Advances in Scientific and Applied Accounting
ISSN 1983-8611
Building theories and improving applications since 2008

THE EFFECT OF LEVERAGE ON EARNINGS MANAGEMENT IN BRAZIL

Kym Marcel Martins Ardison* E-mail: kymmarcel@gmail.com
Antonio Lopo Martinez* E-mail: lopo@fucape.br
Fernando Caio Galdi* E-mail: galdi@fucape.br
*Fundação Instituto Capixaba de Pesq. em Contabilidade, Economia e Finanças

Abstract: The main goal of this paper is to analyze the relation between the leverage ratio and the managers' decision to manage earnings in Brazil. Using abnormal accruals as a proxy for earnings management we design a linear regression model to capture the relation between these two variables. We use three models of discretionary accruals as proxy for earnings management. First one was the Jones model. Proposed by Jones (1991), the second model was the Modified Jones model, proposed by Dechow, Sloan and Sweeney (1995). The third one was the KS model, proposed by Kang and Sivaramakrishnan (1995), which uses an instrumental variable approach to correct for endogenous variables. Using a linear regression method with observation from 1994 to 2010 firms all BMF&Bovespa listed firms we try to model the relationship between earnings management and the leverage ratio. We also control our model for the cost of capital and the natural logarithm of total assets. We used the assets natural logarithm to control for firm size and the firm cost of debt to try to remove precious known endogeneity in the proposed model. Our final results show no relations between the leverage ratio and earnings management. These results contribute to the literature that examines the effect of opportunistic behavior on earnings management that examines the leverage/earnings management relation. Moreover the main findings suggest that there is a beneficial consequence of debt because the increased debt might reduce manager's discretionary spending, and in turn, reduces accrual earnings management.

Key Words: Leverage ratio. Earnings management. Discretionary accruals.

1 INTRODUCTION

The earnings management concept has been studied in accounting by researchers for a long time. The manager decision to manage earning using accruals or by real activities is one of the most common researches in accounting and it continues to be relevant nowadays.

The motivation of this research is to try to find evidence of a new variable that might influence managers' decision to manage earnings. Although one can find exhaustive literatures on earnings management that have spanned many axons of firm behavior, few have we found to have addressed earnings management behavior related to financial leverage.

In this paper, we contend that managers are likely to use their reporting discretion to influence financial leverage in the wake of turbulence and that firms

rating may also play a pivotal role to the degree of their manipulation. Managers have discretion in their financial reporting because of the flexibility offered in current accounting standards.

Our first and most obvious point is that the Earnings Management literature should adopt the standard view in Corporate Finance theory: the firm's objective is to avoid general costs of financial distress, a concept that is much wider than penalties from violating bond covenants. Our second point is that, in terms of financial-distress costs, debt is not homogenous with respect to the expected cost of financial distress.

The present paper analyses all firms with open capital listed at BMF&Bovespa since 1994 to 2010 that have the necessary information to estimate the proposed models. We first use the well known accrual models proposed by Jones; Dechow, Sloan and Sweeney and Kang & Sivaramakrishnan. Using those three models we were able to estimate the discretionary accruals, our proxy for earnings management.

After estimating the accrual based earnings management model we used a linear regression approach to try to capture the relationship between the leverage ratio and earnings management, here represented by the discretionary accruals. Our initial thought was that the leverage ratio will present a positive relation with earning management. Our results show that there was no linear relation between those two variables. However we corroborate with Martinez (2004) in which the author finds that the KS model is more robust than the others in Brazil.

The following paper is structured as follows: Section 2 presents the literature, section 3 describe all the data used in the paper, section 4 will present the methodology used to estimate our models, section 5 present the models results and section 6 concludes de paper.

2 LITERATURE REVIEW

Most papers regarding earnings management base their analysis on an earnings management proxy. Often authors use a linear regression model based on discretionary accruals to capture managers' management (Dechow, Sloan and Sweeney 1995).

Some researchers used discretionary accruals proxies to investigated whether

firms manipulate earnings (e.g., Dechow et al. 2003; Phillips et al. 2003).

Our focal point in this study is the impact of leverage into managers' decision to manage earnings. We noticed that in Brazilian market, as in USA, analyst often use the leverage ratio as a determinant point to evaluate firm's risk.

Background literature reveled that firms tend to avoid reporting losses. Burgstahler and Dichev (1997a) and DeGeorge, Patel, and Zechhauser (1999), suggest that investor's would like to observe a positive earning. Due to that we expect that firms with higher leverage ratios have higher incentives to manage their earnings since they must present their lenders good results so they will refinance firm debt.

According to Matsumoto (2002) managers want to avoid earnings surprises. There are two ways, according to the author, they can do that: first one is to manage earnings to beat or reach analysts' target. Second one is to low analysts expectations, so they will low their predictions. Notice that both mechanisms involve costs.

Anne Bayer (2009) model managers' utility function and conclude that the less persistent firms cash flow, the strongest is manager's incentive to reduce his forecast error, otherwise investors, or in our case lenders, will perceive the firms cash flow to be riskier.

McConnell e Servaes (1995), Lang et al. (1996) and Aivazian et al. (2005) shows that financial leverage have a negative relation over firm's investment, which means that the ones with higher leverage often have lower investments.

Beneish (2001) highlights that some sectors have more incentives to manage earnings than others. Furthermore this characteristic will be important to justify our model, and why we divided our accruals into sectors. Roychowdhury (2006) suggests that firms manage cash flows from operations to avoid reporting losses.

It is important to highlight that in some cases manager may want to manage earnings down. Some studies evaluate the incentives managers have to forecast lower profits so they can influence analysts target lower (Anne Bayer, 2009). According to the author this might occurs because market values firms whose reported earnings exceed managers' forecast.

Observe that firms have different incentives so the manager may manage

earnings in different directions. Just to illustrate suppose a private firm that pays its employee a variable wage according to earnings. In this case managers have the incentive to manage earnings down, so they will generate an economy due to reductions in the variable wage. Now suppose a public firm with the same characteristics. Here, shareholders want to maximize earnings per share, but also minimize wages expenses. Now the manager face a tradeoff between managing earnings down to reduce wage expenses, or to manage earnings up (increasing wages expenses) and raising EPS. Notice than that most problems involving earnings management fits economic problems as asymmetric information and incentives.

Debt covenant hypothesis of positive accounting theory (Watts & Zimmerman, 1986) presented that the closer a company with the violation of credit agreement based on accounting was more allowed the company manager to select the accounting procedure which moved the reported profit from the next period to now.

Leverage increases constrain the opportunistic behavior of managers due to following reasons: Required debt repayments decrease the amount of cash available to managers for investing in non-value increasing projects. When a firm is highly leveraged, it has to face the strict scrutiny of lenders and its spendings are often restricted due to scrutiny of lenders.

Prior research is consistent with the control hypothesis prediction that leverage increases reduce opportunistic behavior of managers. Beatty and Weber (2003) suggests that leveraged firms engage in Earnings Manangement to avoid debt covenant default. Nevertheless, Jelinek (2007) studies the effect of leverage increase on accrual earnings management and concludes that increased leverage is associated with reduced accrual Earnings Management.

Ujah and Brusa (2011) find that both financial leverage and cash flow volatility impact the degrees to which firms manage their earnings. That business cycle and not bond or debt ratings affect firm´s earnings management. Furthermore, they find that depending of what economic group or industry a firm belongs to, their degree and extent of managed earnings varies, where consumer staples and cyclical is the most manipulated industry and transportation and utilities industries are the least manipulated. Hence, earnings management is a paramount issue to be addressed

among firms and within industries.

3 METODOLOGY

3.1 Data

This study used the database from Economática, a software where is possible to search for data from all firms listed at BM&FBovespa, the Brazilian stock market. We collect all data avaiable from 1994 to 2011 to all listed firms from all sectors. We end up with an initial sample of 11254 observations. After cleaning for missed variables our sample was reduced to 3725 observations.

All data collected are referred to the end of Brazilian fiscal year (in Brazil all firms fiscal year end at December 31st). We select the following data to our study: sector (defined by Economática. There are a total of 21 sectors), short term assets, short term liabilities, cash available (include short term investments such as short term notes), total assets, revenue, short term receivables, immobilized assets, depreciation and amortization, intangible assets, shirt term loans, total debt, net total debt, net profit, production cost, working capital, equity, deferred, short term receivables, cost of capital (KD), and net debt expenses. All data where adjusted to inflation and are refers to the consolidated balance sheet.

Using the collected data we create the following variables to estimate our model: total assets (-1), revenue (-1), change in revenue (revenue –revenue (-1)), depreciation and amortization (-1), PPE (defined as immobilized assets + intangible assets + deferred), PPE (-1), net debt expenses divided by assets (this will be or control variable for leverage ratio), APB (Defined as working capital – short term receivables).

Table one presents the descriptive statistics from our data. It presents the mean, variance and the quartiles from all Economática variables used in our models.

Table 1 - Descriptive Statistics

This table summarizes the descriptive statistics from all variables collected from Economática. All variables followed by "(-1)" are lagged at period t-1.

	Period 1994-2010						
Variables	**Mean**	**SD**	**Min**	**0,25**	**Median**	**0,75**	**Max**
Total Assets	4,40E+09	1,77E+10	1,14E+06	2,12E+08	8,09E+08	2,67E+09	5,20E+11
Revenue	2,34E+09	9,03E+09	-9,00E+08	1,38E+08	5,13E+08	1,72E+09	2,15E+11
∆Revenue	2,58E+08	2,19E+09	-3,20E+10	4,00E+03	4,15E+07	2,19E+08	4,45E+10
Short Term Receivables	3,75E+08	1,35E+09	-3,30E+07	2,01E+07	8,27E+07	2,90E+08	3,69E+10
Deferred	5,68E+07	2,33E+08	0,00E+00	0,00E+00	9,85E+05	1,54E+07	3,47E+09
Immobilized	2,01E+09	1,00E+10	0,00E+00	4,93E+07	2,10E+08	9,92E+08	2,83E+11
Depreciation and Amortization	1,93E+08	7,09E+08	-6,20E+07	5,89E+06	2,43E+07	1,06E+08	1,49E+10
Intangible	1,47E+09	6,05E+09	0,00E+00	2,02E+06	3,43E+07	1,01E+09	8,21E+10
PPE	2,24E+09	1,11E+10	7,00E+03	5,96E+07	2,45E+08	1,15E+09	3,65E+11
Short Term Leverage	3,10E+08	9,37E+08	0,00E+00	1,46E+07	6,61E+07	2,45E+08	2,10E+10
Short Term Debenture Bond	2,29E+07	1,05E+08	0,00E+00	0,00E+00	0,00E+00	4,86E+05	1,69E+09
Total Net Debt	7,37E+08	3,35E+09	-4,90E+10	7,80E+06	8,99E+07	4,99E+08	7,08E+10
Leverage Ratio	1,45E+00	3,28E+03	-1,97E+05	1,70E-01	1,49E+00	2,67E+00	3,54E+04
Net Profit	2,19E+08	1,53E+09	-4,20E+09	-4,31E+06	1,43E+07	1,07E+08	3,52E+10
Products Cost	1,49E+09	5,67E+09	-2,09E+05	8,72E+07	3,29E+08	1,10E+09	1,42E+11
Expenses	3,60E+08	1,17E+09	-1,10E+09	2,54E+07	8,11E+07	2,42E+08	2,19E+10
Equity	1,72E+09	8,82E+09	-7,90E+09	6,13E+07	2,83E+08	9,56E+08	3,07E+11
Cost of Debt	7,26E+02	1,13E+04	-4,39E+03	1,74E+01	2,99E+01	5,83E+01	3,88E+05

3.2 Regression Models

Since our model depends on earnings management we need to estimate a proxy for this variable. We will focus here in three classics model usually used as proxies for EM.

Before introducing the earning management proxy model we found important to emphasize some topics and explain a little more about our proposed model, and past studies regarding the leverage ratio and earnings management.

First of all, notice that the initial hypothesis consists that the leverage ratio influences managers' incentive to manage earnings.

Francis, Khurana and Pereira (2005) found evidence that corroborate with the idea that firms with higher need of external financing have higher levels of corporate governance, and as consequence lower abnormal accruals.

Coelho and Lopes (2007) tested in their study for a positive relation between the leverage ratio and earnings management. According to the authors manages will manage earnings up tiring to demonstrate to their lenders a wealthy firm.

Francis et al (2002) and Nardi et al (2009) show empirically that higher

earnings management is usually associated with higher cost of capital. Taking that in consideration we may consider the following relation:

$$Leverage = \gamma_1 + \gamma_2 Cost\ of\ Capital$$

As show in table above using the same sample we use in our model for Brazilians firms we can show that the cost of capital have a negative relation with the leverage ratio (here measured as total net debt divided by total assets, furthermore we will argue why use this proxy for leverage ratio).

Table 2 - Estimated Leverage Ratio VS. Cost of Capital

Dependent Varible: Leverage Ratio		
Variable	Beta	Prob.
C	0,40753	0,00000
Cost of capital	-3.01E-0.6	0,00000
#Observation	3725	

A Coelho and Lopes (2007) results show a statically insignificant relation between the leverage ratio and earnings management. The authors used the following model to predict the leverage ratio impact in the discretionary accruals, proxy for earnings management:

$$AD_{jt} = \alpha_1 + \beta_2 ET_{ji} + \beta_3 LL_{jt} + \varepsilon_{jt}$$

Using the hypothesis sustained by the authors that β_2>0 we can show that $\widehat{\beta_2}$ has a negative bias since our estimated $\widehat{\gamma_2}$ <0. That negative bias probably caused the negative $\widehat{\beta_2}$ authors found.

Taking that into consideration we will estimate the following model:

$$DA_t = \beta_1 + \beta_2 \frac{Total\ Net\ Debt}{Total\ Assets}_t + \beta_3 \ln(Total\ Assets)_t + \beta_4 Kd_t + \varepsilon_t$$

Our depended variable is the discretionary accruals, often used as proxy to earnings management (e.g. Dechow, Sloan and Sweeney 1995, Matsumoto 2002, Jones 1991). The independent variables are the one that follows: total net debt/total assets, our focal variable, and the natural logarithm of total assets, a control variable for firm size, and firm cost of capital included in the model to remove the known endogeneity problem showed above. By estimating this model we will be able to control the potentially bias caused by the absence of the cost of debt at Coelho and Lopes (2007).

In this paper we define de leverage ratio as $\frac{Total\ Net\ Debt}{Total\ Assets}$ counterpart to $\frac{Total\ Net\ Debt}{Equity}$ because in our sample many of the firm have negative equity, which present to be systematic during all sample time period. Due to that if we used the second one as proxy for leverage ratio it would be many negative numbers, what does not make sense.

To estimate this model we will use an OLS method using Eviews Software. We did not use a panel method because otherwise most of BM&FBovespa listed firms will not survive the cleaning procedure.

Before estimating our model we needed some proxy variables for earnings management. As proposed by Jones (1991), Dechow (1995) and Kang and Sivaramakrishnan (1995) we use the discretionary accruals models as Proxy for earnings management.

First of all we calculated the total accruals using the following method:

$$TA_{tj} = \Delta Current\ Assets_{jt} - \Delta Current\ Liabilities_{jt} - \Delta Cash\ in\ Hand_{t} + \Delta \text{Shor Term Financial Liabilities}_{jt} - \text{DEPA}_{jt}$$

Where TA is the total accruals at time t for each firm j. DEPA is the amortization and depreciation at period t for firm j.

After calculating the total accruals we were able to use the following three methods to estimate the discretionary accruals, our proxy for earnings management.

The first model we estimate is the Jones model, proposed by Jones (1991) that follows:

$$\frac{TA_{jt}}{Assets_{j,t-1}} = k_1 \frac{1}{Assets_{j,t-1}} + k_2 \frac{\Delta Revenue_{j,t}}{Assets_{j,t-1}} + k_3 \frac{\Delta PPE_{j,t}}{Assets_{j,t-1}} + \varepsilon_{j,t}$$

After estimating the linear regression we calculate the non-discretionary accruals (NDA) defined as:

$$NDA_{jt} = \widehat{k_1} \frac{1}{Assets_{j,t-1}} + \widehat{k_2} \frac{\Delta Revenue_{j,t}}{Assets_{j,t-1}} + \widehat{k_3} \frac{\Delta PPE_{j,t}}{Assets_{j,t-1}}$$

Here we emphasize that $\widehat{k_i}$ is the estimated coefitient for the total accruals regression. Our null hypothesis is that:

$$k_i = 0$$

Due to that we considered a 10% level of significance during all paper. Which means that is the p-value for any of the estimated k_i were bigger than 10% than we will accept the null hypothesis and we considered that specifically $k_i = 0$.

Also for comparison purposes we estimated the NDA using all estimatedk_i, including the ones that were not significant. We did that because most papers in Brazil use the estimated errors form equation as the discretionary accruals. Although the results were very similar to the ones calculate using only the significant coefficients so we omitted them in our analysis.

Finally we estimated the discretionary accruals using the definition of accruals that follows:

$$TA_{jt} = DA_{jt} + NDA_{jt}$$

$$NDA_{jt} = TA_{jt} - DA_{jt}$$

Where TA is the total accruals, DA the discretionary accruals and NDA the non-discretionary accruals.

Notice that according to Beneish (2001) some sectors have more incentives to manage earnings than others. Because of that we calculate on OLS regression for each sector in our sample. Due to that we needed to eliminate some of the sectors because they did not present enough information to estimate the model.

The second model we estimated where the Modified Jones model, proposed by Dechow, Sloan and Sweeney (1995).

This model uses the same estimated regression as the Jones model. The main difference consist that when estimating the non-discretionary accruals:

$$NDA_{jt} = \widehat{k_1}\frac{1}{Assets_{j,t-1}} + \widehat{k_2}\frac{\Delta(Revenue - AC)_{j,t}}{Assets_{j,t-1}} + \widehat{k_3}\frac{\Delta PPE_{j,t}}{Assets_{j,t-1}}$$

Were AC is the accounting receivables at period t for each firm j.

Again we use the following equations to estimate the discretionary accruals:

$$TA_{jt} = DA_{jt} + NDA_{jt}$$

$$NDA_{jt} = TA_{jt} - DA_{jt}$$

Table (3) show the descriptive statistics of the variables used to estimate Jones and modified Jones model.

Table 3 - Descriptive Statistics

This table summarizes all variables used at Jones and Modified Jones model.

	Period 1994-2010						
Variables	**Mean**	**SD**	**Min**	**0.25**	**Median**	**0.75**	**Max**
1/Assets	6,80E-09	2,27E-05	2,89E-09	4,13E-07	1,34E-06	4,88E-06	5,95E-04
∆Revenue/Assets	0,113	0,566	-6,09E+07	0,005	0,070	0,189	23429928,0
PPE/Assets	0,496	0,499	0,000	0,272	0,476	0,654	17563393,0
Total Accruals/Assets	-2,00E-02	6,07E-01	-2,09E+07	-9,40E-02	-3,21E-02	3,46E-02	2,66E+07
Short Term Receivables/ Assets	2,27E-02	1,01E-01	-6,01E-01	-6,31E-03	1,03E-02	3,71E-02	2,46E+07

The third model we use to estimate the discretionary accruals is the one proposed by Kang and Sivaramakrishnan (1995). This model uses an instrumental variable approach to calculate the discretionary accruals. We considered this the most robust method to estimate the discretionary accruals since it take the endogeneity into consideration and try to solve this problem using the instrumental variables.

Martinez (2004) analyses 147 Brazilian firms from 1996 to 1999 and found the same conclusion as Kang and Sivaramakrishnan (1995) that the KS model is the one that present more accuracy in Brazil.

To estimate this model we used the Two Stage Least Squares linear regression model that follows:

$$TA_{j,t} = k_0 + k_1\left[\frac{CR_{j,t-1}}{REV_{j,t-1}} * REV_{j,t}\right] + k_2\left[\frac{APB_{j,t-1}}{EXP_{j,t-1}} * EXP_{j,t}\right] + k_3\left[\frac{DEP_{j,t-1}}{PPE_{j,t-1}} * PPE_{j,t}\right]$$

Where TA is the total accruals at period t for firm j, CR is the accounting receivables, REV is the revenue, APB is the net working capital without the accounts receivables, EXP is the operational expenses before depreciation and amortization, DEP is the expense with depreciation and amortization and PPE is the investment and the mobilized assets.

In this model $\frac{CR_{j,t-1}}{REV_{j,t-1}}$ is the first instrument, $\frac{APB_{j,t-1}}{EXP_{j,t-1}}$ is the second one and $\frac{DEP_{j,t-1}}{PPE_{j,t-1}}$ the third one.

Table (4) shows the descriptive statistics from the variables used in the model.

Table 4 - Descriptive Statistics

This table summarizes all variables used at KS model

	Period 1994-2010						
Variable	**Mean**	**SD**	**Min**	**0.25**	**Median**	**0.75**	**Max**
Instrument One	0.5112482	4.5932158	-0.0905392	0.0979331	0.1546705	0.2248218	215.43341
Instrument Two	-2.0325989	19.495918	-568.84083	-1.4116589	-0.3401943	0.5204307	125.40333
Instrument Three	0.1459877	0.7848101	-1.3606678	0.0627595	0.0953286	0.1433464	39.775811
Revenue	2.338E+09	9.032E+09	-895702000	137526000	513218000	1.717E+09	2.151E+11
EXP	390482248	1.31E+09	-1.098E+09	26980000	88828000	262058000	3.165E+10
PPE	2.244E+09	1.112E+10	7000	59569000	244555000	1.147E+09	3.649E+11
Total Accruals	-174627413	1.416E+09	-2.806E+10	-95056000	-10213000	13420000	2.981E+10

4 RESULTS

First of all we will present the results of the estimated equations for the Jones and the KS model. Both models are already corrected for heteroscedasticity problems using White variance and covariance matrix.

Since we do not use a panel method or a time series method we were not able to test for serial auto correlations besides our Durbin-Watson where always next to two.

Table (5) shows our estimated Jones model for each sector. Observe that some sectors are not present because there was not enough observation to estimate a linear regression model.

We can view that as expected, the regressions present different coefficients (Beneish, 2001). For the purpose of our study we use the coefficients that were significant with a 10% level to estimate the discretionary accruals used in the next model.

Table (6) shows our estimated KS model for each sector. As observable in the table most of the coefficients in this model were not significant which lead us not to reject the null hypothesis that the coefficients were equal to zero. This is probably due because the sample we used. Before 2002 the stock market in Brazil was not solid, so the accounting information was not reliable either. (Both the Jones and the KS table uses * for a 10% significance level, ** for a 5% significance level and *** for a 1% significance level).

Table 5, 6 and 7 shows the results from our model using, respectively, the Jones, Modified Jones and KS estimated discretionary accruals.

Table 5 - Estimated DA vs. Leverage

This table presents the estimated coefficients for the Jones model Accrual vs. the leverage ratio. The regression is already correct for hetescedaticity.

Dependent Variable: Discretionary Accruals Jones Model				
Variable	Beta	Std. Error	t-Statistic	Prob.
C	-0.275341	0.232653	-1.183484	0.2367
KD	-8.61E-07	7.15E-07	-1.203130	0.2290
Leverage Ratio	0.016820	0.018102	0.929144	0.3529
LOG(Assets)	0.012819	0.011068	1.158270	0.2468
R-Squared	0.016642			
Prob > F	0.2896			
#Observation	3725			

Table 5 show results that in our first estimated model the leverage ratio coefficient presented a positive signs, the one we were expecting. However it is important to remind the reader that since the p-value is too high we did not reject the hypothesis that our estimated coefficient is different from zero.

Since our sample is sufficient big all central limit theorems are valid for the residues.

Table 6 - Estimated DA vs. Leverage

This table presents the estimated coefficients for the Modified Jones model Accrual vs. the leverage ratio. The regression is already correct for hetescedaticity.

Dependent Variable: Discretionary Accruals M. Jones Model				
Variable	Beta	Std. Error	t-Statistic	Prob.
C	-0.290167	0.233189	-1.244339	0.2135
KD	-9.00E-07	7.31E-07	-1.231956	0.2180
Leverage Ratio	0.016668	0.018114	0.920194	0.3575
LOG(Assets)	0.013872	0.011094	1.250456	0.2112
R-Squared	0.016330			
Prob > F	0.3557			
#Observation	3725			

Using the accruals from the Modified Jones model we did not find any different results from the ones already found using the Jones model accruals.

Table 7 - Estimated DA vs. Leverage

This table presents the estimated coefficients for the KS model Accrual vs. the leverage ratio. The regression is already correct for hetescedaticity.

Dependent Variable: Discretionary Accruals M. Jones Model				
Variable	Beta	Std. Error	t-Statistic	Prob.
C	10.26579	1.119256	9.171982	0
KD	-1.03E-05	2.26E-06	-4.564794	0.0000
Leverage Ratio	0.118798	0.089053	1.334006	0.1823
LOG(Assets)	-0.423284	0.051540	-8.212732	0.0000
R-Squared	0,020515			
Prob > F	0.0000			
#Observation	3725			

The last model we estimated was the using the accrual from the KS model. The results from this model are more interesting than the others. Notice that our R-squared is significantly higher, about 25%, than the ones from the model using either Jones or Modified Jones discretionary accruals. However our R-squared is still very small in absolute value, what means that our model has low explicative power over the abnormal accruals variance.

It is also interesting that using the accruals from the KS model most of the coefficients present to be significant and the on relative to cost of capital is negative as expected. (Francis, Khurana and Pereira, 2005; Nardi, Silva, Nakao, Valle, 2009).

Since our null hypothesis over the leverage ratio coefficient was that it would be positive it is necessary to multiply our p value by two since the default presentation considered a two tailed test. It also should be noticed that our f statistic showed that all variables together are representative to the model.

Finally, since he have mixed results and none of our estimated models present a significant coefficient, even for the two tailed test, there is no evidence that the leverage ratio has impact over the managers decision to manage earning.

Follows the sectors we analyze: 1 - Agro industrial and Fishing, 2 - Beverage, 3 - Commerce, 4 - Civil construction, 5 - Eletroeletronic, 6 - Energy, 7 - Financial, 8 - Assets, 9 - Industrial machinery, 10 - Metallic Mining, 11 - Non metallic mining, 12 - Others, 13 - Cellulose, 14 - Oil and gas, 15 - Chemical, 16 - Steel industry, 17 - Software and Data, 18 - Telecommunication, 19 - Textile, 20 - Transport, 21 - Automobile Parts.

Table 8 and 9 present results by sectors, for the Jones Model and KS model.

5 CONCLUSION

The present paper was designed with the purpose of identifying the influence of financial leverage over managers' decision to manage earnings in Brazil

We use three models of discretionary accruals as proxy for earnings management. Firs one was the Jones model. Proposed by Jones (1991), the second model was the Modified Jones model, proposed by Dechow, Sloan and Sweeney (1995). The third one was the KS model, proposed by Kang and Sivaramakrishnan (1995), which uses an instrumental variable approach to correct for endogenous variables.

Using a linear regression method with observation from 1994 to 2010 firms all BMF&Bovespa listed firms we try to model the relationship between earnings management and the leverage ratio. We also control our model for the cost of capital and the natural logarithm of total assets.

Since all in all of our estimated models we found a high p-value for our variable of interest we are lead to an interpretation that the leverage ratio has no influence in managers' decision to manage earnings. However we highlight that our estimated coefficients where all positive, which is sustained by the theory proposed by Coelho and Lopes (2007). In sum, there is no evidence that the leverage ratio has impact over the managers decision to manage earning in Brazil.

We also have in mind that some of our results might be influenced by econometric problems. We knew that a panel model would be more appropriated to estimate our model. Never the less there were not enough observations to use this econometric instrument.

We suggest for future research to use a panel data regression, correcting for fixed effects and also for the serial auto correlation, a known problem since accruals today certainly depend on past accruals and will influence future accruals. We also suggest a instrumental variable approach, what will lead to a more robust model. Notice that including the cost of capital we already removed some of the endogenous problem in the model.

These results contribute to the literature that examines the effect of opportunistic behavior on earnings management. In subsequent analysis, it can be

analyzed the cross-sectional differences in accrual measures and find that firms that undergo large leverage increases have significantly lower ending accrual levels than firms that remain consistently highly levered.

This paper contributes to the literature that examines the leverage/earnings management relation. Moreover results suggest that there is a beneficial consequence of debt because the increased debt reduces manager's discretionary spending, and in turn, reduces accrual earnings management.

Tabela 8 - Estimated OLS Jones Model

This table presents the estimated coefficients and the respective statistics for the Jones model. All regression are already correct for heteroscedasticity

Dependent Variable: Total Accruals/Total Assets									
Sector	**1**	**2**	**3**	**4**	**5**	**6**	**9**	**10**	**11**
Variable	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta
1/Total Assets	-726258.8	-1236905.	53849.75	5125339.	4677639.	-8008247.	2554219.	-4125920.	-6085587.
∆Revenues/Total Assets	-0.041827	0.209812	0.370212***	0.791850***	0.136501***	0.086895	0.172877	0.069924	-0.025535
PPE/Total Assets	0.005973	-0.053720	-0.263897**	-0.222177*	-0.130827*	-0.048562***	-0.093006*	0.001997	-0.077258*
#Observation	37	258	197	207	102	355	69	54	57
R-Square	0.001777	0.258614	0.211363	0.318880	0.174688	-	0.052175	0.017055	0.060005
Prob > F	0.91	0.0000	0.0186	0.0001	0.0218	0.0000	0.2814	0.7893	0.0055

12	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**
Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta
-385287.7	-15621281***	-28090220**	-240783.6	-4331550.***	1.36E+08***	-577015.9***	-4848422.	437450.5	-8960971.
0.394793	0.140086**	0.098138***	0.142510***	0.248272***	0.025337	0.382474***	0.260935***	0.503729***	0.909116
-0.083558**	-0.030335**	0.056436*	-0.037544***	-0.031126**	-0.383334	-0.188777***	-0.085294	-0.152214***	0.049015
570	113	87	273	424	17	229	320	112	264
0.140643	0.051633	0.882901	0.257095	0.181800	0.691147	0.451824	0.173413	0.248635	0.121811
0.0325	0.0000	0.0000	0.0000	0.0000	0.0030	0.0000	0.0000	0.0026	0.4848

Table 9 - Estimated OLS KS

This table presents the estimated coefficients and the respective statistics for the KS model. All regression are already correct for heteroscedasticity

Dependent Variable: Total Accruals/Total Assets											
Sector	**1**	**2**	**3**	**4**	**5**	**6**	**9**	**10**	**11**	**12**	**13**
Variable	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta
c	0.391405	0.026200	0.305961	-0.375737	0.735767	0.622115	0.009232	-1,029,248	-0.394916	0.237924	-0.267483**
REV/ Total Assets	-1.031446	0.240127*	0.474012	-3.532380	-0.731488	-1.007838	-0.225504	0.328030	0.528644	1.027394	0.124271
EXP/Total Assets	9.102705	-1.440187	-1.818105	18.64976	2.036917	-1.115529	1.069406	2.024818	-1.209924	-3.276781	-0.271221
PPE/Total Assets	-1.156214	0.027946	-1.144685*	6.506983	-0.953274	-0.054245	0.074287	0.821619	0.326619	-0.754682	0.251940**
#Observation	37	258	197	207	102	355	69	54	57	570	113

Sector	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**
Variable	Beta	Beta	Beta	Beta	Beta	Beta	Beta	Beta
c	-0.209339***	3,023,532	0.076184	-0.300297	-0.621257	1858290*	-0.007298	4,811,002
REV/ Total Assets	0.057767	-12.53075	0.327304	0.099338	0.593721	-0.751594	0.184381	-22.77119**
EXP/Total Assets	-0.424443	-164.3241	-2.812438*	2.589085	0.889879	-2.788818	-0.674069	-143.5876
PPE/Total Assets	0.210377	6.901142	-0.029415	-0.948498	-0.057260	-1.443817	-0.115096	8.352608
#Observation	87	273	424	17	229	320	112	264

REFERENCES

AIVAZIAN, A.; GE, Y.; QIU, J.. The impact of leverage on firm investment: The Canadian evidence. **Journal of Corporate Finance**, v. 11, p. 277-291, 2005.

BARTOV, E.; F. GUL, A. F.; TSUI, J. S. L.. Discretionary-accruals models and audit qualifications. **Journal of Accounting and Economics,** v. 30, p. 421-452, 2000.

BEATTY, A.; WEBER, J.. The effects of debt contracting on voluntary accounting method changes. **The Accounting Review**, v.76, p. 27-59, 2003.

BENEISH, M. D.; VARGUS, M. E.. Insider trading, earnings quality, and accrual mispricing. **The Accounting Review**, v. 77, n. 4, p. 755-791, 2002.

BAYER, A.. Capital market prices, management forecasts, and earnings management. **The Accounting Review** , v.84, n.6, p.1713-1747, 2009.

BEAVER, W.; KETTLER, P.; SCHOLES, M.. The association between market determined and accounting determined risk measures. **The Accounting Review**, 654-682, 1970.

BURGSTAHLER, D.; DICHEV, I.. Earnings management to avoid earnings decreases and losses. **Journal of Accounting and Economics**, v. 24, n.1, p. 99-126, 1997.

COELHO, A. C. D.; LOPES, A. B.. Avaliação da prática de gerenciamento de resultados na apuração de lucro por companhias abertas brasileiras conforme seu grau de alavancagem financeira. **RAC**, 2 edição especial, p. 121-144, 2007.

DECHOW, P.; SLOAN, R.; SWEENEY, A.. Detecting earnings management. **The Accounting Review**, v.70, n. 2, p. 193-225,1995.

DECHOW, P.; SLOAN, R.; SWEENEY, A.. Causes and consequences of earnings manipulation: an analysis of firms subject to enforcement actions by the SEC. **Contemporary Accounting Research**, v.13, n. 1, p. 1-36, 1996.

DECHOW, P.; RICHARDSON, S.; TUNA, A.. Why are earnings kinky? An examination of the earnings management explanation. **Review of Accounting Studies**, v. 8, n.2/3, p.355–384, 2003.

DEGEORGE, F.; PATEL, J.; ZECKHAUSER, J.. Earnings management to exceed thresholds. **Journal of Business**, v. 72, n. 1, p. 1–33, 1999.

FRANCIS, J. R.; KHURANA, I. K.; PEREIRA, R.. Disclosure incentives and effects on cost of capital around the world. **Journal of Accounting Review**, v. 80, n. 4, p.1125-1162, 2005.

GREENE, W. H.. **Econometric analysis**. New York: Macmillan, 1990.

JELINEK, K.. The effect of leverage increases on earnings management. **Journal of Business and Economic Studies,** v.13, p. 24-46, 2007.

JONES, J.. Earnings management during import relief investigations. **Journal of Accounting Research,** v. 29, 193-228,1991.

KANG, SOK-HYON; SIVARAMAKRISNAN, K.. Issues in testing earnings management and an instrumental variable approach. **Journal of Accounting Research**. Oxford, v. 33, n. 2, p. 353-367, 1995.

LANG, L.; OFEK, E.; STULZ, R.M.. Leverage, investment, and firm growth. **Journal of Financial Economics**, v. 40, p.3–29, 1996.

MARTINEZ, A. L. '**Gerenciamento' dos resultados contábeis**: estudo empírico das companhias abertas brasileiras. Tese (Doutorado)- Faculdade de Economia, Administração e Contabilidade - FEA. Universidade de São Paulo, SP, Brasil, 2001.

_____. Detectando earnings management no brasil: estimando as acumulações discricionárias. In: CONGRESSO USP de CONTROLADORIA e CONTABILIDADE, 4, 2004, São Paulo. **Anais...,** São Paulo: USP, 2004. CD-ROM, 2004.

MATSUMOTO, D.. Management's incentives to avoid negative earnings surprises. **The Accounting Review**, v. 77, n. 3, p. 483–514, 2002.

MCCONNELL, J.J.; SERVAES, H.. Equity ownership and the two faces of debt. **Journal of Financial Economics**, v.39, p. 131–157, 1995.

NARDI, P. C. C.; SILVA R. L. M.; NAKAO, S. H.; VALLE, M. R.. A Relação entre gerenciamento de resultados contábeis e o custo de capital das companhias abertas brasileiras. **Revista Universo Contábil**, v.5, n.4, p. 06-26, 2009.

PHILLIPS, J.; PINCUS, M.; REGO, S.. Earnings management: New evidence based on deferred tax expense. **The Accounting Review**, v. 78, n. 2, p. 491–521, 2003.

ROYCHOWDHURY, S.. Earnings management through real activities manipulation. **Journal of Accounting and Economic**, v. 42, p. 335–370, 2006.

SLOAN, R.. Do stock prices fully reflect information in accruals and cash flows about future earnings? **The Accounting Review**, v. 71, p. 289-315, 1996.

UJAH, N. U.; BRUSA, J. O.. Earnings management, financial leverage, and cash flow volatility: do economic conditions matter? 2011. **Available at SSRN***: http://ssrn.com/abstract=1929550.*

WATTS, R. L.; ZIMMERMAN, J. L.. **Positive accounting theory**, Engelwood Cliffs, NJ, 1986.

Artigo recebido em 01/06/2012 e aceito para publicação em 12/17/2012