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

Abstract

We develop a model and test its propositions about the relation between corporate governance level and the bankruptcy law to debt variables as the cost of debt and the firms' amount (and variation) of debt. Our empirical results are consistent to the model's prediction. First, we find that the higher the corporate governance, the lower the cost of debt. Second, we find that better corporate governance arrangements relates to firms with higher amount of debt. Finally, we find that 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 of governance practices to protect creditors' interests.

Keywords: Debt, Cost of Debt, Corporate Governance, Bankruptcy.

JEL Codes: E44,G3, G33, .

ANPEC's Area 7: Microeconomics, Quantitative Methods and Finance.

Resumo

Este trabalho desenvolve um modelo e testa suas proposições sobre a relação entre o nível de governança corporativa e a lei de falências com o custo, montante e à variação da dívida das empresas. Nossos resultados empíricos são consistentes com as predições do modelo. Primeiramente, encontramos evidências de que quanto maior a governança corporativa, menor o custo da dívida. Também encontramos evidências de que os melhores arranjos de governança são relacionados com as empresas com maior montante de dívida. Finalmente, identificamos que uma lei de falências mais dura geram um efeito benéfico na dívida das

empresas. Além do mais este efeito é mais forte em empresas com pior governança, o que indica que a lei funciona como substituta de práticas de governança.

Palavras-Chave: Dívida, Custo da Dívida, Governança Corporativa e Bancarrota.

Códigos *JEL: E44,G3, G33, .*

Área 7 da ANPEC: Microeconomia, Métodos Quantitativos e Finanças.

1 Introduction

This paper analyzes the impact of firm-level corporate governance arrangements and of an institutional shock − the Brazilian Bankruptcy Reform − on firms balance sheet debt financing features. To proxy for firm-level governance we use the newly developed Brazilian Corporate Governance Index −BCGI − (Lopes and Walker, 2007) which scores governance arrangements across four dimensions: disclosure; ownership structure; board composition; and shareholder rights.[1] BCGI's four dimensions impact directly the level of effort committed by managers and as so can be used as a proxy for moral hazard resolution. This effect, presumably, will reduce agency costs and consequently firms' cost of debt. Anderson et al (2004) find an inverse relation between the cost of debt and board independence and board size. Bushman et al (2004) show that limited transparency of firms' operations to outside investors increases demands on governance systems to alleviate moral hazard problems. Recently Kanagaretnan et al (2007) show that firms with higher levels of corporate governance have lower information asymmetry around quarterly earnings announcements. Our study add to the prior 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 debt variables as the cost of debt and the firms' amount of debt. Through a set of propositions we show that: first, the corporate governance has a negative impact on cost of debt and a positive impact on amount of debt; second, a harsher bankruptcy law also has a negative impact on cost of debt and a positive impact on amount of debt; and at last but not least important, the effect of bankruptcy law changes is stronger for firms with worse corporate governance standards.

Then we approach the same problem empirically regressing the debt variables on our measure of corporate governance and the bankruptcy

[1] For details see Appendix A.

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 BCGI the lower the cost of debt, and (ii) the effect on changes of the amount of firms' debt considering the new Bankruptcy Reform Law is less significant on firms with higher BCGI scores. Hence we can say that stronger systems of corporate governance and bankruptcy procedures contribute to reduce the cost of debt and to increase the access to the credit market as well. Moreover we can state that the reform of bankruptcy law 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 2 discusses the theoretical model relating corporate governance and the bankruptcy law to the cost of debt and credit availability; section 3 discusses the Brazilian Bankruptcy Reform; section 4 presents our data set; section 5 presents the empirical results; and section 6 concludes.

2 The Model

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

Hypothesis 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: $e(L, g) = aL + bg$, where $e_L > 0$ and $e_g > 0$.

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 is ever possible the insolvency state 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 actions related to payoffs that the firm takes 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 the firm 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 $p(e(L,g))$; 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:

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

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

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^u_{ins} ($v^u_{ins} \in (0,1)$) the per-unit-of-investment ($I = 1$) counterparts of v_{ins} we also have

$$r = \frac{1 - p(e(L,g))}{p(e(L,g))}\left[1 - v^u_{ins}\right],$$

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

which is decreasing in the level of corporate governance.

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

Also, since

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

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

Proposition 2 *A 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 in the degree of governance and bankruptcy law punishment. Both limit the agency cost associated with the external finance relationship. Moreover,

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

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 higher reduction in the interest rate. It is possible to consider that a good bankruptcy law works as a substitute for a good corporate governance structure to protect the external 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, such that

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

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 for the minimum repayment promise the firm must make to obtain financing and equation (4) solves for the minimum conditional expected return that is socially accepted, the equations

show that it is socially efficient for firms to take 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 notice 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 punishment of the law reduce 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 the borrowers' incentives to invest. The interest rate imposes the expected costs on firms, so the firm's expected return, when it borrows, becomes

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

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.*

3 The Brazilian Bankruptcy Reform

Lawmakers initiated efforts to update the country's corporate insolvency legislation in 1993. The original project underwent several amendments before the House of Representatives approved it in October 2003. The project was then sent to the Senate, which introduced further improvements to the new law, before approving it in July 2004. The House of Representatives approved the Senate's version in December 2004, and the final law went into effect 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.

3.1 The Former Brazilian Bankruptcy Law

The former legal framework for corporate insolvency in Brazil was very fragmented, with the core of legislation for bankruptcy proceedings enacted in 1945. Bankruptcy law regulates both liquidation and reorganization proceedings for merchants (that is, legal entities that engage in commerce in their usual course of conduct). State-owned corporations and public-private joint-stock companies were excluded from bankruptcy proceedings until 31 October 2001, when a modification allowed the bankruptcy of public-private joint-stock 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 *problema da sucessão*, whereby tax, labor, and other liabilities were transferred to the buyer of a liquidated property, which deteriorated 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 to other creditors. The process led to an informal use of the system to promote consensual workouts, although an insufficient legislative framework also hampered workouts.[2]

The shortcomings of the former Brazilian legal and institutional system concerning insolvency had several consequences. Creditors' rights

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

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 spread of interest rate was 49 percent, on average, from 1997 to 2002.)

3.2 The New Bankruptcy Law

The new liquidation procedure introduced six key changes. First, labor credit is limited to an amount equaling 150 minimum wages. Second, secured credit is given priority over tax credit. Third, unsecured credit is given priority above some of the tax credit. Fourth, the firm is sold (preferably as a whole) before the creditors' list is constituted; this speeds up the process and increases the value of the bankruptcy state. Fifth, tax, labor, and other liabilities are no longer transferred to the buyer of a property 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 success in 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 recovery of 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 be approved by the creditors, the court nominee a new manager that must conduct the recuperation procedure.

In the new law, creditors play a more significant role in the procedure 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, even those given as collateral. The goal of this clause is to not disturb the firms' 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 at better terms and to reduce the indirect cost of insolvency.

Notice that the new reorganization procedure reduces to zero the gains of the manager in states of insolvency, since they are excluded from the firms operation, also several modifications in liquidation and

[3]See Araujo and Funchal (2005, 2006).

reorganization procedures should reduce the cost of capital for firms in the economy. This widens the gap between the returns in solvency and insolvency states, producing a positive final effect on managers' effort, reducing the moral-hazard problem.[4] 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 credit and prioritizing secured credit above tax credit and unsecured credit above some tax credit), as well as the heightened role of creditors in reorganization, provide incentives against fraud in the bankruptcy procedure. The limitation on labor credit (up to 150 minimum wages) reduces the possibility that a manager will try to cheat the law by creating jobs for friends so as to receive payments from the failing firm. Giving secured credit a higher priority than tax and labor claims in a way to increase creditors' recovery in case of bankruptcy as well as the important role of creditors in reorganization raises their incentive 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 were prescribed, and there was always the possibility of no punishment at all. Under the new law, the two years of penalty are cumulative and the judicial process is accelerated, so the cost of fraud is expected to increase considerably. Another important change in the new law is that all fraud cases are remitted directly to the procedures of general criminal law, which is much more punitive than the

[4] Let v_{solv} and F be the prereform values of firm's return and creditors' payment in solvency states, v_{solv} and F^R be the postreform values. Let l the amount that managers gain in the old bankruptcy procedure. Thus, from the manager's 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 changes in 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 the manager's effort is stronger than in the prereform stage.

special bankruptcy crime law. Moreover, since private creditors expect to receive more under the new law, they will be watching the judicial procedures of bankruptcy closely, and they will most likely be important allies in enforcing fraud penalty.

4 Data

To proxy for firm-specific corporate governance arrangements a Brazilian Corporate Governance Index (BCGI) was used. BCGI (Lopes and Walker, 2007) is built on fifteen questions based on public sources which measures (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 index was built using public sources related to all Brazilian public companies over the years 1998, 2000, 2002, 2004 and 2006. Additionally we collect firm-specific accounting data for the same period. We consider as firm debt the balance sheet short-term and long-term debt plus the suppliers account. The cost of debt is calculated as total year's interest expense for each firm divided by its mean debt over the same period. We also use the amount of assets, firm industries and macroeconomic data to control our analyzes. The data were obtained from both *Economatica* database and Ipeadata[6].

5 Empirical Approach

To investigate the relationship between corporate governance level and variables of credit as the cost of debt and the level of debt (long run, short run and aggregated) we will estimate 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 $f(x)$ give us an estimator of the expectation of y conditional to x.

To do this, we regress the dependent variables (cost of debt, total debt, short-term debt, long-term debt and variation of debt)[7] on corporate governance level and other control variables. We will report results using the following specifications:

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

[5] See Appendix A for details.

[6] www.ipeadata.gov.br

[7] We use the natural logarithm as a dependent variable in our specification of credit due to its distribution being right-skewed.

In the specification the vector of control variables is composed by GIP percapta, risk-free Brazilian rate, exchange rate to capture the macroeconomic variation through the years, total assets by firm to control by the size of the firm, and dummies for each industry sector as defined by *Economatica* to capture the characteristics of each sector that may influence the dependent variable. Brazilian firms within the same industry presumably face a similar operating environment.

The second question we address is the following: are firms with worse corporate governance strongly affected by the new bankruptcy law than the firms with better corporate governance? To answer this question, we regress all the debt variables on the interaction between the corporate governance index and a dummy of the implementation of the new bankruptcy law (dBL_t: 0 pre-new bankruptcy law and 1 post-new bankruptcy law), the corporate index and the bankruptcy law dummy alone and the controls defined earlier. The specification is as follows:

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

5.1 Results: Cost of Debt

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 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*			
		Robust Standard	
	Coefficient	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*			
		Robust Standard	
	Coefficient	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

To estimate de effect of the corporate governance at a firm level − represented by the equation (8)) − we regress the cost of debt on corporate governance index and a set of controls. The Panel A that reports the regression results, shows that firms with higher level of corporate governance present a lower cost of debt, which is aligned with the theory (see proposition 1). Also, we can say that an increase in 1% of BCGI index reduces the cost of debt in 0.5%. The Panel B that adds the effect of the introduction of the new bankruptcy law, shows that considering this institutional shock the corporate governance still matters and the change in BCGI coefficient is marginal. Additionally the effect of the new law and its interaction with the corporate governance level were no statistically significant.

5.2 Results: Amount of Debt

Table 2 presents the effect of the corporate governance at a firm level on amount of loans variables (ln(debt), ln(long-term debt) and ln(short-term debt)) regressing such variables on corporate governance index and a set of controls. Table2, Panel A reports the regression results for the total amount of debt, shows that firms with higher level of corporate governance take a higher amount of loans. Additionally, we can say that an increase in 1% of BCGI index increases the firms' amount of debt in 2.43%. Table 2, Panels B and C, shows that the result holds when we partition our dependent variable in both short-term and long-term debt obtained by firms. Notice that all results concerning the variable amount of debt are according to the theory described before (see proposition 4).

Table 3, Panel A presents the effect of bankruptcy law reform by itself and its interaction with 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 BCGI on the amount of aggregated debt, short-term and long-term debt. However the effect of bankruptcy law reform is not significant at 5% level except for the interaction variable relating BCGI and the law on long-term debt. This result is consistent with the idea that credit market is more accessible to firms with better BCGI. Thus the level of credit tends to increse further to this group. However, to analyze the theory that bankruptcy law reform and interaction between the law reform and BCGI have positive and negative effects on debt amount respectively, we have to look at the variation of the debt and not only to the impact on its level, considering that an increase at the level of debt should be relatively higher for underleveraged firms (see proposition 3 and 6). Table 4 reports our results about this issue.

Table 2: POLS Regression: Amount of Debt

This table presents the results of pooled cross section robust regressions of the firm's DEBT on BCGI. Panel A present results for total DEBT, while tables B and C present results partitioning by long-term and short-term DEBT received by the companies. The new bankruptcy law (BANKRPT_LAW) is a dummy variable codified as 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.

Panel A: Pooled Cross Section Regression

Coefficients from Pooled Regression - dependent variable: DEBT

		Robust Standard	
	Coefficient	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 DEBT

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

		Robust Standard	
	Coefficient	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 DEBT

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

		Robust Standard	
	Coefficient	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

Table 3: POLS Regression: Amount of Debt

This table presents the results of pooled cross section robust regressions of the the firm's DEBT on BCGI and BCGI interacting with the new bankruptcy law. The new bankruptcy law (BANKRPT_LAW) is a dummy variable codified as 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.

Panel B: Pooled Cross Section Regressions -

Coefficients from Pooled Regression - dependent variable: DEBT

	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 DEBT

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

	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 DEBT

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

	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

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 DEBT (VDEBT) on BCGI and BCGI interacting with the new bankruptcy law. The new bankruptcy law (BANKRPT_LAW) is a dummy variable codified as 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. VDEBT represents the change on DEBT 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: VDEBT			
		Robust Standard	
	Coefficient	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 DEBT			
Coefficients from Pooled Regression - dependent variable: SHORT-TERM VDEBT			
		Robust Standard	
	Coefficient	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 DEBT			
Coefficients from Pooled Regression - dependent variable: LONG-TERM VDEBT			
		Robust Standard	
	Coefficient	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

Table 4 presents the results when we consider as dependent variable the variation of the amount of debt using the same set of independent variables. Notice that for short-term debt variation the empirical findings are totally consistent with the theory described before (see propositions 4, 5 and 6), since both the governance and the bankruptcy reform have positive and significant effect on debt variation, while the interacted variable has a negative effect. This means that a 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 of governance practices to

protect creditors' interests. The same results hold for the variable debt variation (long-term plus short-term) and long-term debt variation, except for the interacted variable that was no significant, pointing that the bankruptcy reform did not provide a second order effect on firms with worse corporate governance. One possible explanation for this finding is the fact that long-term debt is usually collateralized, which is the natural substitute of bad corporate governance.

6 Conclusion

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

After the theoretical approach, we aimed at verifying empirically our predictions on firms' debt. Our empirical results are consistent with the model's prediction. First we find that the higher the corporate governance score on BCGI the lower the cost of debt. Second we find that better corporate governance arrangements relates to firms with higher amount of debt. Finally we find 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 of governance practices to protect creditors' interests.

References

[1] 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: 315-342.

[2] Araujo, A. and 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.

[3] Araujo, A. and Funchal B. 2006: "Nova Lei de Falências Brasileira

e seu papel no desenvolvimento do mercado de crédito", *Pesquisa e Planejamento Econômico,* 36(2): 209-254.

[4] Bushman, R., Chen, Q., Engel, E., Smith, A. 2004: "Financial accounting information, organizational complexity and corporate governance systems", *Journal of Accounting and Economics,* 37: 167-201.

[5] Demsetz, H. and Lehn, K. 1985: "The Structure of Corporate Ownership: causes and consequences", *Journal of Political Economy*, 93: 1155-1177.

[6] 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: 497-522.

[7] Leal, R. P. C. and Carvalhal-da-Silva, A. 2005: "Corporate Governance and Value in Brazil (and in Chile)", Inter-American Development Bank Working Paper.

[8] Lopes, A.B., Walker, M. 2007: "The Relation between firm-specific corporate governance arrangements, cross-listing and the informativeness of accounting reports." Working Paper, Manchester Business School.

A Appendix: Corporate Governance Index

Brazilian Corporate Governance Index (BCGI) Questionnarie[8]

1. DISCLOSURE (BCGIdisc)

   (a) Does the company publish its financial statements by the required date?

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

   (c) Is the company audited by one of the big five accounting firms?

2. BOARD COMPOSITION AND FUNCTIONING (BCGIboard)

   (a) Is the Chairman of the Board and theCEO not the same person?

[8] All answers were obtained from public sources. This questionnaire was not send 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 Leal (2005).

(b) Is the Board composed not primarly by insiders?

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

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

(e) Does the company have a permanent Audit Committee?

3. OWNERSHIP STRUCTURE AND CONTROL (BCGIprop)

(a) Do the controlling shareholders have less than fifity percent of the voting shares?

(b) Is the percentage of voting shares higher than eighty percent of the total?

(c) Is the ratio between cash flow rights and voting rights bigger than 1?

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

4. SHAREHOLDERS RIGHTS (BCGIrights)

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

(b) Does the company statute stablish rights in addition to what is required by the Law?

(c) Does the company gives tag along rights beyond what is required by the Law?