Interactions between Corporate Governance, Bankruptcy Law and Firms' Debt Financing: the Brazilian Case

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ABSTRACT

This paper examines the relationship between corporate governance level and the bankruptcy law for such debt variables as firms' cost of debt and amount (and variation) of debt. Our empirical results are consistent with the model's prediction. First, we find that the better the corporate governance, the lower the cost of debt. Second, we find that better corporate governance arrangements relate to firms with higher amounts of debt. Finally we find that better governance and harsher bankruptcy laws have a positive effect on debt. Moreover, this effect is stronger for firms with worse corporate governance, which indicates that the law works as a substitute for governance practices to protect creditors' interests.

Key words: debt; cost of debt; corporate governance; bankruptcy.

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INTRODUCTION

This paper analyzes the impact of firm-level corporate governance arrangements and of an institutional shock - the new Brazilian bankruptcy law - on firms' balance sheet debt financing features. As a proxy for firm-level governance we use the newly developed Brazilian Corporate Governance Index [BCGI] (Lopes & Walker, 2007), which scores governance arrangements across four dimensions: disclosure; ownership structure; board composition; and shareholder rights[1]. The BCGI's four dimensions directly affect the level of effort by managers and as such can be used as a proxy for moral hazard resolution. This effect presumably reduces agency costs and consequently firms' cost of debt. Anderson, Mansi and Reeb (2004) find an inverse relation between the cost of debt and board independence and size. Bushman, Chen, Engel and Smith (2004) show that limited transparency of firms' operations to outside investors increases demands on governance systems to alleviate moral hazard problems. More recently, Kanagaretnam, Lobo and Whalen (2007) have shown that firms with higher levels of corporate governance have lower information asymmetry around quarterly earnings announcements. Our study adds to the previous literature by relating (theoretically and empirically) firm-level corporate governance arrangements and an exogenous shock - bankruptcy law reform - to the cost of debt and to the amount (and variation) of debt.

First we develop a model that connects the governance and the bankruptcy law to such debt variables as the cost of debt and firms' amount of debt. Through a set of propositions we show that: first, corporate governance has a negative impact on the cost of debt and a positive impact on the amount of debt; second, a harsher bankruptcy law also has a negative impact on the cost of debt and a positive impact on its amount; and, last but not least, the effect of bankruptcy law changes is stronger for firms with worse corporate governance standards.

We then approach the same problem empirically by regressing the debt variables on our measure of corporate governance and the bankruptcy reform dummy. To address this issue we use both public source balance-sheet microdata from Brazilian firms and a proprietary index for corporate governance (BCGI).

Our results show that: (i) the higher the corporate governance score on the BCGI, the lower the cost of debt; and (ii) the effect on changes in the amount of firms' debt considering the new Bankruptcy Law is less significant for firms with higher BCGI scores. Hence, we can say that stronger systems of corporate governance and bankruptcy procedures contribute to reducing the cost of debt and to increasing access to the credit market as well. Moreover, we can state that the reform of Brazil's bankruptcy law has had a stronger effect on firms with lower corporate governance levels. Our findings are consistent with our theoretical model.

The remainder of the paper is organized as follows: Section The Model discusses the theoretical model relating corporate governance and the bankruptcy law to the cost of debt and credit availability; Section The Brazilian Bankruptcy Reform discusses the reform of Brazil's bankruptcy law; Section Data presents our data set; Section Conclusions presents the empirical results and concludes.

THE MODEL

In this section we develop a model that describes how corporate governance and the bankruptcy law affect debt variables. To develop our model we assume the following:

Let e be the effort exerted by the manager. We assume that the effort e is a function of the level of corporate governance of the firm and the degree of punishment imposed by the bankruptcy law:

$$e(L, g) = aL + bg, \quad \text{where} \quad e_L > 0 \quad \text{and} \quad e_g > 0.$$

When we take effort into account, we can assume that the probability of success of the firm increases with the firm's governance level and the punishment of the bankruptcy law. In precise terms, we assume that $p(e(L, g))$ is differentiable, strictly increasing, and strictly concave in the governance level, g, that $p(e(\overline{L}, \overline{g})) < 1$, where $\overline{g}$ is the maximum level of governance as well $\overline{L}$ is the maximum level of the punishment of the bankruptcy law. This condition means that insolvency is always possible due to some idiosyncratic shock, even when $g = \overline{g}$ and $L = \overline{L}$.

Firms Investment

We make three important assumptions: creditors are imperfect monitors of a firm's actions related to payoffs after it borrows; creditors can predict their mean payoffs in the default state; and creditors and the firm are risk-neutral. We make the first assumption because it captures the asymmetric information between the firm and its creditors. The second rests on the view that professional creditors have considerable experience with default, and the third is more accurate when applied to firms than to individual persons.

The borrowing firm has a project that requires capital, I, which it must raise externally. The firm promises to repay creditors the sum, F. The project can return a value, v, where the firm is solvent if $v \geq F$ and insolvent if $v < F$. Two states are possible in the future, one if the firm is solvent and the other if it is not.

The solvency and insolvency states return to the firm v_{solv} and v_{ins}, respectively, where $v_{solv} \geq F > v_{ins}$. The probability of solvency is $p(e(L, g))$ and the probability of insolvency is $(1 - p(e(L, g)))$. This implies that the expected value of the project is $E(v) = p(e(L, g))v_{solv} + (1 - p(e(L, g)))v_{ins}$, the expected return conditional on the solvency state is $E_{solv}(v) = v_{solv}$, and the expected return conditional on the insolvency state is $E_{ins}(v) = v_{ins}$.

Assuming that the credit market is competitive, F is the largest sum that creditors can demand to fund the project. We take the risk-free interest rate equal to zero, so that a borrowing firm's interest rate is a function only of the riskiness of its project and the properties of the corporate governance level.

Creditors who lend I should expect to receive I in return. This expectation can be written as follows:

$$I = p(e(L, g))F + (1 - p(e(L, g)))(v_{ins});$$

$$F = I(1 + r) = \frac{I - (1 - p(e(L, g)))(v_{ins})}{p(e(L, g))} \qquad (1)$$

The firm's interest rate is $r = (F/I) - 1$, which is increasing in F; this is the value that the firm is required to repay in the solvency state. Denoting by v_{ins}^{u} ($v_{ins}^{u} \in (0,1)$) the per-unit-of-investment ($I = 1$) counterparts of v_{ins} we also have

$$r = \frac{1 - p(e(L, g))}{p(e(L, g))} \left[1 - v_{ins}^{u}\right] \qquad (2)$$

$$\frac{\partial r}{\partial g} = -p'(e(L,g))^{-2}b\left(1 - v_{ins}^{u}\right) < 0,$$

which is decreasing on the level of corporate governance.

Proposition 1: A higher level of corporate governance reduces the interest rate charged to the firm.

Also, since

$$\frac{\partial r}{\partial L} = -p'(e(L,g))^{-2}a\left(1 - v_{ins}^{u}\right) < 0, \tag{3}$$

the interest rate is decreasing on the level of punishment of the bankruptcy law.

Proposition 2: Higher punishment of the bankruptcy law reduces the interest rate charged to the firm.

Thus, it is clear from (2) and (3) that the interest rate is decreasing on the degree of governance and bankruptcy law punishment. Both limit the agency cost associated with the external finance relationship. Moreover,

$$\frac{\partial^{2}r}{\partial g\partial L} = 2p^{''}(e(L,g))^{-3}ab\left(1 - v_{ins}^{u}\right) < 0.$$

Proposition 3: The impact of the bankruptcy law's punishment on interest rate is higher for firms with worse corporate governance level.

That is, for firms with poorer governance, a harsher punishment from the bankruptcy law produces a greater reduction in the interest rate. It is possible that a good bankruptcy law works as a substitute for a good corporate governance structure to protect outside investors from agency costs.

An ex ante objective of the firm is to maximize the project option set that creditors want to finance. Society prefers firms that pursue projects with positive expected returns. A firm should therefore undertake a project that creates value. We denote social welfare as W, so that

$$W = p(e(L,g))v_{solv} + (1 - p(e(L,g)))(v_{ins}) - I \geq 0 \text{ and}$$
$$W = p(e(L,g))E_{solv}(v) + (1 - p(e(L,g)))E_{ins}(v) - I \geq 0.$$

As social efficiency always requires a minimum conditional expectation value of return, $E_{solv}(\underline{v})$, we let $W = 0$. Then,

$$E_{solv}(\underline{v}) = \frac{I - (1 - p(e(L,g)))E_{ins}(v)}{p(e(L,g))}, \tag{4}$$

where $F = [I - (1 - p(e(L,g)))E_{ins}(v)]/p(e(L,g))$ is identical to the right-hand side of $E_{solv}(\underline{v})$.

Since equation (1) solves the minimum repayment promise the firm must make to obtain financing and equation (4) solves the minimum conditional expected return that is socially accepted, the equations show that it is socially efficient for firms to undertake all projects that creditors will finance. Debtors will thus be able to fulfill their promises in solvency states, since equation (1) equals equation (4).

Also, we can see that the level of corporate governance and a harsher bankruptcy law exert an effect

on the minimum conditional expected return, in the sense that a higher level of governance and/or legal punishment reduces it (see equation (5)), which spans the set of financiable projects by the creditors

$$\frac{\partial E_{solv}(\underline{v})}{\partial g} = -(I - v_{ins})p'(e(L,g))^{-2}b < 0, \tag{5}$$

$$\frac{\partial E_{solv}(\underline{v})}{\partial L} = -(I - v_{ins})p'(e(L,g))^{-2}a < 0. \tag{6}$$

Thus far, we have considered the set of projects to be financed. We now examine borrowers' incentives to invest. The interest rate imposes the expected costs on firms, so the firm's expected return, when it borrows, becomes

$$E(R^B) = p(e(L,g))(v_{solv} - F) + (1 - p(e(L,g)))(0) \geq 0; \tag{7}$$
$$E(R^B) = p(e(L,g))[E_{solv}(v) - F] \geq 0.$$

Substituting for F from equation 1 yields

$$E(R^B) = p(e(L,g))E_{solv}(v) + (1 - p(e(L,g)))E_{ins}(v) - I \geq 0,$$

which is the expression indicating that the project is socially efficient. This equation holds with equality for the minimum conditional expected return, $E_{solv}(\underline{v})$. Therefore, the borrower invests in all projects that creditors will finance.

Proposition 4: Higher level of corporate governance increases the equilibrium level of debt.

Proposition 5: A harsher bankruptcy law increases the equilibrium level of debt.

Proposition 6: The impact of the bankruptcy law's punishment on the equilibrium level of debt is higher for firms with worse corporate governance level.

THE BRAZILIAN BANKRUPTCY REFORM

Lawmakers began efforts to update the country's corporate insolvency legislation in 1993. The original bill underwent several amendments before the Chamber of Deputies (the lower house of Congress) finally approved it in October 2003. The bill was then sent to the Senate, which introduced further improvements to the new law before approving it in July 2004. The Chamber then approved the Senate's version in December 2004, and the final law went into force in June, 2005. This section outlines the characteristics of Brazil's former law, the main changes introduced in the reform and the potential future effects on the Brazilian economy.

The Former Brazilian Bankruptcy Law

The former legal framework for corporate insolvency in Brazil was very fragmented, with the core legislation for bankruptcy proceedings enacted in 1945. Bankruptcy law regulates both liquidation and reorganization proceedings for merchants (i.e., legal entities that engage in commerce in their usual course of conduct). State-owned corporations and government-private corporations (**mixed-economy companies**) were excluded from bankruptcy proceedings until 31 October, 2001, when an amendment allowed the bankruptcy of the mixed-economy companies.

Despite providing both proceedings and aiming to prevent or avoid the liquidation of enterprises, in practice the insolvency process was ineffective at maximizing asset values and protecting creditor rights in liquidation (which raised the cost of capital). The insolvency proceeding was very slow, taking ten years on average to complete the whole process. Liquidation was marked by severe inefficiencies, and the reorganization process was obsolete and too rigid to provide meaningful rehabilitation options for modern business.

The process of disposing of assets was also slow and highly ineffective, owing to court and procedural inefficiency, lack of transparency and the so-called succession problem, whereby tax, labor and other liabilities were transferred to the buyer of a liquidated firm or asset, which reduced the market value of an insolvent company's assets. In addition, the priority given to labor and tax claims had the practical effect of eliminating any protection for other creditors. The process led to an informal use of the system to promote consensual workouts, although an insufficient legislative framework also hampered them[2].

There were several consequences of the shortcomings of the former Brazilian legal and institutional system concerning insolvency. Creditors' rights were only weakly protected and financial markets were characterized by a relatively low credit volume and high interest rates. The ratio of private credit to GDP was only 35 percent and the interest rate spread was 49 percent on average from 1997 to 2002.

The New Bankruptcy Law

The new liquidation procedure introduced six key changes. First, labor credits are limited to an amount equaling 150 times the minimum monthly wage. Second, secured credits are given priority over tax credits. Third, unsecured credits are given priority over some of the tax credits. Fourth, the firm is sold (preferably as a whole) before the creditors' list is constituted, which speeds up the process and increases the value of the bankruptcy estate. Fifth, tax, labor, and other liabilities are no longer transferred to the buyer of an enterprise sold in liquidation. Finally, any new credit extended during the reorganization process is given first priority in the event of liquidation. All these factors tend to increase creditors' returns in the insolvency state as well as the chance of successful reorganization, which reduces the cost of debt and increases the amount of loans[3].

Brazil's new reorganization procedure was inspired by Chapter 11 of the U.S. Bankruptcy Code. Whereas the previous law did not permit any renegotiation between the interested parties and only a few of parties were entitled to recover their assets, now a sweeping proposal for recuperation must be accepted by workers, secured creditors and unsecured creditors (including trade creditors). After the recuperation plan is approved by the creditors, the court appoints an administrator to conduct the reorganization procedure.

In the new law, creditors play a more significant role than previously, including negotiating and voting for the reorganization plan. The new law introduced two changes to increase the chance of a successful reorganization. First, firms are given an automatic stay of 180 days, during which creditors cannot seize any of the firm's goods or assets, even those given as collateral. The goal of this provision is not to disturb the firm's activities while management develops a proposal. Second, credit that is given to a reorganizing firm in the post-bankruptcy period has priority over older credits in the event of liquidation. This change seeks to motivate creditors to make new loans with better terms and to reduce the indirect cost of insolvency.

It should be noted that the new reorganization procedure reduces to zero the gains of the manager in states of insolvency, since they are excluded from the firm's operation. Furthermore, several modifications in liquidation and reorganization procedures should reduce the cost of capital for firms in the economy. This widens the gap between returns in the solvency and insolvency states, producing a positive final effect on managers' effort, reducing the moral hazard problem. To see this effect, let v_{solv} and F be the pre-reform values of the firm's return and creditors' payment in the solvency state and v_{solv} and F^R be the post-reform values. Let l be the amount that managers gain in the old

bankruptcy procedure. Thus, from the managers' perspective we have:

$$\max_{e} E(R^B) = p(e)(v_{solv} - F) + [1 - p(e)](l) - e$$

$$p'_{solv}(e_{priv}) = \frac{1}{v_{solv} - F - l}.$$

From the post-reform managers' perspective we have:

$$\max_{e} E(R^B) = p_{solv}(e)(v_{solv} - F^R) + [1 - p_{solv}(e)](0) - e$$

$$p'_{solv}(e_{priv}) = \frac{1}{v_{solv} - F^R}.$$

If the changes in the bankruptcy law are such that $v_{solv} - F^R > v_{solv} - F - l$ (where $F^R < F$), then $p'(e) = 1/(v - F - l) > 1/(v - F^R) = p'(e^R)$, and therefore $e^R > e$. In other words, given these changes, managers' efforts are stronger than in the pre-reform period.

Fraud in bankruptcy is another key issue addressed in the new law. The first, second, and third changes to liquidation cited above (that is, limiting labor credits and prioritizing secured credits over tax credits, and unsecured credits over some tax credits), as well as the heightened role of creditors in reorganization, provide incentives against fraud in the bankruptcy proceeding. The limitation on labor credits (up to 150 times the minimum wage) reduces the possibility that a manager will try to cheat the law by creating highly paid jobs for friends so as to receive payments from the failing firm. Giving secured credits a higher priority than tax and labor claims as a way to increase creditors' recovery in case of bankruptcy, along with the more important role of creditors in reorganization, raises their incentives to monitor the bankruptcy process, mitigating fraudulent actions. The old law contained several grounds for indictment for fraud, but they were not cumulative and each one carried a maximum two-year penalty. Since the judicial process was very slow, most penalties became time-barred[4], meaning that there was always the possibility of no punishment at all. Under the new law, the two-year penalties run concurrently and the judicial procedure is much faster, so the cost of fraud is expected to increase considerably. Another important change in the new law is that all fraud cases are dealt with directly according to the criminal procedure code, which is much more punitive than the special bankruptcy crime law. Moreover, since private creditors expect to receive more under the new law, they will be watching the judicial bankruptcy proceedings closely and they will most likely be important allies in enforcing fraud penalties.

DATA

As a proxy for firm-specific corporate governance arrangements, we used the Brazilian Corporate Governance Index [BCGI]. The BCGI (Lopes & Walker, 2007) is built on fifteen questions based on public sources, which measure (binary answers -- 0 for bad or 1 for good) four governance attributes: (i) disclosure, (ii) board composition and functioning, (iii) ownership structure and control, (iv) shareholder rights[5]. The BCGI was constructed using public sources related to all Brazilian public companies over the years 1998, 2000, 2002, 2004 and 2006. Additionally, we collected firm-specific accounting data for the same period.

We considered firm debt to be the balance sheet short-term and long-term debt plus the accounts payable to suppliers. The cost of debt is calculated as a total year's interest expense for each firm divided by its mean debt over the same period[6]. We also used the amount of assets, industry dummies and macroeconomic data to control our analysis. The data were obtained from both the Economatica database and Ipeadata[7].

Empirical Approach

To investigate the relationship between corporate governance level and such credit variables as the cost of debt and level of debt (long-term, long-term and aggregate), we estimated the following equation:

$$y = f(x) + u,$$

such that $E(u/x) = 0$ and $E(u^2/x) < \infty$, implying that $E(y/x) = f(x)$. Thus, an estimation for $f(x)$ gives us an estimator of the expectation of y conditional on x.

To do this, we regressed the dependent variables (cost of debt (kd), total debt[8] (DEBT), short-term debt (SHORT-TERM DEBT), long-term debt (LONG-TERM DEBT), variation of debt (VDEBT), variation of short-term debt (SHORT-TERM VDEBT) and variation of long-term debt (LONG-TERM VDEBT)) on corporate the governance level (BCGI) and other control variables. We reported the results using the following specifications:

$$y_{it} = \alpha + \beta_1(BCGI_{it}) + \boldsymbol{\beta}\mathbf{X}_{it} + \varepsilon_{it}. \tag{8}$$

In this specification, the vector of control variables is composed of per capita Gross Intern Product [GIP], the risk-free Brazilian interest rate (SELIC) and the exchange rate with the dollar (PTAX) to capture the macroeconomic variations over the years. We also used total firm assets (ASSETS) to control for the firm's size and dummies for each industry sector as defined by Econômática to capture the characteristics of each sector that may influence the dependent variable[9]. This procedure is consistent with the conjecture of Demsetz and Lehn (1985) that the scope for moral hazard is greater for managers of firms with more volatile operating environments. Brazilian firms within the same industry presumably face a similar operating environment.

The second question we addressed was: Are firms with worse corporate governance more strongly affected by the new bankruptcy law than those with better corporate governance? To answer this question, we regressed all the debt variables on the interaction between the corporate governance index and a dummy representing the implementation of the new bankruptcy law (dBL_t: 0 pre-new bankruptcy law and 1 afterward), the corporate index and the bankruptcy law dummy alone and the controls defined earlier. The specification was:

$$y_{it} = \alpha + \beta_1(BCGI_{it}) + \beta_2(dBL_t) + \beta_3(BCGI_{it} \cdot dBL_t) + \boldsymbol{\beta}\mathbf{X}_{it} + \varepsilon_{it}. \tag{9}$$

Results: Cost of Debt

To estimate the effect of the corporate governance at a firm level, represented by the equation (8), we regressed the cost of debt on the corporate governance index and a set of controls.

Table 1: POLS Regression: Cost of Debt

This table presents the results of pooled cross section robust regressions of the cost of debt (kd) on BCGI (panel A) and BCGI interacting with the new bankruptcy law (panel B). The new bankruptcy law (BANKRPT_LAW) is a dummy variable codified as 0 before 2005 and 1 after 2005. In both regression we control for macroeconomic variables as exchange rate (PTAX), GIP, Brazilian risk-free interest rate (SELIC), and for firm size (ASSETS) and industry dummies. Industry dummies coefficients are not reported. Cost of debt is winsorized at 2.5%.

Panel A: Pooled Cross Section Regression			
Coefficients from Pooled Regression - dependent variable kd:			
	Coefficient	Robust Standard Error	P-Value
Intercept	10.357	26.092	0.691
BCGI	-0.563	0.203	0.006
GIP	-1.957	5.198	0.707
PTAX	0.109	0.154	0.480
SELIC	0.001	0.002	0.728
ASSETS	0.008	0.005	0.120

Panel B: Pooled Cross Section Regressions			
Coefficients from Pooled Regression - dependent variable kd:			
	Coefficient	Robust Standard Error	P-Value
Intercept	36.148	35.985	0.315
BCGI	-0.599	0.222	0.007
BANKRPT_LAW	-0.311	0.303	0.305
BCGI*BANKRPT_LAW	0.245	0.491	0.618
GIP	-7.092	7.170	0.323
PTAX	-0.086	0.246	0.726
SELIC	0.003	0.003	0.326
ASSETS	0.008	0.005	0.127

Note: Standard Errors and Covariance Robust to Heteroskedasticity.

Panel A, which reports the regression results, shows that firms with higher levels of corporate governance present lower debt costs. This is in line with the theory (see proposition 1). Furthermore, we can say that an increase of 1% in the BCGI reduces the cost of debt by 0.5%. Panel B, which adds the effect of the introduction of the new bankruptcy law, represented by equation (9), shows that even considering this institutional shock, corporate governance still matters and the change in the BCGI coefficient is marginal. Additionally the effect of the new law and its interaction with the corporate governance level were not statistically significant.

Results: Amount of Debt

Table 2 presents the effect of the corporate governance at the firm level on the amount of indebtedness variables (DEBT, SHORT-TERM DEBT and LONG-TERM DEBT), regressing these variables on the corporate governance index and a set of controls. Table 2, Panel A, which reports the regression results for the total amount of debt, shows that firms with a higher level of corporate governance obtain higher loan amounts. Additionally, we can say that an increase of 1% in the BCGI increases firms' debt amount by 2.43%. Table 2, Panels B and C, shows that the result holds when we partition our dependent variable into both short-term and long-term debt. Note that all the results concerning the variable amount of debt agree with the theory described above (see proposition 4).

Table 2: POLS Regression: Amount of Debt

This table presents the results of pooled cross section robust regressions of the firm's credit on BCGI. Panel A present results for total credit, while tables B and C present results partitioning by short-term and long-term credit received by the companies. We control for macroeconomic variables as exchange rate (PTAX), GIP, Brazilian risk-free interest rate (SELIC), and for firm size (ASSETS) and industry dummies. Industry dummies coefficients are not reported. CREDIT represents the natural logarithm of firms credit.

Panel A: Pooled Cross Section Regression

Coefficients from Pooled Regression - dependent variable: CREDIT

	Coefficient	Robust Standard Error	P-Value
Intercept	12.118	45.805	0.791
BCGI	2.428	0.350	0.000
GIP	-0.410	9.116	0.964
PTAX	0.070	0.276	0.799
SELIC	0.000	0.004	0.908
ASSETS	0.048	0.009	0.000

Panel B: Pooled Cross Section Regressions - Short-Term Credit

Coefficients from Pooled Regression - dependent variable: SHORT-TERM CREDIT

	Coefficient	Robust Standard Error	P-Value
Intercept	10.541	43.558	0.809
BCGI	2.345	0.332	0.000
GIP	-0.193	8.668	0.982
PTAX	0.111	0.262	0.671
SELIC	0.000	0.004	0.934
ASSETS	0.043	0.008	0.000

Panel C: Pooled Cross Section Regressions - Long-Term Credit

Coefficients from Pooled Regression - dependent variable: LONG-TERM CREDIT

	Coefficient	Robust Standard Error	P-Value
Intercept	18.991	55.448	0.732
BCGI	1.728	0.406	0.000
GIP	-1.956	11.035	0.859
PTAX	0.108	0.336	0.748
SELIC	0.001	0.005	0.831
ASSETS	0.051	0.010	0.000

Note: Standard Errors and Covariance Robust to Heteroskedasticity.

Table 3, Panel A, presents the effect of bankruptcy law reform by itself and its interaction with the BCGI on the amount of firms' debt. We still expect an increase in the amount of debt due to better corporate governance practices (see proposition 4). Furthermore, we also expect a positive effect of the bankruptcy reform on debt variables and a negative effect of the interacted variable on the amount of debt (see proportions 5 and 6, respectively). Once again, our results confirm the positive effect of the BCGI on the amount of aggregate debt, short-term and long-term debt. However, the effect of bankruptcy law reform is not significant at the 5% level except for the interaction variable relating the BCGI and the law on long-term debt. This result is consistent with the idea that the debt market is more accessible to firms with better BCGI levels. Thus the level of debt tends to increase further for this group.

Table 3: POLS Regression: Amount of Debt

This table presents the results of pooled cross section robust regressions of the the firm's credit on BCGI and BCGI interacting with the new bankruptcy law. The new bankruptcy law (BANKRPT_LAW) is a dummy variable codified as 0 before 2005 and 1 after 2005. We control for macroeconomic variables as exchange rate (PTAX), GIP, Brazilian risk-free interest rate (SELIC), and for firm size (ASSETS) and industry dummies. Industry dummies coefficients are not reported. CREDIT represents the natural logarithm of firms credit.

Panel B: Pooled Cross Section Regressions -

Coefficients from Pooled Regression - dependent variable: *CREDIT*

	Coefficient	Robust Standard Error	P-Value
Intercept	-22.110	68.160	0.746
BCGI	2.236	0.384	0.000
BANKRPT_LAW	-0.324	0.526	0.538
BCGI*BANKRPT_LAW	1.602	0.836	0.055
GIP	6.416	13.572	0.636
PTAX	0.330	0.469	0.482
SELIC	-0.003	0.007	0.659
ASSETS	0.047	0.009	0.000

Panel B: Pooled Cross Section Regressions - Short-Term Credit

Coefficients from Pooled Regression - dependent variable: SHORT-TERM CREDIT

	Coefficient	Robust Standard Error	P-Value
Intercept	5.260	64.723	0.935
BCGI	2.189	0.366	0.000
BANKRPT_LAW	-0.436	0.505	0.388
BCGI*BANKRPT_LAW	1.261	0.772	0.102
GIP	0.866	12.887	0.946
PTAX	0.152	0.446	0.733
SELIC	0.000	0.006	0.978
ASSETS	0.042	0.008	0.000

Panel C: Pooled Cross Section Regressions - Long-Term Credit

Coefficients from Pooled Regression - dependent variable: LONG-TERM CREDIT

	Coefficient	Robust Standard Error	P-Value
Intercept	-95.874	77.849	0.218
BCGI	1.432	0.434	0.001
BANKRPT_LAW	0.096	0.657	0.884
BCGI*BANKRPT_LAW	2.242	1.116	0.045
GIP	20.937	15.499	0.177
PTAX	0.980	0.537	0.069
SELIC	-0.010	0.007	0.169
ASSETS	0.049	0.010	0.000

Note: Standard Errors and Covariance Robust to Heteroskedasticity.

However, to analyze the theory that bankruptcy law reform and interaction between the legal reform and BCGI have positive and negative effects on the amount of debt, respectively, we also have to look at the variation of the debt and not only the impact on its level, since the variation is more sensitive to shocks because it is a flow variable instead of a stock variable. In this case, we expect that the increase in the level of debt should be relatively higher for firms with a lower level of governance (see proposition 3 and 6). Table 4 reports our results on this matter.

Table 4: POLS Regression: Variation in the Amount of Debt

This table presents the results of pooled cross section robust regressions of the the firm's change on credit (VCREDIT) on BCGI and BCGI interacting with the new bankruptcy law. The new bankruptcy law (BANKRPT_LAW) is a dummy variable codified as 0 before 2005 and 1 after 2005. We control for macroeconomic variables as exchange rate (PTAX), GIP, Brazilian risk-free interest rate (SELIC), and for firm size (ASSETS) and industry dummies. Industry dummies coefficients are not reported. VCREDIT represents the change on credit from year t-1 to year t and is winsorized at 2.5%. PTAX is excluded due to collinearity.

Panel B: Pooled Cross Section Regressions -

Coefficients from Pooled Regression - dependent variable: VCREDIT

	Coefficient	Robust Standard Error	P-Value
Intercept	17.500.000	3.291.665	0.000
BCGI	423.738	100.615	0.000
BANKRPT_LAW	407.183	102.411	0.000
BCGI*BANKRPT_LAW	-44.562	287.880	0.877
GIP	-3.439.031	661.673	0.000
SELIC	1.029	290	0.000
ASSETS	11.158	3.178	0.000

Panel B: Pooled Cross Section Regressions - Short-Term change on Credit

Coefficients from Pooled Regression - dependent variable: SHORT-TERM VCREDIT

	Coefficient	Robust Standard Error	P-Value
Intercept	7.791.706	1.722.449	0.000
BCGI	172.152	57.224	0.003
BANKRPT_LAW	215.068	49.964	0.000
BCGI*BANKRPT_LAW	-281.304	123.845	0.023
GIP	-1.537.866	345.858	0.000
SELIC	497	149	0.001
ASSETS	3.342	1.313	0.011

Panel C: Pooled Cross Section Regressions - Long-Term change on Credit

Coefficients from Pooled Regression - dependent variable: LONG-TERM VCREDIT

	Coefficient	Robust Standard Error	P-Value
Intercept	7.126.857	2.060.482	0.001
BCGI	248.456	64.446	0.000
BANKRPT_LAW	168.716	67.763	0.013
BCGI*BANKRPT_LAW	157.569	191.020	0.410
GIP	-1.398.760	414.776	0.001
SELIC	362	183	0.047
ASSETS	6.004	2.204	0.007

Note: Standard Errors and Covariance Robust to Heteroskedasticity.

Table 4 presents the results when we consider as a dependent variable the variation of the amount of debt, using the same set of independent variables. Note that for short-term debt variation the empirical findings are totally consistent with the theory described above (see propositions 4, 5 and 6), since both the governance and the bankruptcy reform have positive and significant effects on debt variation, while the interacted variable has a negative effect. This means that better governance and a harsher bankruptcy law have a positive effect on debt. Moreover, this effect is stronger for firms with worse corporate governance, which indicates that the law works as a substitute for governance practices to protect creditors' interests. The same results holds for the debt-variation variable (long-term plus short-term) and long-term debt variation variable, except for the interacted variable, which was not significant, indicating that the bankruptcy reform did not provide a second-order effect on firms with worse corporate governance. One possible explanation for this finding is that long-term debt is usually collateralized, which is a natural substitute for bad corporate governance.

CONCLUSION

The objective of this paper was to add new empirical findings to the literature on corporate governance. Anderson *et al.* (2004) found an inverse relation between the cost of debt and board independence and size as well as evidence of significantly lower cost of debt financing for firms with fully independent audit committees. Our paper contributes to prior research in the sense that we developed a simple model and test our propositions that relate corporate governance and bankruptcy law reform to the cost of debt and to changes in the amount of debt. Additionally, we found more general results than previous studies when we used the BCGI, which considers disclosure, ownership structure, board composition and shareholder rights in its computation. We also considered an exogenous shock, the bankruptcy law reform implemented in Brazil in 2005, which considerably changed creditors' rights.

After the theoretical approach, we sought to verify our predictions on firms' debt empirically. Our empirical results were consistent with the model's prediction. First we found that the higher the corporate governance score on the BCGI, the lower the cost of debt. Second, we found that better corporate governance arrangements relate to firms with higher debt amounts. Finally, we found that better governance and a harsher bankruptcy law have a positive effect on debt. Moreover, this effect is stronger for firms with worse corporate governance, which indicates that the law works as a substitute for governance practices to protect creditors' interests.

NOTES

[1] For details see Appendix A.

[2] A workout is an informal renegotiation of loans that takes place outside the courts.

[3] See Araujo, A. & Funchal B. (2005). Bankruptcy law in Latin America: past and future. *Journal Economia - The Journal of the Latin America and Caribbean Economic Association, 6*(1), 149-216, and Araujo, A. & Funchal B. (2006). Nova lei de falências brasileira e seu papel no desenvolvimento do mercado de crédito. P*esquisa e Planejamento Econômico, 36*(2), 209-254.

[4] In legal parlance, the limitation period was not tolled during the bankruptcy proceeding.

[5] See Appendix A for details.

[6] The cost of debt variable was Winsorized at the level of 2.5%. The Winsor procedure is commonly used to treat the outlier problem, frequent in this variable.

[7] Ipeadata. Retrieved July 16, 2007, from http://www.ipeadata.gov.br

[8] We used the natural logarithm as a dependent variable in our specification of credit because its distribution is skewed to the right.

[9] Given that industry dummies are the only control used in our analysis, their coefficient results are suppressed in all tables of results.

[10] All answers were obtained from public sources. This questionnaire was not sent to the companies. A score of one is given to aspects considered to be good governance and 0 to bad governance. Firms' individual scores will range from 0 to 15. The answers were obtained from all Brazilian public companies for the years 1998, 2000, 2002 and 2004. This questionnaire was first used by Carvalhal-da-Silva, A. L., & Leal, R. P. C. (2005). Corporate governance index: firm valuation and performance in Brazil. R*evista Brasileira de Finanças, 3*(1), 1-18.

REFERENCES

Anderson, R. C., Mansi, S. A., & Reeb D. M. (2004). Board characteristics, accounting report integrity, and the cost of debt. *Journal of Accounting and Economics*, *37*(3), 315-342.

Bushman, R., Chen, Q., Engel, E., & Smith, A. (2004). Financial accounting information, organizational complexity and corporate governance systems. *Journal of Accounting and Economics*, *37*(2), 167-201.

Demsetz, H., & Lehn, K. (1985). The structure of corporate ownership: causes and consequences. *Journal of Political Economy, 93*(6), 1155-1177.

Kanagaretnam, K., Lobo, G. J., & Whalen, D. J. (2007). Does good corporate governance reduce information asymmetry around quarterly earnings announcements? *Jornal of Accounting and Public Policy*, *26*(4), 497-522.

Lopes, A. B., & Walker, M. (2007). firm-level incentives and the informativeness of accounting reports: an experiment in Brazil [Working Paper]. *Manchester Business School*, Manchester, United Kingdom.

APPENDIX: CORPORATE GOVERNANCE INDEX

Brazilian Corporate Governance Index (BCGI) Questionnaire[10]

. DISCLOSURE (BCGIdisc)

  . Does the company publish its financial statements by the required date?

  . Does the company publish its financial statements according to international standards (US-GAAP or IFRS)?

  . Is the company audited by one of the big five accounting firms?

. BOARD COMPOSITION AND FUNCTIONING (BCGI board)

  . Are the Chairman of the Board and the CEO not the same person?

  . Is the Board not primarily composed of insiders?

  . Is the size of the Board between 5 and 9 members as suggested by the Brazilian Institute of Corporate Governance?

  . Do the members of the Board have consecutive one-year terms as suggested by the Brazilian Institute of Corporate Governance?

  . Does the company have a permanent Audit Committee?

. OWNERSHIP STRUCTURE AND CONTROL (BCGIprop)

  . Do the controlling shareholders own less than fifty percent of the voting shares?

  . Is the percentage of voting shares higher than eighty percent of the total?

  . Is the ratio between cash flow rights and voting rights higher than 1?

  . Is the free float larger or equal to what is required by the São Paulo Stock Exchange New Market (25%)?

. SHAREHOLDERS RIGHTS (BCGIrights)

  . Does the company statute establish arbitrage as a way to solve conflicts?

  . Does the company statute establish rights in addition to what is required by the Law?

  . Does the company gives tag along rights beyond what is required by the Law?