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Capital Structure Decisions and the Interaction with Payout and Ownership Decisions: Evidence from Brazil

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Abstract

The objective of this paper is to correct the analysis in most of the existing Brazilian literature on determinants of capital structure, which fails to consider the interaction of debt, payout and ownership policy decisions. With the estimation of a three-equation system by three-stage least squares, the paper obtains significant results, and its results contradict most of those obtained in the Brazilian literature. In addition, it confirms unambiguously the existence of an entrenchment effect in the agency relationship involving controlling and minority shareholders.

Keywords: capital structure, dividend policy, ownership concentration, agency relationship, endogeneity bias.

1. Introduction

Since Modigliani and Miller (1958; 1963) published their classical "irrelevance theorem" papers on capital structure decisions and their possible impact on firm value, a large portion of the financial economics and corporate finance literature has been concerned with (a) building on the MM propositions with the addition of capital and managerial labor market imperfections, and (b) testing the implications of the theories arising from such additions.

In short, it has been variously shown that market imperfections cause the capital structure decision to be relevant, i.e., that there is an optimal capital structure in the sense that it implementation maximizes the value of the firm. This is the contribution of the so-called static trade off theory of capital structure, whose main driver is the existence of market imperfections in the form of costs of financial distress. Similarly, a dynamic version of the theory, most commonly known as the pecking order theory of capital structure, deals with the choice between debt and equity when the firm needs new funds to finance long-term investments. This theory, in turn, is predicated on the

acknowledgement of information asymmetry between managers and owners, on one hand, and outside equity and debt suppliers, on the other hand.

In several cases documented in the abundant literature on capital structure decisions, two other important corporate decisions are used as independent or control variables. One is the firm's dividend policy or payout decision, also dealt with in classical fashion by Miller and Modigliani (1961) in another "irrelevance theorem" paper. The other is the ownership or property concentration decision, most notably discussed by Jensen and Meckling (1976), as one of the main aspects of the agency relationships involving owners, managers and creditors in a corporation.

As will be pointed out in the next section of this paper, the literature that discussed the payout and ownership decisions often included the capital structure decision as an important factor. This clearly has the potential of creating an endogeneity problem, best dealt with, in empirical tests, with the use of simultaneous equation models. This was pointed out very well by Kim, Rhim and Friesner (2007), referred to as KRF from this point on, in their paper on South Korea.

The objective of this paper is to add to the Brazilian evidence on the capital structure decision of publicly-owned firms with the use of the KRF empirical approach, and also add to the methodological menu described and discussed in Rocha and Amaral (2007), in their empirical paper on the determinants of Brazilian firms' indebtedness.

The remainder of this paper is organized as follows. Section 2 presents a review of the relevant literature, covering the fundamental theoretical discussions that lead us to consider that the capital structure, payout and ownership decisions are in fact interdependent, and the specific Brazilian literature that has tested one or more theories of the capital structure decision. Hence, the focus of attention in this paper, in terms of its results, will be on the determinants of capital structure in Brazil. It concludes with the specification of the main hypotheses to be tested. Section 3 describes the sample of firms, variable definitions, data sources, and the methodology. Section 4 presents the results and section 5 concludes.

2. Literature Review and Testable Hypotheses

In the discussion that follows, as in the rest of this paper, controlling shareholders will be referred to as "insiders". As pointed out in KRF (2007), the ownership decision has been basically cast in an agency cost framework, and here, as in Jensen and Meckling (1976), the agency relationship involves a principal (minority shareholders) and an agent (the controlling shareholder, or "insider"). This

definition of the ownership decision, made herein basically for data availability purposes, is the same as that made by Saito and Silveira (2008).

Thus, there are two possibilities: (1) entrenchment by insiders, namely, the situation in which they hold a sufficiently large proportion of the firm's shares to feel immune to the discipline imposed by the entrepreneurial market, since their control over the firm makes it increasingly difficult to replace them, in case the firm runs into difficulties or its economic performance begins to suffer; (2) convergence of interests, when insiders hold a sufficiently large stake in the firm to become interested in maximizing overall shareholder wealth, since this also contributes to maximizing their own wealth. Therefore, a higher proportion of ownership by insiders will induce them to act in such a way as to maximize shareholder wealth, up to a certain point, at which entrenchment sets in.

In that context, both debt and dividend policies may be used as monitoring tools regarding the actions by insiders. The issuance of debt securities creates greater opportunities for outside monitoring, in this case by creditors, as discussed by Jensen and Meckling (1976). In turn, higher payout, since it is usually followed by the issuance of new securities in order to finance investments, also creates greater opportunities for outside monitoring, as pointed out by Rozeff (1982). Hence, since two of the tools used for reducing agency costs are associated with better outside monitoring, they may be substitutes or complements for each other, and thus they are interdependent.

In this sense, then, this paper, which is an empirical analysis of debt policy choices by publicly-owned Brazilian firms, will take into account the interaction of both debt and dividend policies, as their interaction with the ownership decision, since they may be used as tools for reducing the agency costs associated with that decision.

The previous discussion, in addition, indicates that debt and dividend policies may be substitutes for each other, if there is convergence of interests, and complementary, if there is entrenchment. This leads, for example, to two different testable hypotheses regarding the relationship between debt and dividend policies: the association will be positive if there is entrenchment (because the proportion of ownership by insiders is high), or negative if there is convergence of interests (when the proportion of ownership by insiders is low). Clearly, any hypothesis about the relationship between debt and dividend policies must be tested controlling for the ownership decision.

In turn, when the ownership proportion by insiders is low, they may be tempted to emphasize the consumption of firm resources to maximize their personal utility, so that an increase in that proportion would better align their interests with those of minority shareholders. If this convergence of interests holds, there would less motivation for using debt as an outside monitoring tool, since there would already be an alignment of interests and a reduction of agency costs. However, if there is entrenchment,

debt may be used together with the increase in ownership in order to align the interests of principal and agent. The resulting testable hypotheses, therefore, are of a positive association between debt and ownership, if entrenchment holds, but negative if there is convergence of interests.

Finally, even though the interactions described herein and in KRF (2007) had already been examined, for example, in Jensen et alli. (1992), they were already present before the development of the so-called "modern finance theory", when the "residual theory" of dividend policy was postulated. That theory proposed that payout was decided upon as a "residual" in the sense that the firm would pay dividends only after it determined how much of its income in a given period would be left over after (1) financing new positive net present value investments so as to (2) maintain the optimal balance between equity (such as internally-generated funds) and debt. If the firm decided to payout a proportion of income different from that determined by this procedure, it would force itself to make a sub-optimal investment decision, a sub-optimal capital structure decision, or both. Therefore, it is clear that debt and dividend policies already interacted in this early imperfect market theory of dividend policy. For a discussion, see Gitman (2004), for example.

The literature involving Brazilian firms is mostly concerned with explaining either the choice of debt policy, with payout and ownership policies as control variables, or the choice of payout policy, with debt and ownership policies as controls. In this paper, even though the main objective is to explain debt policy, the starting point is the ownership policy decision. Given the possible interdependency of the three policy variables, it really does not matter much which variable is assigned the role of the "dependent" variable. It is simply more convenient to begin with an ownership policy decision story.

In brilliant fashion, Rocha and Amaral (2007) discuss in an appendix to their paper, and with illustrations from the Brazilian debt policy choice literature, the various empirical methodology alternatives that could be used. They are (the papers which illustrate their discussion are cited in parentheses along with each alternative):

- Simple linear regression estimated by OLS (SILVA and VALLE, 2005).
- Multiple linear regression with the historical means of each variable (GOMES and LEAL, 1999; PEROBELLI and FAMÁ, 2002).
- The two-stage Fama and MacBeth (1973) methodology (BRITO and LIMA, 2005).
- Static panel estimation, with fixed or random effects (TERRA, 2002; SOARES and KLOECKNER, 2006).

- Dynamic panel estimation with the Arellano and Bond (1991) or Blundell and Bond (1998) methodologies (BARROS, et alli., 2006).
- Three-state least squares estimation for a system of equations (SILVEIRA et alli., 2008).

As already mentioned, the Rocha and Amaral (2007) methodology uses two-stage least squares for estimating a single equation with various specifications.

It is apparent from their descriptions that all of the above-listed methodologies may correct, to a greater or smaller extent, for autocorrelation or heteroscedasticity, but, with the exception of Silveira et alli. (2008), none uses an estimator that considers the full interdependency possibilities involving policy variables. Hence, they all may suffer from simultaneity and/or measurement error bias (for example, in the case of the Brito and Lima (2005) paper). This includes the Rocha and Amaral (2007) analysis.

In particular, the Silveira et alli. (2008) paper, however, uses the three-stage least squares estimator to examine a *two-equation* specification in which the endogenous variables are debt (proxied by so-called "financial" liabilities, namely, notes payable to financial institutions, which excludes accounts payable to suppliers, wages and taxes payable), and a "quality of governance" variable, whose value is determined with the use of questionnaire developed by Silveira (2004). Hence, this paper does not even consider the ownership policy choice variable which is relevant to the entrenchment versus convergence-of-interests discussion, and a payout policy proxy is not even used as a control variable in the two equations.

The results of Brazilian research on the determinants of debt policy, in addition to problems with the choice of specification and estimation method, reveal the following:

- The papers by Gomes and Leal (2001), Perobelli and Famá (2002), Terra (2002), Basso et alli. (2004), Brito et alli. (2005), Martin et alli. (2005), Moraes and Rhoden (2005), Famá and da Silva (2005), and Barros et alli. (2006) did not find any significant determination of capital structure by either payout or ownership policy. As discussed above, when such policy variables were included, there may have been specification problems and the use of an inappropriate estimator. This, once more, makes the importance of modeling their interdependency very clear.
- A paper by Procianoy and Schnorrenberger (2004), however, made an attempt at evaluating the possible association between ownership and capital structures. It tested the hypothesis that higher ownership concentration was associated with more limited use of debt in the firm's capital

structure, and obtained evidence in that direction. It used as a proxy for the ownership decision a proxy which is similar to that used in this paper (the proportion of voting shares held by up to the top five shareholders, creating a variable for the proportion held by the top shareholder, a second variable for the proportion held by the top two shareholders, and so on, however, in effect only the results for the proportion held by the top three investors are reported). In contrast, this paper considers the proportion of voting shares held by the top shareholder only. The Procianoy and Schnorreberger paper also used, as a proxy for ownership concentration, the number of shareholders cumulatively holding at least 51% of the voting shares.[1] Their results, given the discussion of testable hypotheses above, are consistent with the convergence-of-interests explanation. It is just the opposite of what has been found in this paper, as indicated by our results. However, this paper used a single-equation specification with the debt level as the dependent variable, the various cumulative levels of ownership as independent variables and several control variables, none of which measures payout directly. The equation was estimated by OLS. Hence, the discrepant results may be attributed to substantial specification error.

3. Data and Methodology

Given the literature review, three simultaneously-determined equations are proposed, including the expected signs for the coefficients.

Capital structure decision equation:

$$DEBT = c_{10} + c_{11} \times OWN + c_{12} \times PAYOUT + c_{13} \times CF + c_{14} \times CR + c_{15} \times PRO \quad (1)$$

Expected signs for the coefficients of equation (1):[2]

c_{11}: positive (if there is entrenchment); negative (if there is convergence of interests)
c_{12}: positive (if there is entrenchment); negative (if there is convergence of interests)
c_{13}: negative
c_{14}: negative
c_{15}: negative

Variables CF, CR and PRO proxy for the availability of internally-generated funds, which are a preferred source of financing, according to the pecking order theory of Myers and Majluf (1984). Hence, the expectation of negative signs for the corresponding coefficients.

Payout decision equation:

$$PAYOUT = c_{20} + c_{21} \times OWN + c_{22} \times DEBT + c_{23} \times CF + c_{24} \times CR + c_{25} \times PRO \quad (2)$$

Expected signs for the coefficients of equation (2):[3]

c_{21}: positive (if there is entrenchment); negative (if there is convergence of interests)
c_{22}: positive (if there is entrenchment); negative (if there is convergence of interests)
c_{23}: positive
c_{24}: positive
c_{25}: positive

Ownership decision equation:

$$OWN = c_{30} + c_{31} \times DEBT + c_{32} \times PAYOUT + c_{33} \times CF + c_{34} \times CR + c_{35} \times SIZE \quad (3)$$

Expected signs for the coefficients of equation (3):[4]

c_{31}: positive (if there is entrenchment); negative (if there is convergence of interests)
c_{32}: positive (if there is entrenchment); negative (if there is convergence of interests)
c_{33}: positive
c_{34}: positive
c_{35}: negative

The variables included in equations (1)-(3) are defined as follows:

DEBT = Total debt/total assets (%)
OWN = Share of voting shares held by largest stockholder (%)

PAYOUT = Dividends paid/Net income after corporate income taxes (%)

CF = Cash flow = (Net income + depreciation expense)/Total assets (%)

CR = Current ratio = Current assets/current liabilities

PRO = Net profit margin = Net income/Net revenue (%)

SIZE = ln(Net revenue, in thousands of Reais)

The values used for all variables are for 2007, and were obtained from the Economática ® database for Brazilian publicly-owned firms.

In the 3SLS estimation of the system of equations above, the instruments used included (a) the lagged variables of the DEBT, OWN, and PAYOUT variables; (b) exogenous variables in equations (1)-(3), i.e., CF, CR, PRO, and SIZE; (c) the independent variables used in the Rocha and Amaral (2007) paper, i.e.:

OPVPL = Value of investment opportunities = (Total assets – Net worth + Market value of equity)/Total assets; this is a proxy for the firm's Q ratio

SING = "Singularity" (or asset specificity) = Selling expenses/Net revenue

TANG = "Asset tangibility" = (Inventories + Fixed assets)/Total assets

For reasons of data availability for all variables in the Economática database, the sample comprises 91 publicly-owned firms in Brazil. The sample does not include financial institutions, since the nature of their financial statements differs very much, particularly in terms of capital structure, from those of industrial firms. The sample's corresponding descriptive statistics and correlation coefficients are displayed in Tables 1 and 2.

Table 1. Descriptive statistics for the 91 firms included in the sample, 2007.

Variable	Mean	Median	Standard Deviation	Maximum	Minimum
DEBT (%)	62,7799	57,8020	37,5570	343,7890	3,3460
PAYOUT (%)*	43,6028	31,1640	51,3413	385,4770	0,0000
OWN (%)	44,3047	43,3800	23,1041	99,0870	5,6530
CF (%)	12,5065	13,1056	12,2312	40,8957	-41,1109
CR	1,7796	1,4333	1,0863	7,0097	0,1750

PRO (%)	1488,73	13,2403	13983,45	133414,20	-214,4000
SIZE (ln(R$000))	14,8198	1487,67	1,9099	19,9481	9,8284

* 19 of the sample firms did not pay any dividends in 2007. In Brazil, corporations are required by law to distribute at least 25% of their income as dividends every year, except with the proviso that their financial condition does allow for that distribution, the law being unclear as to the definition of "financial condition", including whether it refers to good or bad financial condition.

Table 2 displays the Pearson correlation coefficients for all variables included in equations (1)-(3), that is, for the three policy variables (DEBT, PAYOUT and OWN) and the four control variables (CF, CR, PRO and SIZE).

Table 2. Pearson correlation coefficients for all variables used in equations (1)-(3).

	DEBT	OWN	PAYOUT	CF	CR	PRO	SIZE
DEBT	1,0000						
OWN	0,2754*	1,0000					
PAYOUT	-0,0340	0,1725	1,0000				
CF	-0,5529*	0,0233	0,3819*	1,0000			
CR	-0,3892*	-0,2864*	-0,1213	0,0982	1,0000		
PRO	-0,1690	-0,1380	-0,0194	0,1017	0,5102*	1,0000	
SIZE	-0,3298*	-0,0139	0,3084*	0,5734*	-0,0590	-0,0535	1,0000

* Statistically significant at the 5% level. Sample size = 91 observations.

The application of a 5%-significance t- test to the Pearson correlation coefficients shows that the DEBT and OWN policy variables are significantly and positively associated, as would be predicted by the entrenchment hypothesis for the agency relationship. There appears to be no significant association between the third policy variable (PAYOUT) and the DEBT and OWN variables, but this does not yet take into account the full possibilities of interaction, as well as the influence of control variables, some of which appear to be associated with the policy variables, but, again, before taking into account the interdependency of the three policy variables. This is accounted for in the simultaneous-equation setup based on the equation system (1)-(3). Those results follow.

4. Results

Since an important part of this paper's objective is to ascertain the importance of treating the capital structure, payout and ownership decisions as interdependent, the results presented in Tables 3-5 should provide the reader with a comparison of results for when the three decisions are not treated as being simultaneously made, even though, for example, one tests for the determination of the firm's capital structure by dividend and ownership policies, in addition to other factors. Thus, the results provided in the second and third columns of Tables 3-5 are those obtained estimated equations (1)-(3) as separate empirical models, by ordinarily least squares (OLS). The fourth and fifth columns provide the results obtained when equations (1)-(3) are estimated by three-stage least squares (3SLS), with the instruments listed above.

In addition, a choice was made to use the 3SLS estimator, as opposed to estimation by 2SLS, as in Rocha and Amaral (2007), because the 2SLS estimator will be inefficient, especially when the equations contain different independent variables, as in this case, and the error terms in the system are heteroscedastic.

Table 3. Results for equation (1).
DEBT is the dependent variable. Sample size = 91 observations.

Variable	Estimated coefficient (OLS)	Prob(t-statistic)	Estimated coefficient (3SLS)	Prob(t-statistic)
Intercept	85,5216	0,0000	65,7014	0,0000
OWN	0,3129	0,0211	0,4779	0,0016
PAYOUT	0,0876	0,1708	0,3715	0,0029
CF	-178,4010	0,0000	-227,0644	0,0000
CR	-10,3382	0,0019	-6,7983	0,0449
PRO	0,0192	0,4357	0,0136	0,5708
R^2		0,4744		0,3310
Prof(F-statistic)		1,6582		1,9317

The results for the main specification considered in this paper indicate the following:

1. The signs of all coefficients are unchanged from OLS to 3SLS, an indication that simultaneity bias may not be a serious problem.
2. The standard errors of most coefficients, particularly those associated with the OWN and PAYOUT variables, are lower with 3SLS than with OLS, which is an indication that 3SLS is effectively a more efficient estimator, as expected.
3. The positive sign of the coefficient association with the PAYOUT variable indicates the net existence of entrenchment (the positive sign corresponding to complementary between debt and dividend policies).
4. The significant result obtained for the CF (cash flow) variable is consistent with the static trade-off hypothesis of capital structure. This is in substantial divergence with the results in Rocha and Amaral (2007), where a negative coefficient was obtained, though not always significant. However, it is also consistent with the prediction from the pecking order theory, as discussed above, and the results in this direction also include the significantly negative coefficient obtained for the CR variable.

Table 4. Results for equation (2).

PAYOUT is the dependent variable. Sample size = 91 observations.

Variable	Estimated coefficient (OLS)	Prob(t-statistic)	Estimated coefficient (3SLS)	Prob(t-statistic)
Intercept	0,2986	0,9896	-57,1634	0,0269
OWN	0,2008	0,3893	0,4281	0,0872
DEBT	0,2478	0,1708	0,6702	0,0022
CF	204,1386	0,0001	270,0937	0,0000
CR	-3,7996	0,5165	3,4029	0,5603
PRO	0,0056	0,8930	-0,0075	0,8473
R^2		0,2046		0,1278
Prof(F-statistic)		2,0224		2,0452

The results in Table 4 indicate the following:

1. The only change in sign of any coefficient involved the CR and PRO variables, which are non-significant under OLS or 3SLS.
2. As was the case in the results obtained for DEBT equation, 3SLS is clearly a more efficient estimator, as can be seen by the substantial drops in standard errors. In fact, the significance of the OWN variable increases substantially (it becomes significant at 10%), and the DEBT variable is significant under 3SLS, but not under OLS.
3. The positive sign of DEBT in this PAYOUT equation confirms the complementary nature of the two policies, as was already observed in Table 3.
4. Two of the control variable coefficients (CF and PRO) have the expected positive sign, but only the first variable is significant
5. The positive sign of the OWN variable is consistent with entrenchment being the appropriate explanation.
6. When compared to the results presented in Table 2 (Pearson correlation coefficients), the significance of the DEBT policy variable (at any reasonable level) and the OWN policy variable (at the 10% significance level) is in stark contrast with the lack of partial association between PAYOUT and the other variables, indicating that it is crucial that one takes their interdependency into account.

Table 5. Results for equation (3).

OWN is the dependent variable. Sample size = 91 observations.

Variable	Estimated coefficient (OLS)	Prob(t-statistic)	Estimated coefficient (3SLS)	Prob(t-statistic)
Intercept	47,0093	0,0488	25,9099	0,2737
DEBT	0,1838	0,0259	0,3327	0,0024
PAYOUT	0,0468	0,3532	0,1737	0,0995
CF	40,1890	0,1472	42,0648	0,2103
CR	-3,8947	0,1003	-1,1762	0,6345
SIZE	-0,9703	0,5180	-0,8929	0,5209

R^2	0,1587	0,0418
Prof(F-statistic)	2,0045	2,1340

The results presented in Table 5 indicate the following:

1. The use of 3SLS instead of OLS does not lead to changes in the signs of coefficients, but produces lower standard errors, particularly for the coefficients of the main variables of interest (DEBT and PAYOUT).
2. Results that were not significant for PAYOUT under OLS become significant at 10% under 3SLS.
3. The positive signs for both DEBT and PAYOUT are, once more, indications of entrenchment in the sample firms. This result, as well as those in Tables 3 and 4, provide a stronger confirmation of entrenchment than that obtained by KRF(2007), where the corresponding coefficients were in some cases significantly negative (for example, for the OWN variable in the DEBT equation), whereas others were positive (for example, for the OWN variable in the PAYOUT equation).
4. The coefficients for two of the control variables (CF and SIZE) have the expected sign, but none of the three control variables is statistically significant.

5. Conclusion

This paper presents evidence indicating that the choice of capital structure is negatively associated with the ownership decision (as proxied by ownership concentration): this is consistent with the existence of an entrenchment effect, which was to be expected in Brazil, and has been reacted to by our legislation (as in the various versions of our *Lei das Sociedades por Ações*, which have made attempts at protecting minority investors). It also presents evidence pointing to the significance of the payout decision for the choice of capital structure, once more confirming the entrenchment story.

Overall, the results obtained in this paper contradict most of the evidence accumulated in several papers already presented, discussed and published involving the determinants of capital structure. The differences are initially caused by the application of incomplete theory, namely, failing to consider the interaction among the ownership, debt and payout policy choices, described in section 2 of this paper. Following the failure to recognize that interaction, all previously available evidence is obtained with the use of obviously inappropriate specifications and the resulting biased and/or inefficient estimators.

In some cases, even the direction of the association between two of the three policy variables is the opposite of this paper has revealed to be.

This paper replicates the KRF (2007) analysis for South Korea with data for Brazilian firms. Their results for the entrenchment versus convergence-of-interests dichotomy were not unambiguous, and they finished by claiming that these two explanations for agency costs are not mutually exclusive. The evidence in our paper, however, is much clearer in this respect, for the dominance of entrenchment.

In future research, we would be very happy if we could enlarge the sample size, but even for publicly-owned firms the availability of data for a large number of firms is limited. And, given the nature of the model specification, the use of panel methods, now so popular, is not possible.

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[1] The results with their VT-123 proxy (the proportion of shares held by the top three investors) and the Acionista51 proxy (the number of shareholders which held, in the aggregate, at least 51% of the voting shares) were both significant: the coefficients were negative for VT-123 and positive for Acionista51. It should be pointed out that, the lower the value of Acionista51, the less concentrated is the firm's ownership.

[2] If the firm is not capable of generating funds for investment purposes in its own operations, and does not possess sufficiently large current resources, it is expected that the firm will be forced to resort to new debt as a source of funds. This would be predicted by the pecking order proposed by Myers and Majluf (1984). Therefore, the signs for the coefficients of CF, CR and PRO would be expected to be negative in equation (1).

[3] The expected positive signs for the control variable coefficients correspond to the expectation that, the greater the capacity to generate cash flows from operations (CF), the higher the firm's liquidity (CR), and the higher the firm's profitability, the greater will the firm's capacity to distribute current income to shareholders. Since the retention of earnings is one important alternative for new investment financing, when the firm is able to generate funds in its operations, the higher its payout ratio can become.

[4] Positive signs for CF and CR are expected from the pecking order theory, and prior studies, according to KRF (2007), have reported that ownership is greater in smaller than larger firms. Hence, the expectation is that the coefficient of SIZE is negative.

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[1] The results with their VT-123 proxy (the proportion of shares held by the top three investors) and the Acionista51 proxy (the number of shareholders which held, in the aggregate, at least 51% of the voting shares) were both significant: the coefficients were negative for VT-123 and positive for Acionista51. It should be pointed out that, the lower the value of Acionista51, the less concentrated is the firm's ownership.

[2] If the firm is not capable of generating funds for investment purposes in its own operations, and does not possess sufficiently large current resources, it is expected that the firm will be forced to resort to new debt as a source of funds. This would be predicted by the pecking order proposed by Myers and Majluf (1984). Therefore, the signs for the coefficients of CF, CR and PRO would be expected to be negative in equation (1).

[3] The expected positive signs for the control variable coefficients correspond to the expectation that, the greater the capacity to generate cash flows from operations (CF), the higher the firm's liquidity (CR), and the higher the firm's profitability, the greater will the firm's capacity to distribute current income to shareholders. Since the retention of earnings is one important alternative for new investment financing, when the firm is able to generate funds in its operations, the higher its payout ratio can become.

[4] Positive signs for CF and CR are expected from the pecking order theory, and prior studies, according to KRF (2007), have reported that ownership is greater in smaller than larger firms. Hence, the expectation is that the coefficient of SIZE is negative.