ($k = 1, \dots, 4$), $Cons_{i,j}$ is the aggregated conservatism measure and $Cons_{i,j}^k$ are the ranks of the individual conservatism measures.

Three measures were multiplied by less one (-1) so that all metrics had a positive theoretical relationship with the conservatism: persistence and transitoriness of the profits, non-operating accounting accruals, and asymmetry in the distribution of profits.

3.6 Control variables

Control variables were included in the model to set other factors influencing the companies' credit cost, so that the conservatism effect can be separately investigated. Besides the already used variables, measures capturing the actuation profile of the companies in the credit market were included. Next, the control variables are presented, as well as their justifications and operating definitions. The expected theoretical relationship signal is mentioned in parenthesis.

a) Company size (-): big companies have a higher negotiation power with the banks and access to the credit market in differentiated conditions. The company size was measured by means of the natural logarithm of its assets' value.

b) Profitability (-): higher generation of the operating result by the company increases its capacity to honor the assumed obligations. The profitability was expressed as follows:

$$ROA_{i,t} = \frac{LOP_{i,t}}{Ativo_{i,t}} \quad (11)$$

Where $ROA_{i,t}$ is the return on the asset, $LOP_{i,t}$ is the operating profit and $Ativo_{i,t}$ is the total asset.

c) Indebtedness (+): indebtedness presses the company flow cash, and therefore, companies with high debts have more difficulty in honoring their obligations. The indebtedness was calculated as follows:

$$Endiv_{i,t} = \frac{PassFinCP_{i,t} + PassFinLP_{i,t}}{Ativo_{i,t}} \quad (12)$$

Where $Endiv_{i,t}$ is the financial indebtedness, $PassFinCP_{i,t}$ are the short-term financial liabilities, $PassFinLP_{i,t}$ are the long-term financial liabilities and $Ativo_{i,t}$ is the total asset.

d) Operating cash flow (-): companies with a high generation of operating cash have a higher capacity to pay the borrowed credits. The operating cash flow was calculated by means of the equation (6) and sized by the value of the company assets.

e) Risk (-): the banks include a premium that is proportional to the expectancy of the borrower default in the operations' interest rates. Resolution CMN no. 2.682/99 determines that the banks classify the credit operations according to a nine-level scale (AA, A, ..., H) and that constitute provisions to withstand likely losses with the operations, complying with the following minimum percentages: 0,5% (A), 1% (B), 3% (C), 10% (D), 30% (E), 50% (F), 70% (G) and 100% (H). The risk classifications were associated to the percentages of minimum provision of the standard, and the company risk measure is given by the average of the minimum provisions of their credit operations in SFN, weighted by the respective balances:

$$Risco_{i,t} = \frac{\sum_{j=1}^r \sum_{m=1}^n Prov_{j,t,m} Saldo_{j,t,m}}{\sum_{j=1}^r \sum_{m=1}^n Saldo_{j,t,m}} \quad (13)$$

Where j corresponds to the credit operation, r to the number of operations, m to the month and n to the number of the operation months, $Prov_{j,t,m}$ is the minimum statutory provision associated to each risk classification and $Saldo_{j,t,m}$ is the credit operation balance.

f) Open capital company (-): open capital companies can borrow resources in the capital market, besides the credit market, and are more inspected and monitored, which

contributes to the decrease of the informational asymmetry. A binary variable assuming value 1 was used, in case it is an open capital company, and value 0, if otherwise.

g) Corporate governance (-): companies with good practices of corporate governance decrease the interest conflicts with the creditors. A binary variable assuming value 1 was used, in case the company has adhered to the New Market or to the Differentiated Levels of Corporate Governance of BM&FBOVESPA and value 0, if otherwise.

h) American Depositary Receipt (-): companies listed in more liquid markets expand their financing base and are subject to more strict corporate governance rules, which may provide more favorable credit conditions. A binary variable assuming value 1 was used, in case the company has issued ADRs and value 0, if otherwise.

i) Term of the operations (+): it is more difficult for the creditor to evaluate the payment capacity of the borrower in far future periods. The average term of the company's credit operations was used, weighted by their balance:

$$Prazo\ Médio_{i,t} = \frac{\sum_{j=1}^r \sum_{m=1}^n Prazo_{j,t,m} Saldo_{j,t,m}}{\sum_{j=1}^r \sum_{m=1}^n Saldo_{j,t,m}} \quad (14)$$

Where j corresponds to the credit operation, r to the number of operations, m to the month and n to the number of operation months in the year, $Prazo\ Médio_{i,t}$ is the average term of the credit operations, $Prazo_{j,t,m}$ is the term in credit operation days and $Saldo_{j,t,m}$ is the credit operation balance.

j) Number of banks (-): the fund raising in several banks encourages the competition among the institutions and decreases the risk of interruption in the credit supply. The used variable to measure this factor is the number of company's creditor banks in each year.

k) Origin of the banks' capital (-): the companies borrowing funds in state banks may access credit in differentiated conditions, given the actuation profile of those institutions. A binary variable assuming value 1 was used, in case the company operates with state banks, and value 0, if otherwise.

l) Size of the banks (?): the major banks have economies of scale due to their volume of businesses, but they also have a higher market power. Those arguments make the relationship with the credit cost uncertain, *a priori*. The size was expressed by the natural logarithm of the average value of the assets of the banks in which the company borrowed credits in each year.

m) Specialization of the banks (-): the banks with actuation directed towards the credit area develop more competence to evaluate the borrowers' risk. The specialization is expressed by the average of the proportion of the assets of the banks applied in the credit portfolio.

n) Year dummies (?): macroeconomic factors may impact the credit cost, as variables in the basic interest rates and in the exchange rates. Binary values of year were included in the model, to control factors affecting temporarily the group of companies.

3.7 Econometric procedures

The model was applied to a set of data formed by 1,300 companies observed during 5 years. In the accounting area researches involving data in panel, the models parameters, are in general estimated based on the method of the Ordinary Least Squares (OSL) or on approaches of Fixed Effects (FE) and of Random Effects (RE). In order for those coefficients to be consistent, the non-correlation of the error term of the model with the explanatory variables is necessary (exogeneity condition).

In that survey, the exogeneity condition was examined applying the test suggested by Wooldridge (2002, p. 285). The results have evidenced that the model regressors are strictly exogenous. One of the possible explanations for those results is the simultaneity of the variable response (credit cost) with some regressors, like the operation term. Due to that, the Systemic GMM method proposed by Arellano and Bover (1995) and Blundell and Bond (1998) was preferred for estimating the model parameters, since that method allows to deal with the endogeneity problem even if strictly exogenous instruments are not available.

Besides the exogeneity exam, other procedures were used to check the adequacy of the used estimation method, especially the unitary root tests, the over-identification restrictions test of Hansen/Sargan (J), the first and second order self-correlation tests (m_1 and m_2) and the statistics difference test of Hansen/Sargan ($J_1 - J_2$). The results of the tests (not reported) have shown the adequacy of the data used in the research to the grounds assumed by the Systemic GMM.

4 RESULTS

Table 2 shows the model results for the total credit cost. The five conservatism measures do not show statistically significant coefficients. The control variable with significant coefficients are company size, indebtedness, risk, number of banks, origin of the banks capital and banks specialization (at the level of 1%), profitability (5%) and operations term (10%).

Table 2 – Conservatism and total credit cost

	Basu (1)	Ball and Shivakumar (2)	Accounting Accruals (3)	Asymmetry (4)	Rank (5)
Conservatism	-0.0066 (-1.63)	0.0040 (0.87)	0.0067 (0.88)	-0.0015 (-1.28)	0.0000 (0.08)
Company size	-0.0119*** (-4.13)	-0.0124*** (-4.23)	-0.0122*** (-4.22)	-0.0124*** (-4.22)	-0.0123*** (-4.20)
Profitability	-0.0451** (-2.17)	-0.0445** (-2.13)	-0.0463** (-2.22)	-0.0466** (-2.20)	-0.0450** (-2.15)
Indebtedness	0.0416*** (4.93)	0.0421*** (4.94)	0.0383*** (4.29)	0.0425*** (4.96)	0.0418*** (4.74)
Operating cash flow	-0.0113 (-1.08)	-0.0121 (-1.15)	-0.0131 (-1.22)	-0.0107 (-1.01)	-0.0119 (-1.12)
Risk	0.0782*** (3.61)	0.0782*** (3.60)	0.0769*** (3.53)	0.0784*** (3.61)	0.0785*** (3.61)
Open capital company	0.0004 (0.07)	0.0002 (0.03)	-0.0004 (-0.07)	0.0002 (0.04)	0.0001 (0.02)
Corporate governance	0.0080 (0.62)	0.0084 (0.64)	0.0091 (0.70)	0.0080 (0.61)	0.0084 (0.64)
ADR	-0.0018 (-0.13)	-0.0009 (-0.07)	-0.0013 (-0.10)	-0.0002 (-0.02)	-0.0011 (-0.08)
Term of the operations	0.0318* (1.78)	0.0330* (1.84)	0.0332* (1.84)	0.0338* (1.85)	0.0331* (1.83)
Number of banks	-0.0123*** (-2.87)	-0.0124*** (-2.91)	-0.0128*** (-2.93)	-0.0127*** (-2.92)	-0.0125*** (-2.91)
Origin of the banks' capital	-0.0661*** (-5.06)	-0.0668*** (-5.09)	-0.0670*** (-5.08)	-0.0673*** (-5.06)	-0.0670*** (-5.05)
Banks' size	0.0044 (1.42)	0.0042 (1.36)	0.0042 (1.36)	0.0041 (1.30)	0.0042 (1.34)
Specialization of the banks	0.1228*** (3.15)	0.1223*** (3.12)	0.1220*** (3.10)	0.1212*** (3.05)	0.1219*** (3.10)
Remarks	4.363	4.363	4.363	4.363	4.363
Instruments	27	27	27	27	27

The transformations of first asynchronous difference and the phase shifts of the endogenous regressors indebtedness and term were used as instruments. It is assumed that all the other regressors are strictly exogenous. The statistic z is presented in brackets. *, ** and *** reveal the statistic significance in the 10%, 5% and 1% levels respectively.

Table 3 shows the model results for the credit cost with free resources. The five conservatism measures also do not present statistically significant relationship with the bank credit cost with free resources. The control variables with significant coefficients are company size, indebtedness, risk, number of banks, origin of the banks' capital and specialization of the banks (at the level of 1%), profitability and size of the banks (5%) and term of the operations (10%).

Table 3 – Conservatism and credit cost with free resources

	Basu (1)	Ball and Shivakumar (2)	Accounting Accruals (3)	Asymmetry (4)	Rank (5)
Conservatism	-0.0031 (-0.71)	0.0049 (1.03)	0.0030 (0.39)	-0.0012 (-0.96)	-0.0000 (-0.18)
Company size	-0.0131*** (-5.10)	-0.0133*** (-5.18)	-0.0133*** (-5.16)	-0.0134*** (-5.17)	-0.0133*** (-5.16)
Profitability	-0.0496** (-2.35)	-0.0489** (-2.32)	-0.0502** (-2.38)	-0.0508** (-2.38)	-0.0497** (-2.34)
Indebtedness	0.0271*** (3.24)	0.0273*** (3.26)	0.0256*** (2.86)	0.0277*** (3.29)	0.0277*** (3.19)
Operating cash flow	-0.0106 (-0.90)	-0.0113 (-0.95)	-0.0114 (-0.95)	-0.0099 (-0.83)	-0.0106 (-0.89)
Risk	0.0639*** (2.76)	0.0636*** (2.75)	0.0633*** (2.71)	0.0638*** (2.75)	0.0641*** (2.76)
Open capital company	0.0045 (0.66)	0.0045 (0.66)	0.0041 (0.60)	0.0045 (0.66)	0.0044 (0.65)
Corporate governance	0.0011 (0.09)	0.0013 (0.10)	0.0016 (0.13)	0.0010 (0.08)	0.0012 (0.09)
ADR	-0.0020 (-0.15)	-0.0016 (-0.12)	-0.0018 (-0.14)	-0.0010 (-0.08)	-0.0016 (-0.12)
Term of the operations	0.0336* (1.95)	0.0338** (1.97)	0.0341** (1.98)	0.0346** (1.99)	0.0343** (1.97)
Number of banks	-0.0209*** (-3.61)	-0.0208*** (-3.63)	-0.0211*** (-3.63)	-0.0212*** (-3.64)	-0.0211*** (-3.63)
Origin of the banks' capital	-0.0541*** (-3.39)	-0.0543*** (-3.40)	-0.0544*** (-3.41)	-0.0546*** (-3.41)	-0.0545*** (-3.40)
Banks' size	0.0065** (2.16)	0.0065** (2.16)	0.0065** (2.14)	0.0064** (2.09)	0.0064** (2.12)
Specialization of the banks	0.1336*** (3.60)	0.1340*** (3.63)	0.1334*** (3.59)	0.1127*** (3.56)	0.1333*** (3.58)
Remarks	4.045	4.045	4.045	4.045	4.045
Instruments	27	27	27	27	27

The transformations of first asynchronous difference and the phase shifts of the endogenous regressors indebtedness and term were used as instruments. It is assumed that all the other regressors are strictly exogenous. The statistic z is presented in brackets. *, ** and *** reveal the statistic significance in the 10%, 5% and 1% levels respectively.

The variables year dummies (not reported) have statistically significant coefficients in all regressions, showing the relevance of the factors affecting temporarily the credit cost of the group of companies. The variables capturing the companies' actuation in the credit market also have significant parameters, which confirm the prediction that the way the companies borrow funds in the bank market influences their credit cost. All control variables with significant coefficients present the expected theoretical relationship, except for specialization of the banks, which have positive coefficients.

Generally, the model parameters evidence that the companies' bank credit cost is not influenced by the conservatism level of their accounting transformations, other factors that

explain that cost being kept fixed. The coefficients of the five conservatism measures are not statistically significant in the 1%, 5% and 10% levels both in the regressions in which the variable dependent is the total bank credit cost and in those in which the analysis was restricted to the credit operations with free resources.

The results show that the companies using conservative accounting practices in Brazil do not incur in smaller interest rates in the credit operations, confirming the research assumption. Those evidences do not correspond to the theoretical forecasts that the creditors economically incentives the more conservative companies with the charging of smaller interest rates in the credit operations, in opposition to the increase in the efficiency of the credit contracts. The evidences in Brazil also contradict the results of the international empirical surveys.

The informational quality of the companies' accounting statements is low in Brazil. Besides, the creditors' rights are not properly protected by the legal system, which restricts the contractual efficiency gain generated by the timely acknowledgment of losses by the companies. Consequently, the creditors do not create incentives to motivate the use of conservative accounting practices by the companies, decreasing the interest rates of the credit operations. Since the companies do not perceive economic benefits associated to the statement of conservative numbers, the utilization of such practices is limited in Brazil, as noticed by Li (2009) and Ball *et al* (2008).

A factor that possibly contributes to those results is that the decrease in the informational asymmetry between creditors and borrowers may occur by means other than the accounting information. The banks have access to information additional to those reported in the accounting statements, such as sales projections, detailing of the clients portfolio and investment projects. That information is used for monitoring the company risk, decreasing the information asymmetry existing in the credit contracts.

5 CONCLUSIONS

The research investigated if the companies using conservative accounting practices in Brazil have access to the bank credit market funds in more favorable conditions as to the interest rates. The study was developed based on a linear regression model, the parameters of which allowed the accomplishment of interferences about the relationship between the conservatism and the bank credit cost. The model considered the credit cost as a function of the conservatism and of a set of control variables, capturing other elements that affect that cost, including characteristics of the company, of the operations and of the creditor banks, as

well as macroeconomic factors. The reviewed sample included 1,300 companies and 813 thousand credit contracts, which granted a certain coverage degree to the research.

The results achieved have confirmed the assumption that the use of conservative accounting practices does not lead to the decrease in the bank credit cost of the companies in Brazil. In spite of the theoretical forecasts and of the international evidences, the Brazilian institutional environment of low quality demand of accounting information and weak legal protection of the creditors restricts the benefits generated by the conservatism to the credit suppliers. Consequently, the creditors do not reward the companies reporting conservative numbers. Thus, it is concluded that the companies using conditional conservatism practices in Brazil do not benefit from the decrease in the bank credit cost.

The institutional perspective used in the interpretation of the results is based on the papers of Ball *et al* (2000) and Bushman and Piotroski (2006), who consider the legal and institutional structure of the country where the company is domiciled influences the accounting numbers characteristics, also as to the conservatism. The effect on the bank credit cost has allowed the evaluation of the economic consequences of the conservatism practice, pursuant to the Brazilian institutional characteristics.

The tests results have shown to be robust to several alternative specifications of the model and to different operating definitions of the variables. In the first place, the bank credit cost was calculated in two ways: one considers all debts and the other only the operations with free resources. Besides, in order to minimize measuring errors and increase the results reliability, five conservatism measures were tested. Finally, the control variables were expressed in different forms. All used specifications have led to the same result as to the studied phenomenon, that is, statistically significant relationships were not seen between the accounting conservatism and the bank credit cost, which suggest the consistency of the results.

The main contribution of this research is the investigation of the relationship between the accounting information and the bank credit market, a theme that is little explored in the academic environment. The surveys on conservatism in Brazil are dedicated to investigate the factors explaining such practice, but few papers measure the possible economic benefits that those accounting choices propitiate to the companies. To that effect, the evidences that the use of conservative accounting practices does not impact the bank credit cost contribute to explain the low level of accounting conservatism in Brazil.

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