BBR BRAZILIAN BUSINESS REVIEW
v.10, n.4
Vitória-ES, Out.-Dez. 2013
p. 30 - 64 ISSN 1808-2386 DOI: http://dx.doi.org/10.15728/bbr.2013.10.4.2

Venture capital and earnings management in IPOs

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ABSTRACT
We investigate earnings management (EM) in IPOs and the role of private equity/venture capital (PEVC) in hampering such practice. We show that when analyzing EM, PEVC and non-PEVC-sponsored firms should be treated as different samples: if one splits the sample, R-squared increases drastically for both subsamples. For PEVC-sponsored IPOs EM is marginal, mostly related to firms' characteristics and little related to the phases of the IPOs. Differently, for non-PEVC-sponsored IPOs EM is significant, mostly related to the phases of the IPO and little related to firms' characteristics. Finally, the reputation of the auditor is important only for PEVC-sponsored IPOs, suggesting that the choice of auditor is more meaningful for PEVC-sponsored firm, i.e, the choice of reputed auditor represents a compromise not to manage earnings.

Keywords: Earnings management; IPO; venture capital.

Received 05/24/2013; revised 09/10/2013; accepted10/18/2013; published 12/13/2013.

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***Editor's Note**: This paper was accepeted by Bruno Funchal and Fernando Caio Galdi.*

1 INTRODUCTION

This article studies the dynamics of earnings management (EM from hereon) around the IPO and the role of venture capital in hampering such practice. EM is a purposeful intervention in the external financial reporting process with any intention other than to represent the reality intrinsic to the business. Although not illegal, it can distort the information content of the financial statements in a way that can harm shareholders. EM is especially important at the time of initial public offerings (IPO hereon): if earnings were artificially inflated, investors who are unaware of this can be lead to pay an artificially high price.

Several authors studied EM at the time of public offerings. Teoh et al. (1998b) relate the poor long-term return of IPOs detected by Ritter (1991) to EM. They found that EM around the IPO is higher for issuing firms as compared to non-issuing ones. However, for using annual data, these authors were unable to capture the dynamics of EM and most likely underestimated it. This is so because earnings inflation and subsequent reversal can occur in the same fiscal year not being reflected in the annual reports.

Rangan (1998) studies the effect of EM on the subsequent stock performance of companies that do a seasoned equity offering (SEO). He finds that inflated earnings are reported in the quarter around the announcement of the SEO[ii] and the subsequent one. In fact, to reach this conclusion, the author limits to compare the median of discretionary accruals in each quarter without controlling for other variables that could affect the level of discretionary accruals (e.g., size, sales growth and leverage). In this way, he does not address the dynamics of EM. His main result is that increased earnings around the SEO explain the poor adjusted stock returns in the following year.

Another venue examines the effect of private equity/ venture capital (PEVC hereon) investors on the corporate governance of their invested companies and their influence on public offerings. Kaplan and Stromberg (2003) documents that venture capitalists impose complex control rights when they sponsor a company, and put in place strong monitoring and advisory mechanisms. Hellmann and Puri (2002) find that PEVC-sponsorship is related to a variety of professionalization measures, such as the adoption of stock options plans, the hiring of a marketing or sales vice-president and the formulation of human resources policies. They also find that PEVC-sponsored start-ups are more likely and faster to replace the founder with an outsider CEO. Gompers (1995) and Lerner (1995) also provide

evidence of strong monitoring activity exerted by venture capitalists.

Venture capitalists also have incentives to force their invested firms to keep good corporate governance practices even after the IPO: frequently the IPO is not the exit of PEVC from their invested firms, but rather a mechanism to obtain funds to finance expansion. Venture capitalists retain their equity position for years after the IPO [Barry et al. (1990)]. Therefore, venture capitalists have incentives to put in place governance systems to preserve the value of their investment. Furthermore, as they systematically take firms to the IPO market, concerns with their reputation may lead them to hamper earnings manipulation. In fact, evidence of such a role has been reported: Hochberg (2012), using a sample of US IPOs and annual data, finds evidence that PEVC-sponsored IPOs present reduced EM. Morsfield and Tan (2006) show that such result is robust to controls such as the endogenous choice for PEVC financing, IPO lock-up provisions, and PEVC exit subsequent to the IPO. They also find that the post-issue performance of PEVC-sponsored companies exceeds that of non-PEVC-sponsored ones. However, the improved performance occurs only when venture capitalists are effective in mitigating EM at the IPO period.

Finally, Wongsunwai (2013) studies the dynamics of EM and the role of the reputation of the venture capitalist. This author defines four two-quarter periods: pre-IPO, IPO, lock-up and post-lock-up periods and estimate EM for each of these eight quarters. With this procedure, he is able to determine when earnings are inflated and when reversion begins. He finds that PEVC-sponsored IPOs present significantly less EM than non-PEVC-sponsored ones in the IPO period and that this effect is mostly due to the influence of highly reputed venture capitalists.

Even though Hochberg (2012), Morsfield and Tan (2006) and Wongsunwai (2013) find that PEVC-sponsored IPOs present less earnings management than non-PEVC-sponsored ones, they do not answer whether this because both groups manage earnings and one group manage less than the other, or if PEVC-sponsored IPOs do not present earnings management at all.

In this article we study the dynamics of EM around the IPO to investigate differences in EMs between PEVC and non-PEVC-sponsored IPO. Initially, we show that PEVC-sponsorship does not uniformly reduce EM around the IPO. Next, we confirm for Brazil the result of Wongsunwai (2013) that PEVC-sponsored IPOs present significantly less EM only in the IPO period. This result is robust across statistical methods and different methodologies used to estimate EM.

Our contribution is to show that in terms of EM PEVC-sponsored and non-PEVC-sponsored firms behave in different fashions. In fact they should be treated as different samples of firms: Random effects estimates of a full regression model with all variables interacted with a PEVC-dummy yields an R-squared of 13-14% (depending on the EM model). If we split the samples, R-squared for the PEVC-sample increases to 34-37% and to near 24% for the non-PEVC-sample. We also observes that EM in PEVC-sponsored IPOs is marginal while for non-PEVC-sponsored ones is large. More specifically, for the sample of firms with PEVC-sponsorship, F-test for the significance of the phases of the IPO on EM is only marginally significant. The explanatory power of the phases of the IPO ranges from 4% (fixed effects estimate) to 11% (pooled OLS). F-test also indicates that firms' characteristics are highly statistically significant to explain EM (individually, growth, leverage, return on assets and the quality of the auditor are consistently statistically significant). Furthermore, fixed effects analysis indicates that PEVC-sponsored firms do not manage earnings in the IPO phase. Differently, for the sample of non-PEVC-sponsored firms, F-test indicates that the phases of the IPO are highly statistically significant, accounting for 31% (fixed effects) to 42% (random effects) of the explaining power. F-test also indicates that firms' characteristics are only marginally statistically significant to explain EM (individually, only leverage is consistently statistically significant). Furthermore, all analyses consistently indicate that non-PEVC-sponsored firms manipulate earnings around the IPO.

This paper is organized as follows: Section 2 makes a short presentation of the Brazilian Private Equity and Venture Capital industry. Section 3 describes our variables: measures of EM, phases of the IPO and other explanatory variables. Section 4 describes our sample and basics descriptive statistics. Section 5 explains our hypotheses, regressions models and treatment for endogenous choice of venture capital investments. Section 6 presents empirical results. Finally, Section 6 concludes the paper.

2 PRIVATE EQUITY AND VENTURE CAPITAL IN BRAZIL[iii]

PEVC is relatively recent in Brazil but has been rising sharply. Between 1999 and 2004, commitments grew at 9% per year from $3.7 to $5.6 billion. More recently, from 2004 to 2009, the growth rate was near 50% per year, reaching $36.1 billion in 2009. Achievement of macroeconomic stability; attainment of investment grade for government bonds; and the graduation of the PEVC industry, mainly through a wave of IPOs between 2004 and 2007 are the main drives behind such a growth. Taken as proportion of GDP, the growth in commitments represents an increase from 0.63% in 1999 to 2.33% in 2009. This is relatively

small when compared to countries where PEVC is more developed, such as the United States (3.7% of GDP) and the United Kingdom (4.7%). Another evidence of the industry rise is in the number of portfolio companies and management organizations. The number of portfolio companies increased from 306 in 2004 to 502 in 2009. The number of management organizations with their offices in the country increased from 71 in 2004 to 144 in 2009, and the number of funds that they manage, from 97 to 239. Although the Brazilian PEVC industry is still relatively small when comparable to other developed economies, its importance for the IPO market is significant. From 2004 to 2010 (our period of analysis), there were 115 IPOs in Brazil, 42 (37%) of which were from PEVC-sponsored firms. In the US from 2001 to 2012 there were 1187 IPOs of which 465 (39%) were PEVC-sponsored. Similar to countries in which PEVC is well established, independent organizations are the predominant form of management organizations. The participation of domestic organizations remained stable between 2004 and 2009 with nearly 75% of the organizations and 60% of the commitments. The participation of North American organizations decreased from 14% to 2% (from 10 to 3). However, in terms of commitments such a fall was not so sharp: from 31% to 18%. Organizations from Europe increased from 6% to 16% (from 3% to 9% in terms of commitments). The predominance of domestic institutions raises questions about whether PEVC in Brazil follows the same patterns as in the US. In this article, we focus only on its role in hampering EM. It remains a broad research question about whether there would be significant differences in patterns.

3 VARIABLES

3.1 MEASURES OF EARNINGS MANAGEMENT

Earnings management is not directly observable. Several models were developed to gauge it. In general, these models are based on accruals: the difference between reported earnings and cash flow from operations. Total accruals can be decomposed into current (short-term) and non-current (long-term) components. Current accruals adjustments involve only short-term assets and liabilities supporting the day-to-day operations of the company, e.g., recognition of sales revenue before cash is received; delayed recognition of expenses through a small provision for bad debts; and deferred recognition of expenses when cash is advanced to suppliers. Non-current accruals adjustments involve long-term net assets, e.g., decelerating depreciation, decreasing deferred taxes, and realizing unusual gains. Because managers have more discretion over current than non-current accruals, current accruals have been frequently used as basis for EM (Teoh et al., 1998b). In this study, we also use

discretionary current accruals (non-justifiable changes on current accruals) as proxy for of EM. This choice was due to 1) the greater vulnerability of short-term accounts to manipulation; and 2) the fact that Brazilian accounting rules do not require quarterly disclosure of some data necessary to calculate non-current accruals (e.g., depreciation). When cash flow statements are not available (as in Brazil) accruals are calculated as the variation in current assets minus the variation in current liabilities (as in Hochberg, 2012; and Teoh et al., 1998a and 1998b). One should note that to calculate accruals, it is necessary two consecutive balance sheets.

Even though positive accruals suggest that reported earnings are greater than the cash flow generated by the company's operations, positive accruals by themselves are not evidence of EM. In firm's daily operations, some accrual adjustments are consistent with the accrual basis accounting regime, and sometimes appropriate and necessary to provide a good picture of earnings. Manipulation occurs when managers discretionarily increase or decrease accruals with other purposes than to express the real economic and financial situation of the business. Therefore, it is necessary to decompose accruals into *non-discretionary* (normal) accruals, which are derived from the company's activities, and *discretionary* accruals, which are artificial and have the only intention of manipulating results. Several methodologies have been developed to make such decomposition, e.g., Healy (1985), Angelo (1986), Jones (1991), Dechow et al. (1995), Kang and Sivaramakrishnan (1995) and Kothari et al. (2005). These procedures are similar to an event study: one creates a control group and use their operational and financial characteristics to predict normal (non-discretionary) accruals for the treated group. Then, abnormal accruals (EM) are estimated as the difference between observed and non-discretionary accruals.

To estimate non-discretionary current accruals, we use three different econometric models: *Jones Model* (Jones, 1991), *Modified Jones Model* (Dechow et al., 1995 with adjustments suggested by Kothari et al., 2005), and *Modified Jones Model with ROA* (Dechow et al., 1995 with adjustments suggested by Kothari et al., 2005). Appendix A details these models. Non-discretionary (predicted) accruals can be obtained either through time series (using data of firm i previous to time t to predict the normal accruals of firm i at time t) or cross-section (using information from firms other than firm i at time t to predict the normal accruals of firm i at time t). Due to our focus on IPOs, firms in our sample do not make available accounting data series long enough to apply time series procedure. Furthermore, Subramanyan (1996) and Bartov et al. (2000) show that the cross-section applications of the

Modified Jones Model present superior performance over the time series ones. In view of this, we use cross-sectional analysis to estimate non-discretionary current accruals (Appendix A details this procedure).

From 2008 to 2010, period included in our sample, firms had to adjust their financial reports to comply with IFRS (International Financial Reporting System). In principle, the change in financial reporting system can distort EM results. However, our sample consists of 92 IPOs all of which followed US GAAP (most of the times as requirement for Bovespa's Novo Mercado). Therefore, changes in reporting system would distort our estimates of EM for 9 IPOs that occurred after 2008. Furthermore, the bias would come through the estimates of EM of the non-IPOs control group and any bias would be uniform across those 9 IPOs. We use dummies for chronological quarter to control for possible bias due to change in reporting standards. In an unreported analysis we dropped out those 9 IPOs. The results remained the same.

3.2 PHASES OF THE IPO

As our purpose is to study the dynamics of EM in IPOs, we focus on four phases around the IPO date:

Pre-IPO phases: comprises the two quarterly observations that are calculated from the three balance sheets that precede the last one before the IPO. In this period, we expect to find lower levels of earnings manipulation.

IPO phases: comprises the two quarterly observations that are calculated from the two balance sheets that immediately precede the IPO and the one immediately after the IPO. According to Rangan (1998), the incentive to manipulate earnings are stronger in the quarter immediately before the IPO, because this is the quarter in which managers want the firm to be best valued. We also include the first financial statement after the IPO because an earnings reversal immediately after the public offering could precipitate lawsuits against and other financial and reputation losses.

Lock-up phases: composed of the two quarterly observations obtained from the three balance sheets immediately subsequent to the IPO. Insiders who wish to sell their shares after the lock-up period have incentives to support the stock price of the firm and, consequently, manage earnings in this period [Rangan (1998)].[iv]

Post-lock-up phases: includes the two quarterly observations immediately subsequent to the trimester right after the lock-up period (i.e., calculated from the third, fourth and fifth

quarterly balance sheets published after the IPO). In this phase insiders no longer have incentives to manipulate earnings.

3.3 OTHER VARIABLES

The variables controlling for firm's heterogeneity are:

$Auditor_i$: a dummy variable assuming value one when firm i had their financial statements audited by one of the Big Four auditing companies (KPMG, PricewaterhouseCoopers, Deloitte Touche Tohmatsu and Ernst & Young), and zero otherwise;

$Underwriter_i$: the Carter-Manaster index[v] (updated for the period 2001-2010 by Ritter (2013)) of the member of the underwriting syndicate with the highest score;

$Size_{i,t}$ is the natural logarithm of total assets of firm i at quarter t (in millions of Reais);

$Growth_{i,t}$ is the change in net operating revenues between quarters $t-1$ and t for firm i, scaled by the net operating revenues in quarter $t-1$;

$Leverage_{i,t}$: the firm i's leverage at quarter t, calculated as one minus the ratio between book value of equity and book value of assets;

$ROA_{i,t}$: return on assets between quarters $t-1$ and t for firm i, calculated as the ratio of net income to total assets; and

$SEO_{i,t}$: a dummy variable that takes value one if the firm i in the sequence conducted a seasoned equity offering (SEO), and the quarter t falls in the range considered with incentives for earnings manipulation concerning this new equity offering, and zero otherwise.

Variables $Auditor_i$ and $Underwriter_i$ control for the effect that key external monitors can have on constraining EM. According to Morsfield and Tan (2006), the reputation of the external auditor could be harmed if it failed to identify or prevent accounting misstatements. Because of this, we expect a negative sign for variable $Auditor_i$. The underwriters have the same incentives as the auditors to ensure the quality of financial statements since they can also suffer serious reputation damage if they are incapable of avoiding earnings manipulation. Thus, we also anticipate a negative coefficient for variable $Underwriter_i$.

Regarding the financial variables, Hochberg (2012) argues that larger companies have more complex financial statements, and, therefore, could exploit this feature to manage earnings. On the other hand, larger firms are also likely to be closely followed by security analysts, and this reduces the opportunities for EM. Thus, there is no clear expectation for the

sign associated to variable $Size_{i,t}$. The same author also states that higher growth companies may be more likely to experience high discretionary accruals, especially if the decomposition model used contains some degree of imprecision. For this reason, we expect a positive sign for $Growth_{i,t}$. Morsfield and Tan (2006) argue that highly leveraged companies have incentives to manipulate earnings upwards in order to avoid covenant default, but also faces greater monitoring from debt holders. Thus, there is no well-defined expectation regarding the sign of $Leverage_{i,t}$. Dechow et al. (1995) suggest that tests of EM may be incorrectly specified if discretionary accruals are correlated with firm performance. The variable $ROA_{i,t}$ controls this potential bias and there is no specific expectation for the sign of its coefficient. Finally, the inclusion of variable $SEO_{i,t}$ seeks to control for the influence that a new equity offering could exercise on the level of EM. In the same way as in the IPO, firms have incentives to manipulate earnings when carrying out a SEO (Teoh, 1998a and Rangan, 1998). We expect a positive sign for this variable.

4 SAMPLE DESCRIPTION

Our data come from several sources: IPO prospectuses, Economática® dataset, and firms' quarterly financial statements available at the websites of CVM (Brazilian Securities and Exchange Commission) and BM&FBovespa[vi]. Data on the subsequent equity offerings (SEO of firms in our IPO sample) were obtained from CVM.

Our initial sample consists of all of the 115 IPOs that took place at BM&FBovespa between January/2004 and September/2010. As usual, we delete financial firms and real-estate investment trusts (19 firms[vii]), for presenting accounting practices quite distinct from the other companies. We also deleted nine other firms with less than three quarterly financial statements available.[viii] Therefore, our final sample consists of 92 IPOs, comprising 501 firm-quarter observations. This sample decomposes into 38 PEVC-sponsored firms comprising 208 firm-quarter observations and 54 non-PEVC-sponsored firms comprising 293 firm-quarter observations (Table 1 summarizes the sample). The maximum possible number of observations for a single firm is eight (two quarters for each period). For that it would be necessary nine consecutive quarterly balance sheets: four before the IPO and 5 after the IPO. Some firms do not present the whole set of 9 consecutive balance sheets.[ix] Thus, our panel data is unbalanced. For the IPO and lock-up phases, which are the most important ones in this study, the number of missing firm-quarters is small: for the IPO period there are only 7 observations missing (155 observations of a maximum of 164) and for the lock-up period there are 26 firm-quarters missing (140 observations of a maximum of 164). As expected, the

pre-IPO phase is the one with the smallest number of observations: 67 observations from 41 firms. One should note that before the IPO (mainly during pre-IPO phase) firms are not required to disclose quarterly financial reports.[x]

To estimate non-discretionary accruals for quarter *t* we use information from control group of firms in the same quarter. This group is composed of all firms listed on BM&FBovespa excluding firms: 1) from the financial and real-state industries; 2) that trade OTC; 3) that had conducted either an IPO or SEO and were in the IPO or lock-up periods; and 4) for which balance sheets were not available in the specific quarter. To minimize the effect of outliers we also excluded, for which quarter, the firms for which accruals were in the 1st and 99th percentiles in that specific quarter. The minimum number of firms in the control group in a particular quarter is 180 (4th quarter of 2003) and the maximum is 273 (2nd quarter of 2009). Mean accruals for the control group varies considerably over year-quarters, ranging from a minimum of -2.49% (4th quarter of 2005) to a maximum of 1.19% (1st quarter of 2008).

Table 2 presents basic statistics for the variables characterizing firms' heterogeneity. We initially observe that for these variables, PEVC-sponsored and PEVC-non-sponsored firms are very similar. For example: the mean book value of equity at the time of the IPO for the whole sample is R$ 769 MM. For the PEVC sample the average is R$ 692 MM while for the non-PEVC sample it is R$ 832 MM, but such difference is not statistically significant. One observes similar pattern for net operating revenues; net income at the time of the IPO; IPO proceeds; market capitalization at the time of the IPO; book-to market ratio; book value of assets (variable size); growth in sales; leverage; and ROA. The only aspects for which the two samples are statistically different are 1) quality of the auditor: 93.4% of the PEVC-sponsored firms hired a big four auditor against 78.8% of the non-PEVC-sponsored ones; 2) reputation of the underwriter: the average Carter-Manaster index is 8.7 for PEVC-sponsored firms against 8 for non-PEVC-sponsored ones; and the probability of conducting an SEO until the end of the post-lock up phase (5 quarters after the IPO): 13,2 % of the PEVC-sponsored firms did an SEO while only 2.8% of the non-PEVC-sponsored did.

Table 3 reports correlation among the exogenous variables. In general, correlations are quite low, although some of the correlations are statistically significant at the 1% level. As expected, PEVC-sponsored IPOs are associated with highly reputed auditors and underwriters. Moreover, variables Auditor and Underwriter have high correlation indicating that firms that choses highly reputed auditors also tend to choose highly reputed underwriters.

Large firms tend to hire better underwriters, present higher leverage and lower ROA. Firms that hire top auditors and underwriters are less indebted. Finally, as already mentioned, PEVC-sponsored firms are more likely to perform an SEO.

5 METHODOLOGY

5.1 HYPOTHESES

Teoh et al. (1998b) point that the IPO process gives entrepreneurs both motivation and opportunities to engage into EM. There is high information asymmetry between investors and issuers at the time of the IPO. For instance, Rao (1993) reports the lack of news media coverage of firms before their IPO. Therefore, prospectus is the main source of information for IPOs. However, prospectuses may contain financial statement for some few years preceding the IPO. As consequence, investors can hardly rely on historical data to estimate the extent to which firms engage into EM at the time of the IPO. Because of this, managers of issuing firms have both the opportunity and the motivation to manipulate earnings in order to inflate offering price. Parallel to this, Hochberg (2012), and Morsfield and Tan (2006) have analyzed the influence of venture capital in hampering EM. Thus, our first hypothesis can be formulated as:

H_1: *PEVC-sponsored firms present lower level of earnings management at the time of the IPO than non-PEVC-sponsored ones*

Annual data may underestimate EM because earnings inflation and posterior reversal could occur within the same fiscal year. By using quarterly data, we expect to capture the dynamics of earnings inflation and reversal. Rangan (1998) points out that inflated earnings are likely to be observed right before a public offering as an effort to increase offering price. However, inflated earnings can last longer: insiders usually have their shares blocked during the lock-up period (usually 180 days) and may want to sell some of them at the end of this period. This would extend the length of time over which managers have the incentive to keep earnings inflated. Adding to this, concerns with reputation may prevent firms that inflated earnings before the IPO to make the reversion right after it. Therefore, one would expect to observe EM not only immediately before the IPO, extending possibly until the end of the lock-up period. To capture such dynamics, Wongsunwai (2013) defines four two-quarter phases: pre-IPO, IPO, lock-up and post-lock-up periods. Next he estimated EM for each of the eight quarters. He found that PEVC-sponsored IPOs present significantly less EM in the IPO phase and that such effect is mostly due to the influence of VCs with high reputation. Therefore our second hypothesis is

H_2: *PEVC-sponsored firms present lower EM than non-PEVC-sponsored ones during the IPO and lock-up phases*

Finally, we tackle the unstudied issue of whether Wongsunwai (2013) results hold only comparatively (PEVC-sponsored firms manipulates earnings, but in smaller scale) or in absolute terms (they do not manipulate earnings at all). Therefore, our fourth hypothesis is formulated in the following terms:

H_3: *PEVC-sponsored firms do not manage earnings around the IPO*

5.2 REGRESSION MODELS

To test hypothesis H_1, we use panel regressions where the dependent variable is the level of EM for firm i at time t, $EM_{i,t}$ (measured by the discretionary current accruals for firm i at time t).The variable of interest is VC_i, a time unvarying dummy variable assuming value one when the observation comes from a firm with PEVC sponsorship. To confirm H_1, the coefficient of this dummy variable must be negative. The model also includes a number of control variables that can influence the incentives for earnings manipulation:

$$\begin{aligned} EM_{i,t} = \quad & \beta_0 + \beta_1 PEVC_i + \beta_2 Auditor_i + \beta_3 Underwriter_i + \beta_4 Size_{i,t} \\ & + \beta_5 Growth_{i,t} + \beta_6 Leverage_{i,t} + \beta_7 ROA_{i,t} + \beta_8 SEO_{i,t} + \varepsilon_{i,t}, \end{aligned} \tag{1}$$

To test hypotheses H_2, which takes into account possible differences in the level of EM over time, we use the same basic equation of Model 2 with the addition of dummy variables for all the phases of the IPO and interactive terms of those dummy variables with variable $PEVC_i$:

$$\begin{aligned} EM_{i,t} = \quad & \beta_0 + \beta_1 \mathrm{PreIPO}_{i,t} + \beta_2 Lockup_{i,t} + \beta_3 PostLockup_{i,t} \\ & + \beta_4 PEVC_i \times \mathrm{Pr}eIPO_{i,t} + \beta_5 PEVC_i \times IPO_{i,t} \\ & + \beta_6 PEVC_i \times Lockup + \beta_7 PEVC_i \times PostLockup_{i,t} \\ & + \beta_8 Auditor_i + \beta_9 Underwriter_i + \beta_{10} Size_{i,t} + \beta_{11} Growth_{i,t} \\ & + \beta_{12} Leverage_{i,t} + \beta_{13} ROA_{i,t} + \beta_{14} SEO_{i,t} + \varepsilon_{i,t} \end{aligned} \tag{2}$$

In Model 2, the dummy variable $IPO_{i,t}$ is the omitted variable in order to avoid perfect colinearity. Therefore, the coefficients on $PreIPO_{i,t}$, $Lockup_{i,t}$ and $PostLockup_{i,t}$ should

be interpreted as differences with respect to variable $IPO_{i,t}$. To confirm hypothesis H_2, the sign associated with variables $VC_i \times IPO_{i,t}$ and $VC_i \times Lockup$ must be negative.

Finally, to test hypothesis H_3, we use Model 3 below, but split the sample into venture sponsored and non-venture-sponsored firms. By doing so we are able identify whether the two groups are distinct and in which ways.

$$EM_{i,t} = \beta_0 + \beta_1 IPO_{i,t} + \beta_2 Lockup_{i,t} + \beta_3 Auditor_i + \beta_4 Underwriter_i + \beta_5 Size_{i,t} + \beta_6 Growth_{i,t} + \beta_7 Leverage_{i,t} + \beta_8 ROA_{i,t} + \beta_9 SEO_{i,t} + \varepsilon_{i,t} \quad (3)$$

The regressions specified in Models 1-3 are estimated using pooled OLS and random effects. Fixed effects are used only in Models 2 and 3 for which the variables of interest vary along the time. We also employ the White (1980) procedure for robust standard errors. We also performed all the estimations winsorizing the dependent variable. As the main results remained unchanged, we do not report them.

5.3 TREATMENT FOR ENDOGENOUS CHOICE OF VENTURE CAPITAL INVESTMENTS

The decision of a firm to raise venture capital funds (and the decision of a venture capitalist to provide financing to a particular firm) may be endogenous. Firm characteristics may determine which firms are PEVC-sponsored in the first place. Hochberg (2012) argues that even if PEVC sponsorship had no effect on EM, the control for PEVC sponsorship in regression models of EM would still make sense, because firms that receive venture capital funds are possibly those that were *ex ante* less likely to engage in EM.

We address such endogeneity issue by using instrumental-variables to estimate Model 2. The ideal instruments would be variables that increase the probability of receiving venture capital funds, but are not correlated with the practice of EM. We use as instruments variables indicating 1) firm industry;[xi] 2) the state where the company's headquarters is located;[xii] and 3) the chronological quarter. Additionally, all the other sources of firm heterogeneity are used as instruments.

6 EMPIRICAL RESULTS

6.1 UNIVARIATE ANALYSIS

Table 4 reports descriptive statistics for the level of EM over the 4 phases of the IPO. It reports results for the three proxies for EM (Jones, Modified Jones and Modified Jones with ROA models). Initially, we note that the means and standard deviations of EM do not vary

much across the three proxies for EM (Panel A). As expected, the lowest means occurs for the Modified Jones model with ROA (because it uses more controls in the estimation of non-discretionary accruals). For the full sample, the mean level of EM (measured as discretionary current accruals as percentage of lagged total assets) varies from 3.67% to 4.03%, depending on the model used. When we break the sample into PEVC-sponsored and non-PEVC-sponsored firms, a big difference emerges: EM for PEVC-sponsored firms ranges from 2.54% to 2.96%, while for non-PEVC-sponsored ones it ranges from 4.47% to 4.82%. This difference is statistically significant at the 10% level (regardless of the proxy used for EM). This result is consistent with our Hypothesis H_1, i.e., the presence of venture capitalists uniformly hampers the practice of EM in IPOs. Looking through the different phases of the IPO, one observes that on average, earnings management are positive and higher in the IPO period. However, contrary to Rangan (1998), in the lock-up phase the level of discretionary current accruals, although positive, is not very different from the levels identified in the pre-IPO and post-lock-up phases. This last result suggests that EM to benefit insiders who wish to sell their shares after the expiration of the lock-up period is not a pervasive practice. More than that, the reversal occurs fast, seen that the level of EM increases in the IPO phase and drops considerably in the lock-up phase. Table 4 also shows that for PEVC-sponsored firms. The mean level of EM does not change considerably across the phases of the IPO. Moreover, the mean level of EM in the IPO period are much lower for PEVC-sponsored companies, ranging from 2.98% to 3.39%, while for non-PEVC-sponsored ones it ranges from 11.31% to 11.72%. The difference in means for the two groups during the IPO phase is expressive (from 8.18% to 8.34%) and always statistically significant at the 10% level.

Figure 1 illustrates our univariate results using EM based on Modified Jones Model with ROA. In the four phases of the IPO, one can note that the mean level of EM of PEVC-sponsored firms is almost constant, staying on levels equal to or lower than 3% along the whole period. This can be interpreted as a preliminary evidence supporting hypothesis H_3. On the other hand, for non-PEVC-sponsored firms, discretionary accruals increase dramatically in the IPO period.

We also tested difference of means of earnings management between each pair of IPO phases for the PEVC-sponsored sub-sample. The difference is not significant for any pair of phases.[xiii] This supports the hypothesis that PEVC-sponsored issuers do not manipulate earnings at all during the IPO process.

6.2 MULTIVARIATE ANALYSIS

Table 5 presents estimations of Model 1. Contrary to what was found in the univariate analysis, we find no strong evidence that PEVC sponsorship uniformly hampers EM. The coefficient on the PEVC dummy variable varies from -0.0201 to -0.0253. However, they are not statistically significant. In other words, considering all the phases of the IPO, there is no evidence that PEVC-sponsored firms presents levels of EM lower than non-PEVC-sponsored ones. It should be noted that variable Leverage is the only one that presents some statistical significance (under random effects: Regressions 2, 4 and 6). F-test for the joint significance of all explanatory variables never reach significance level below 0.23, indicating that Model 1 is a poor model to explain EM.

Table 6 presents estimations for Model 2, which includes the phases of the IPO as explanatory variables to capture in each phase PEVC sponsorship hampers EM. The dummy for the IPO phase is the omitted one. The dynamics captured in Table 6 is similar to that reported in the univariate analysis (Table 4, Panel B). The coefficients on the dummy variables $Pre\text{-}IPO_{i,t}$, $Lock\text{-}up_{i,t}$ and $Post\text{-}lock\text{-}up_{i,t}$ are all negative and statistically significant. This means that, during these phases, the level of EM is significantly lower than in the IPO one.[xiv] With respect to the interactive terms of the dummies for phases and $PEVC_i$, we find a quite interesting situation: the coefficients on the interactions of $PEVC_i$ and dummies for $Lock\text{-}up_{i,t}$ and $Post\text{-}Lock\text{-}up_{i,t}$, although negative in most regressions, are not statistically significant. Thus, we cannot state that PEVC-sponsored firms present lower levels of EM in the Pre-IPO, Lock-up and Post-lock-up phases. However, the interaction of $PEVC_i$ and $IPO_{i,t}$ is consistently negative and statistically significant at the 5% or 10% levels in all regressions. Our estimates indicate that the difference in the level of EM between PEVC-sponsored and non-PEVC-sponsored firms at the IPO phase is substantial (around 7%). These results show that the contribution of venture capitalists in hampering EM in their portfolio firms is more pronounced precisely at the most critical period: the IPO phase, when firms manage earnings more intensely in order to inflate stock price. One should note that this result is robust with respect to the insertion of several controls, measures of EM and statistical methods. Thus, our analysis confirms the results of Wongsunwai (2013). Besides the phases of the IPO, leverage is the only other variable that presents statistically significant effect on the level of EM. Finally the F-test for the joint significance of all the explanatory variables for the fixed effect model is statistically significant at the 1% level.

In order to test whether PEVC-sponsored firms manage earnings at all (hypothesis H_3), we estimate Model 3 twice, one time restricting our sample to PEVC-sponsored firms and another time to non-PEVC-sponsored ones (Table 7, Panels A and B). Splitting samples is not an efficient way of investigate differences between samples unless the processes that generate the dependent variables varies across subsamples. We argue that the two samples are distinct. Firstly, one should observe that for the non-PEVC-sponsored subsample (Panel B), only variables Growth and Leverage bear statistical significance (growth at the 10% level and Leverage at the 5% or 10% levels). F-test for the joint significance of all the variables that controls for all observable sources firms' heterogeneity (controls) is statistically significant only for the fixed effects specification (at the 5% level). R-squared coefficients run from 0.18 to 0.29. Differently, for the PEVC-sponsored subsample (Panel A), variables Growth, Leverage, ROA, and Auditor are statistically significant (in general at the 5% or 1% levels). F-test for the joint significance of all the controls is consistently statistically significant at the 1% level. R-squared coefficients are much higher running from 0.32 to 0.39. We also run this model for the whole sample including interactions of the PEVC-dummy and all the control variables (not reported here). Only variable Growth and its interaction with the PEVC-dummy presented statistical significance (and it was consistent across econometric methods). In these regressions the R-squared is much lower than those obtained for each of the subsamples, running from 0.01 to 0.04. These facts indicate that the two subsamples are distinct and that the best procedure is to make separate estimations for each one.

Now we focus on the PEVC-sponsored sample (Panel A). Initially we note that regardless of how we measure EM, Hausman test presents p-values above 0.5. This indicates that random effect estimates are consistent. To verify existence of EM, we initially performed an F-test (Chi-square for the case of fixed effects) for the joint significance of the variables related to the phases of the IPO (IPO, Lock-up and Post-Lock-up). For fixed effects, Chi-square statistics is statistically significant only for the Jones Model and at the 10% level. For Pooled OLS and random effects, F-statistics are always significant but at most at the 5% level. Therefore, there is some evidence of EM, even though evidence is weak. The IPO phase is the only one for which there is evidence of EM. However, this evidence is weak because statistical significance appears only for pooled OLS and random effects (at the 1% regardless of the model), but does not appear for fixed effects. To gauge the importance of EM we run regressions omitting the dummies for the phases of the IPO. The drop in R-squared is very small compare to the full model: the highest drop is 0.0375 (from 0.3477 to 0.310 in pooled

OLS estimation using the Modified Jones Model) and the lowest is 0.0147 (from 0.3647 to 0.3515 in the fixed effect estimation using the Modified Jones Model with ROA). Therefore, even though there is some evidence of EM, the evidence is weak and its economic size seems to be small. By performing the same analysis on the non-PEVC-sponsored sample (Panel B), one can see a big contrast: the F and Chi-square tests for the joint significance of the phases of the IPO is always significant at the 1% for pooled OLS and random effects and at 5% for fixed effects. Furthermore, when we rerun the regressions omitting the phases of the IPO, the drop in R-squared is large compared to the full model: the highest drop is 0.0964 (from 0.2294 to 0.1330 in the random effect estimation using the Modified Jones Model with ROA) and the lowest is 0.0581 (from 0.1827 to 0.1246 in the pooled OLS estimation using the Jones Model).

The importance of the firms' heterogeneity to explain EM is another important difference between subsamples. The F-test[xv] for the joint significance of the variables representing firms' characteristic on the PEVC-sponsored sample is always significant at the 1% level. In contrast, for the non-PEVC-sponsored sample it fails to present statistical significance. Therefore, for the PEVC-sponsored subsample, firms' characteristics seem to determine EM, while the phases of the IPO are of little importance. In opposite, for the non-PEVC-sponsored subsample, firms' characteristics are of little importance, while the phases of the IPO are the main drive in EM. In particular, one should note that for PEVC-sponsored subsample the coefficient on Auditor is statistically significant at the 1% level, suggesting that either auditors are more effective to control EM in those firms or, alternatively, that the choice of auditor is more meaningful for PEVC-sponsored firm, indicating a compromise not to manage earnings. This last interpretation is in line with the assumption that venture capitalists value their reputation because they continually bringing firms to the capital markets.

6.3 TREATMENT FOR ENDOGENOUS CHOICE OF VENTURE CAPITAL

Table 8 reports the results obtained with treatment for the endogenous choice of venture capital investments. We estimate Models 1 and 2 using instrumental variable approach: Pooled OLS in two stages (2SLS) and GLS in two stages with random effects (G2SLS). Our instruments are 1) firm industry, 2) state where the company's headquarters is located and 3) chronological quarters. In the first stage we also included all the other explanatory variables as controls. We report only the results for the Modified Jones with ROA Model (results for Jones and Modified Jones Models are qualitatively the same). Initially, the F-statistics for Pooled 2SLS and Chi-square for G2SLS are significant at the 1% level, indicating that the

instruments are valid, i.e., in both regressions, the instruments have explanatory power on the endogenous choice of venture capital.

If the results previously found were to be attributed to selection (i.e., firms that receive venture capital were *ex-ante* less likely to manage earnings upwards), the statistical significance of variable $PEVC_i$ would disappear. This is not so. For Pooled 2SLS the relevance of PEVC-sponsorship is preserved in Model 2[xvi] (statistical significance at the 1% level) and appears in Models 1 (statistical significance at the 5% level), what was not observed in Table 5. Results using random effects are similar to the previous one: PEVC-sponsorship hampers EM mainly in the IPO phase (Table 6), but this effect is not pervasive to all phases (Table 5). Finally, we note that results become stronger under the instrumental variable approach. In Table 5 PEVC-sponsorship reduced EM by 2.04% (pooled OLS) and 2.4% (random effects). Under the instrumental variable approach these values jump up to 4.14% and 3.41%, respectively. Similarly, in Table 6 venture-sponsorship reduced EM in the IPO phase by 7.07% (pooled OLS) and 7.02% (random effects). Under the instrumental variable approach these values jump up to 17.83% and 15.2%, respectively.

7 CONCLUSION

Several studies have been concerned with EM at the time of public offerings and the role of venture capitalists in hampering such practice. Most studies use annual data and, because of this, do not unveil the dynamics of EM (i.e., the moments at which earnings are inflated and subsequently deflated). Moreover, the lack of such dynamics limits the understanding of the role played by venture capitalists, i.e., at what moment there is a difference between PEVC and non-PEVC-sponsored firms and whether such difference is only relative or whether PEVC-sponsored firms do not manipulate earnings at all.

We investigate the behavior of EM in four two-quarter phases: *pre-IPO*, *IPO*, *lock-up* and *post-lock-up*. We estimate EM for each of the eight quarters. Our analysis indicates that EM occurs mainly in the IPO phase. We find that PEVC-sponsored does not reduces EM uniformly in all phases of the IPOs. Confirming Wongsunwai (2013), we observe that PEVC-sponsored IPOs present significantly less EM in the IPO phase (exactly when firms inflate earnings). This result is robust across statistical methods and different methodologies used to estimate EM. Our main contribution is to show that in terms of EM, PEVC-sponsored and non-PEVC-sponsored firms behave in different fashion and should be treated as independent samples.

We found only weak evidence that PEVC-sponsored firms manage earnings and only in the IPO phase. This result is weak because it does not hold under fixed effects approach. To gauge a possible EM by PEVC-sponsored firms we redid our regressions omitting the dummies for the phases of the IPO. We found that the drop in R-squared is only marginal. For non-PEVC-sponsored firms the results are very different: there is strong evidence they manage earnings during the IPO phase. Furthermore, when we omit the dummies for phases of the IPO, the drop in R-squared is large.

The importance of the firms' heterogeneity to explain EM is another important difference between subsamples. The F-test for the joint significance of the variables representing firms' characteristic on the PEVC-sponsored sample is always significant at the 1% level. In contrast, for the non-PEVC-sponsored sample it fails to present statistical significance. Therefore, for the PEVC-sponsored subsample, firms' characteristics seem to determine EM, while the phases of the IPO are of little importance. In opposite, for the non-PEVC-sponsored subsample, firms' characteristics are of little importance, while the phases of the IPO are the main drive in EM.

Finally we note that for PEVC-sponsored subsample the coefficient on the quality of the auditor is statistically significant at the 1% level (not statistically significant for the non-PEVC-subsample), suggesting that either auditors are more effective to control EM in those firms or, alternatively, that the choice of auditor is more meaningful for PEVC-sponsored firm, indicating a compromise not to manage earnings. This last interpretation is in line with the assumption that venture capitalists value their reputation because they continuously bringing firms to the capital markets.

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APPENDIX: METHODOLOGY FOR ESTIMATING EARNINGS MANAGEMENT

Following Teoh et al. (1998b), we define current accruals for firm i at time t, $CAcc_{i,t}$, as:

$$CAcc_{i,t} = \left(CA_{i,t} - CA_{i,t-1}\right) - \left(CL_{i,t} - CL_{i,t-1}\right), \quad \text{(A1)}$$

where

$CA_{i,t}$ is the current assets of firm i at time t, excluding cash; and

$CL_{i,t}$ is the current liabilities of firm i at time t, excluding short-term debt.

We use three different econometric models to obtain normal (non-discretionary) accruals: *Jones Model* [Jones (1991)], *Modified Jones Model* [Dechow et al. (1995), with adjustments suggested by Kothari et al. (2005)] and *Modified Jones Model with ROA* [Dechow et al. (1995), with adjustments suggested by Kothari et al. (2005)].

For the *Jones Model*, current accruals are specified according to the following model:

$$\frac{CAcc_{i,t}}{TA_{i,t-1}} = \beta_1\left(\frac{1}{TA_{i,t-1}}\right) + \beta_2\left(\frac{NR_{i,t} - NR_{i,t-1}}{TA_{i,t-1}}\right) + \varepsilon_{i,t}, \quad \text{(A2)}$$

where

$TA_{i,t-1}$ is the total assets of firm i at time $t-1$; and

$NR_{i,t}$ is the net operating revenues of firm i at time t.

For the *Modified Jones Model*, current accruals are *specified* according to the following model:

$$\frac{CAcc_{i,t}}{TA_{i,t-1}} = \beta_1\left(\frac{1}{TA_{i,t-1}}\right) + \beta_2\left(\frac{\left(NR_{i,t} - NR_{i,t-1}\right) - \left(TR_{i,t} - TR_{i,t-1}\right)}{TA_{i,t-1}}\right) + \varepsilon_{i,t}, \quad \text{(A3)}$$

where

$TR_{i,t}$ is the trade accounting receivables of firm i at time t.

Finally, for the *Modified Jones Model with ROA*, current accruals are specified according to the following model:

$$\frac{CAcc_{i,t}}{TA_{i,t-1}} = \beta_1\left(\frac{1}{TA_{i,t-1}}\right) + \beta_2\left(\frac{\left(NR_{i,t} - NR_{i,t-1}\right) - \left(TR_{i,t} - TR_{i,t-1}\right)}{TA_{i,t-1}}\right) + \beta_3\left(ROA_{i,t}\right) + \varepsilon_{i,t}, \quad \text{(A4)}$$

where

$ROA_{i,t}$ is the return on assets of firm i at time t.

To compute non-discretionary current accruals for IPO firm i at time t, $NDCA_{i,t}$, we estimate the regressions above cross-sectionally for a sample (control group) of firms at quarter t. The control group for each quarter is formed of all firms listed on BM&FBovespa excluding: 1) financial firms and real-state investment trusts; 2) firms that trade OTC; 3) firms that had conducted either an IPO or SEO and were in the IPO or lock-up periods; 4) firms for which balance sheets were not available in the specific quarter; and 5) firms for which the accruals were in the 1st and 99th percentiles in the specific quarter (in order to minimize the influence of outliers). For instance, using the *Jones Model*, non-discretionary current accruals ($NDCA_{i,t}$) are calculated as:

$$NDCA_{i,t} = \hat{\beta}_1 \left(\frac{1}{TA_{i,t-1}} \right) + \hat{\beta}_2 \left(\frac{NR_{i,t} - NR_{i,t-1}}{TA_{i,t-1}} \right), \quad \text{(A5)}$$

where

$\hat{\beta}_1$ and $\hat{\beta}_2$ are the estimated parameters from Regression (A2).

Finally, earnings management for IPO firm i at time t ($EM_{i,t}$) are calculated as the difference between $CAcc_{i,t}$ (scaled by lagged total assets) and $NDCA_{i,t}$:

$$EM_{i,t} = \frac{CAcc_{i,t}}{TA_{i,t-1}} - NDCA_{i,t}, \quad \text{(A6)}$$

Table 1: Sample Distribution across the Phases of the IPO
Distribution of firm-quarter observations along the phases around the IPO.

	All firm		PEVC-sponsored		Non-PEVC-sponsored	
	# firms	**# obs.**	**# firms**	**# obs.**	**# firms**	**# obs.**
All phases together	92	501	38	208	54	293
Pre-IPO	41	67	16	27	25	40
IPO	92	155	38	64	54	91
Lock-up	84	140	34	57	50	83
Post-lock-up	78	139	33	60	45	79

Table 2: Descriptive Statistics of Financial Characteristics

The variables Book Value of Equity, Net Operating Revenues, Net Income, IPO Proceeds and Market Capitalization are in millions of reais and refer to the date of the IPO. The variable size is the natural logarithm of book value of assets. T-statistics tests the difference in means between PEVC and non-PEVC-sponsored firms. Bold-faced t-statistics indicates statistically significance at the 1% level.

	All Firms			PEVC-Sponsored			Non-PEVC-Sponsored			
	N=92			N=38			N=54			
	Mean	**Median**	**Std. Dev.**	**Mean**	**Median**	**Std. Dev.**	**Mean**	**Median**	**Std. Dev.**	**t-Stat**
Book Value of Equity	769	519	782	692	483	734	832	548	816	0,09
Net Operating Revenues	715	280	1,28	721	325	1,15	710	249	1,38	0,93
Net Income	49,7	21	118,7	46,6	23,5	100	51,8	19	131	0,67
IPO Proceeds	820,2	545	1080	770	540	976	861	549	1166	0,64
Market Capitalization	2,35	1,46	2,77	2,23	1,48	1,98	2,45	1,45	3,28	0,44
Book-to-Market (ratio)	0,47	0,36	0,43	0,41	0,29	0,46	0,52	0,40	0,40	0,02
Auditor	0,85	1	0,36	0,93	1	0,25	0,79	1	0,42	**5,11**
Underwriter	8,3	9,1	1,9	8,7	9,1	0,47	8,0	9,1	2,4	**3,70**
Size	13,58	13,58	1,23	13,48	13,53	1,04	13,65	13,67	1,35	1,17
Growth	0,32	0,05	1,41	0,15	0,04	0,53	0,44	0,07	1,79	0,25
Leverage	0,53	0,51	0,24	0,50	0,51	0,22	0,55	0,51	0,24	1,76
ROA	1,09	0,43	5,59	1,20	0,51	5,86	1,00	0,33	5,42	0,09
SEO	0,07	0,05	0,26	0,13	0,10	0,34	0,02	0,01	0,17	**4,63**

Table 3: Correlation Matrix for Independent Variables

	PEVC	Auditor	Underwriter	Size	Growth	Leverage	ROA	SEO
Auditor	**0,2169*** **							
Underwriter	**0,1539*** **	**0,3271*** **						
Size	-0,0636	0,0653	**0,0879** **					
Growth	-0,0094	0,0801	-0,0486	0,0200				
Leverage	-0,0780	**-0,0938***	**-0,0347***	**0,2433*** **	-0,0455			
ROA	0,0085	**0,1008** **	0,0427	**-0,2063*** **	0,0181	-0,0412		
SEO	**0,2013*** **	0,0838	-0,0275	0,0662	-0,0150	0,1126	0,0087	

*, ** and *** denote significance at the 10%, 5% and 1% levels (for two-tailed tests), respectively.

Table 4: Earnings Management in PEVC and Non-PEVC-sponsored IPOs

Descriptive statistics for the level of earnings management (EM). The sample consists of 501 firm-quarter observations from 92 IPOs at BM&FBovespa from January/2004 to September/2010. The three measurements of EM are based on Jones, Modified Jones and Modified Jones with ROA models. EM is in percentage of total assets. Differences in boldface indicate that the t-test for difference of means is statistically significant at the 5% level or less.

Panel A: Phases Altogether

Model	Sample	N	Mean	Standard Deviation	25th percentile	Media	75th percentile
Jones	All observations	501	4.03%	13.69%	-1.02%	1.60%	5.67%
	PEVC-Sponsored	208	2.92%	10.10%	-0.94%	1.25%	2.32%
	Non- PEVC-Sponsored	293	4.82%	15.71%	-1.03%	1.78%	6.49%
	Difference		**-1.90%**				
Modified Jones	All observations	501	4.01%	13.53%	-1.04%	1.63%	5.72%
	PEVC-Sponsored	208	2.96%	9.93%	-1.03%	1.22%	5.11%
	Non- PEVC-Sponsored	293	4.75%	15.56%	-1.21%	1.84%	6.38%
	Difference		**-1.79%**				
Modified Jones with ROA	All observations	501	3.67%	13.39%	-1.36%	1.33%	5.53%
	PEVC-Sponsored	208	2.54%	9.87%	-1.43%	1.14%	5.14%
	Non- PEVC-Sponsored	293	4.47%	15.38%	-1.28%	1.74%	6.30%
	Difference		**-1.93%**				

Panel B: Earnings Management by Phases of the IPO

Model	Sample	Pre-IPO		IPO		Lock-up		Post-lock-up	
		N	Mean	N	Mean	N	Mean	N	Mean

Jones	All observations	35	2.85%	66	8.28%	60	2.65%	38	1.85%
	PEVC-Sponsored	14	3.02%	29	3.38%	26	2.82%	19	2.48%
	Non- PEVC-Sponsored	21	2.73%	37	11.72%	34	2.52%	19	1.37%
	Difference		0.29%		**-8.34%**		0.30%		1.11%
Modified Jones	All observations	35	2.94%	66	8.20%	60	2.60%	38	1.87%
	PEVC-Sponsored	14	3.24%	29	3.39%	26	2.94%	19	2.42%
	Non- PEVC-Sponsored	21	2.74%	37	11.57%	34	2.36%	19	1.44%
	Difference		0.50%		**-8.18%**		0.58%		0.98%
Modified Jones with ROA	All observations	35	2.27%	66	7.88%	60	2.40%	38	1.52%
	PEVC-Sponsored	14	2.52%	29	2.98%	26	2.66%	19	1.98%
	Non- PEVC-	21	2.09%	37	11.31%	34	2.21%	19	1.18%
	Difference		0.43%		**-8.33%**		0.45%		0.80%

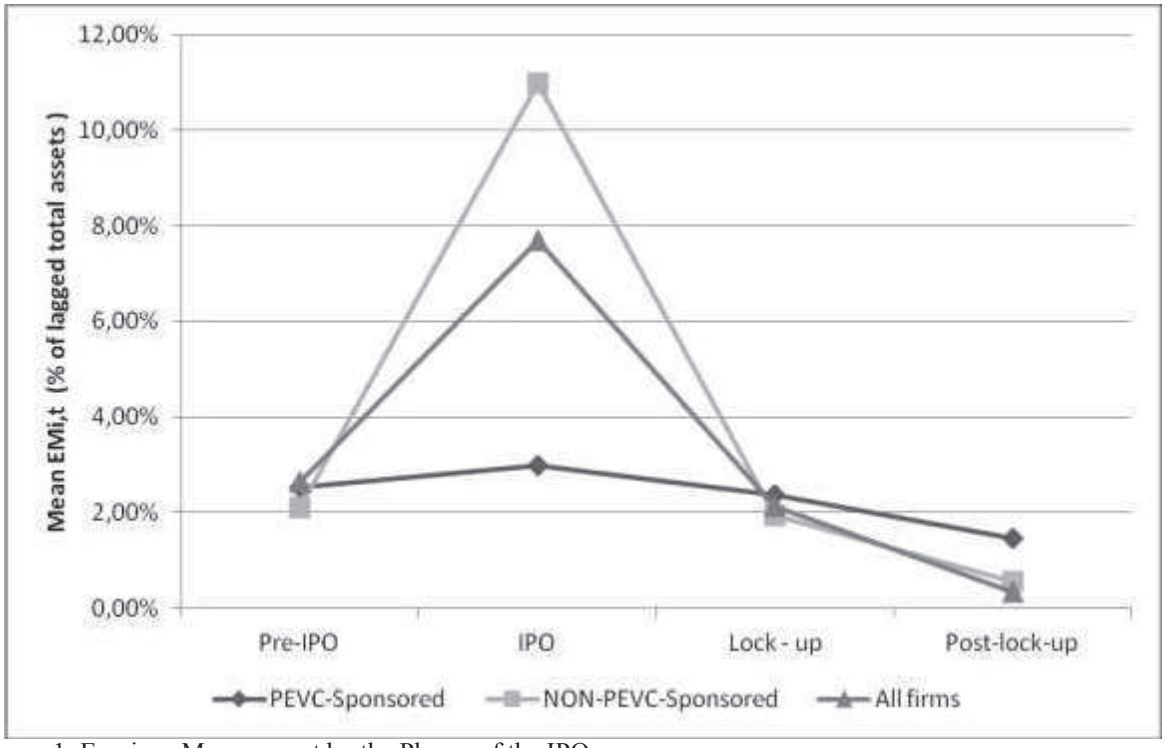

Figure 1: Earnings Management by the Phases of the IPO

Table 5: PEVC-Sponsorship and Earnings Management

Panel regressions analysis. The dependent variable is earnings management for firm i in the quarter t as percentage of the total assets. It was calculated using three different models (Jones, Modified Jones and Modified Jones with ROA). The sample consists of 493 firm-quarter observations from 92 IPOs at BM&FBovespa from January/2004 to September/2010. T (or z) statistics heteroskedastic-consistent by White (1980) are in brackets.

	Jones		**Modified Jones**		**Modified Jones with ROA**	
Variable	**Pooled OLS**	**Random Effects**	**Pooled OLS**	**Random Effects**	**Pooled OLS**	**Random Effects**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
PEVC	-0.0211	-0.0253	-0.0201	-0.0239	-0.0204	-0.0240
	(-1.14)	(-1.25)	(-1.10)	(-1.21)	(-1.13)	(-1.23)
Auditor	-0.0234	-0.0290	-0.0226	-0.0280	-0.0267	-0.0319
	(-1.20)	(-1.39)	(-1.17)	(-1.36)	(-1.41)	(-1.60)
Underwriter	0.0024	0.0034	0.0026	0.0034	0.0031	0.0037
	(0.61)	(0.84)	(0.65)	(0.85)	(0.78)	(0.94)
Size	-0.0161	-0.0172	-0.0151	-0.0160	-0.0145	-0.0151
	(-1.40)	(-1.31)	(-1.35)	(-1.26)	(-1.35)	(-1.26)
Growth	0.0047	0.0040	0.0053	0.0046	0.0057	0.0050
	(0.82)	(0.72)	(0.90)	(0.81)	(0.95)	(0.86)
Leverage	-0.0404	**-0.0784***	-0.0425	**-0.0778***	-0.0502	**-0.0827***
	(-1.25)	**(-1.76)**	(-1.32)	**(-1.78)**	(-1.56)	**(-1.94)**
ROA	-0.0000	0.0000	-0.0003	-0.0002	-0.0020	-0.0020
	(-0.01)	(0.01)	(-0.14)	(-0.12)	(-1.14)	(-1.03)
SEO	0.0105	0.0091	0.0084	0.0066	0.0023	0.0008
	(0.57)	(0.50)	(0.47)	(0.37)	(0.13)	(0.05)
Intercept	**0.2844***	0.3301	0.2683	0.3106	0.2666	0.3021
	(1.68)	(1.62)	(1.61)	(1.56)	(1.66)	(1.61)
Quarter Dum	**yes**	**yes**	**yes**	**yes**	**yes**	**yes**
Firm Clusters	**yes**	**yes**	**yes**	**yes**	**yes**	**yes**
# of obs.	493	493	493	493	493	493
R^2	0.0157	0.0324	0.0096	0.0321	0.0181	0.0454

F-Test (Pooled OLS) and Chi2-test (Random Effects)						
p - value	0.6263	0.5966	0.6340	0.5510	0.3571	0.2304
Breusch-Pagan LM Test for Random Effects:						
p-value:	**0.004**		**0.013**		**0.020**	

*, ** and *** denote significance at the 10%, 5% and 1% levels (for two-tailed tests), respectively.

Table 6: PEVC-Sponsorship and Earnings Management by Phases of the IPO

Panel regressions analysis of EM by phases of the IPO. The dependent variable is EM for firm i in the quarter t as percentage of the total assets. It was calculated using three different models (Jones, Modified Jones and Modified Jones with ROA). The sample consists of 493 firm-quarter observations from 92 IPOs at BM&FBovespa from January/2004 to September/2010. T (or z) statistics heteroskedastic-consistent by White (1980) are in brackets. The IPO Phase was omitted to avoid perfect colinearity.

Variable	Jones			Modified Jones			Modified Jones with ROA		
	Pooled OLS	Fixed Effects	Random Effects	Pooled OLS	Fixed Effects	Random Effects	Pooled OLS	Fixed Effects	Random Effects
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Auditor	-0.0247	-	-0.0300	-0.0238	-	-0.0290	-0.0279	-	**-0.0332***
	(-1.33)		(-1.54)	(-1.30)		(-1.50)	(-1.57)		**(-1.78)**
Underwriter	0.0027	-	0.0038	0.0029	-	0.0038	0.0034	-	0.0042
	(0.73)		(1.01)	(0.78)		(1.03)	(0.93)		(1.15)
Size	-0.0116	-0.0544	-0.0099	-0.0106	-0.0516	-0.0089	-0.0100	-0.0403	-0.0081
	(-1.01)	(-1.02)	(-0.79)	(-0.95)	(-1.00)	(-0.73)	(-0.95)	(-0.83)	(-0.70)
Growth	0.0042	0.0006	0.0037	0.0047	0.0012	0.0042	0.0052	0.0017	0.0046
	(0.87)	(0.14)	(0.81)	(0.95)	(0.25)	(0.90)	(1.01)	(0.35)	(0.95)
Leverage	**-0.0755****	**-0.3417*****	**-0.1265****	**-0.0780****	**-0.3417*****	**-0.1263****	**-0.0848****	**-0.3331*****	**-0.1335*****
	(-2.10)	**(-2.85)**	**(-2.52)**	**(-2.19)**	**(-2.88)**	**(-2.56)**	**(-2.39)**	**(-2.83)**	**(-2.70)**
ROA	0.0011	0.0019	0.0014	0.0008	0.0017	0.0011	-0.0010	0.0000	-0.0007
	(0.63)	(0.74)	(0.71)	(0.49)	(0.65)	(0.57)	(-0.59)	(0.01)	(-0.39)
SEO	0.0179	-0.0087	0.0159	0.0164	-0.0121	0.0140	0.0101	-0.0176	0.0079
	(0.92)	(-0.36)	(0.81)	(0.86)	(-0.52)	(0.74)	(0.54)	(-0.76)	(0.44)
Pre-IPO	-0.0686	-0.0067	-0.0585	-0.0671	-0.0087	-0.0575	-0.0665	-0.0070	-0.0567
	(-1.53)	(-0.26)	(-1.46)	(-1.52)	(-0.33)	(-1.45)	(-1.57)	(-0.27)	(-1.49)
Lock-up	**-0.1108*****	**-0.1588*****	**-0.1169*****	**-0.1109*****	**-0.1567*****	**-0.1167*****	**-0.1085*****	**-0.1561*****	**-0.1147*****
	(-3.03)	**(-3.02)**	**(-3.06)**	**(-3.06)**	**(-2.99)**	**(-3.08)**	**(-3.07)**	**(-3.02)**	**(-3.10)**

Post-lock-up	**-0.1147*** **	**-0.1807*** **	**-0.1204*** **	**-0.1135*** **	**-0.1750*** **	**-0.1188*** **	**-0.1115*** **	**-0.1748*** **	**-0.1169*** **
	(-3.38)	**(-2.93)**	**(-3.42)**	**(-3.38)**	**(-2.86)**	**(-3.41)**	**(-3.40)**	**(-2.89)**	**(-3.44)**
PEVC x IPO	**-0.0715***	**-0.0693** **	**-0.0707***	**-0.0709***	**-0.0729** **	**-0.0704***	**-0.0707***	**-0.0734** **	**-0.0702***
	(-1.73)	**(-2.01)**	**(-1.71)**	**(-1.74)**	**(-2.13)**	**(-1.73)**	**(-1.79)**	**(-2.17)**	**(-1.78)**
PEVC x Lock-up	-0.0009	0.0017	0.0003	0.0011	-0.0006	0.0020	-0.0002	-0.0016	0.0008
	(-0.05)	(0.08)	(0.02)	(0.06)	(-0.03)	(0.11)	(-0.01)	(-0.07)	(0.05)
PEVC x Post-lock-up	0.0162	0.0086	0.0159	0.0152	0.0039	0.0147	0.0143	0.0035	0.0138
	(1.04)	(0.37)	(1.02)	(0.98)	(0.17)	(0.95)	(0.93)	(0.15)	(0.89)
Intercept	0.2921	0.8023	0.2837	0.2760	0.7732	0.2678	0.2740	0.6124	0.2617
	(1.60)	(1.08)	(1.38)	(1.54)	(1.08)	(1.33)	(1.60)	(0.91)	(1.37)
Quarter dummies	**yes**	**yes**	**yes**	**yes**	**yes**	**yes**	**yes**	**yes**	**yes**
Firm Clusters	**yes**	**yes**	**yes**	**yes**	**yes**	**yes**	**yes**	**yes**	**yes**
# of obs.	493	493	493	493	493	493	493	493	493
R^2	0.0745	0.2391	0.1465	0.0694	0.2362	0.1423	0.0768	0.2330	0.1490
F-Test (Pooled OLS and Fixed Effects) and Chi2-test (Random Effects)									
P-value	0.4084	0.0123	0.3105	0.4195	0.0095	0.2895	0.2719	0.0096	0.1549
Breusch-Pagan LM Test for Random Effects:									
p-value:		0.0018			0.0029			0.0053	
Hausman Test:									
p-value:		0.0046			0.0113			0.1596	

*, ** and *** denote significance at the 10%, 5% and 1% levels (for two-tailed tests), respectively.

Table 7: Earnings Management Regressions in Sub-Samples

Panel regressions analysis for the level of earnings management (EM) by phases of the IPO. The dependent variable is EM for firm i in the quarter t as percentage of the total assets. It was calculated using three different models (Jones, Modified Jones and Modified Jones with ROA). T (or z) statistics heteroskedastic-consistent by White (1980) are in brackets. The PEVC-sponsored subsample consists of 205 firm-quarter observations from 38 PEVC-Sponsored IPOs. The Non-PEVC-Sponsored subsample consists of 288 firm-quarter observations from 54 Non-PEVC-Sponsored IPOs.

Panel A: PEVC-Sponsored Sub-Sample

Variable	Jones			Modified Jones			Modified Jones with ROA		
	Pooled OLS	Fixed Effects	Random Effects	Pooled OLS	Fixed Effects	Random Effects	Pooled OLS	Fixed Effects	Random Effects
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Pre-IPO	0.0473	0.0158	**0.0493***	0.0495	0.0201	**0.0509***	0.0496	0.0287	**0.0513***
	(1.57)	(0.19)	**(1.66)**	(1.65)	(0.25)	**(1.72)**	(1.61)	(0.35)	**(1.69)**
IPO	**0.0453****	0.0143	**0.0457*****	**0.0452****	0.0151	**0.0454*****	0.0444**	0.0192	**0.0446*****
	(2.65)	(0.29)	**(2.80)**	**(2.70)**	(0.32)	**(2.81)**	(2.57)	(0.40)	**(2.69)**
Lock-up	0.0063	-0.0158	0.0059	0.0077	-0.0144	0.0073	0.0096	-0.0107	0.0090
	(0.53)	(-0.57)	(0.52)	(0.65)	(-0.55)	(0.63)	(0.79)	(-0.40)	(0.77)
Auditor	**-0.0350*****	-	**-0.0336*****	**-0.0310*****	-	**-0.0300*****	**-0.0324*****	-	**-0.0314*****
	(-3.15)		**(-2.80)**	**(-2.92)**		**(-2.69)**	**(-3.03)**		**(-2.77)**
Underwriter	-0.0048	-	-0.0019	-0.0050	-	-0.0029	-0.0054	-	-0.0030
	(-1.15)		(-0.51)	(-1.23)		(-0.78)	(-1.29)		(-0.79)
Size	0.0046	0.0043	0.0051	0.0045	0.0058	0.0049	0.0058	0.0117	0.0064
	(0.57)	(0.20)	(0.60)	(0.57)	(0.26)	(0.60)	(0.70)	(0.53)	(0.74)
Growth	**0.0146****	**0.0161****	**0.0147*****	**0.0148*****	**0.0165****	**0.0149*****	**0.0110****	**0.0131****	**0.0111****
	(2.64)	**(2.31)**	**(2.64)**	**(2.89)**	**(2.55)**	**(2.89)**	**(2.18)**	**(2.08)**	**(2.19)**
Leverage	**-0.0670***	**-0.1792*****	**-0.0759***	**-0.0707***	**-0.1826*****	**-0.0774***	**-0.0740***	**-0.1831*****	**-0.0821****
	(-1.71)	**(-3.29)**	**(-1.85)**	**(-1.85)**	**(-3.42)**	**(-1.95)**	**(-1.97)**	**(-3.49)**	**(-2.10)**
ROA	**0.0042****	**0.0056*****	**0.0044*****	**0.0041*****	**0.0055*****	**0.0043*****	0.0016	**0.0030***	0.0018
	(2.73)	**(4.10)**	**(3.00)**	**(2.75)**	**(4.06)**	**(2.94)**	(0.97)	**(2.02)**	(1.11)
SEO	0.0205	0.0127	0.0203	0.0178	0.0086	0.0174	0.0178	0.0055	0.0169
	(1.21)	(0.54)	(1.21)	(1.11)	(0.41)	(1.10)	(1.11)	(0.26)	(1.07)
Intercept	0.0588	0.1135	0.0297	0.0586	0.0913	0.0373	0.0486	0.0014	0.0227
	(0.48)	(0.32)	(0.24)	(0.48)	(0.26)	(0.30)	(0.38)	(0.00)	(0.17)
Quarter Dum	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Firm Clusters	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

# of obs.	205	205	205	205	205	205	205	205	205
R^2 Total	0.3421	0.3873	0.3627	0.3477	0.3965	0.3681	0.3212	0.3647	0.3366
R^2 - Phases	0.3063	0.3726	0.3374	0.3102	0.3822	0.3446	0.2854	0.3515	0.3138
R^2-Controls	0.2580	0.2725	0.2718	0.2605	0.2765	0.2759	0.2617	0.2726	0.2716
F - Test (Pooled OLS and Fixed Effects) and Chi2-test (Random Effects) for phases of the IPO									
p-value	**0.0420**	**0.0740**	**0.0186**	**0.0409**	0.1001	**0.0200**	**0.0585**	0.1501	**0.0312**
F - Test (Pooled OLS and Fixed Effects) and Chi2-test (Random Effects) for controls variables									
p-value	**0.0006**	**0.0003**	**0.0001**	**0.0007**	**0.0003**	**0.0000**	**0.0004**	**0.0210**	**0.0000**
F - Test (Pooled OLS and Fixed Effects) and Chi2-test (Random Effects) for all variables									
p-value	**0.0001**	**0.0017**	**0.0000**	**0.0000**	**0.0019**	**0.0000**	**0.0000**	**0.0831**	**0.0000**
Breusch-Pagan LM Test for Random Effects:									
p-value:		**0.0068**			**0.0061**			**0.0033**	
Hausman Test:									
p-value:		0.3841			0.3620			**0.0002**	

*, ** and *** denote significance at the 10%, 5% and 1% levels (for two-tailed tests), respectively.

Panel B: Non-PEVC-Sponsored Sub-Sample

Variable		**Jones**			**Modified Jones**			**Modified Jones with ROA**	
	Pooled OLS	**Fixed Effects**	**Random Effects**	**Pooled OLS**	**Fixed Effects**	**Random Effects**	**Pooled OLS**	**Fixed Effects**	**Random Effects**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**
Pre-IPO	0.0446	**0.2568*** **	**0.0662** **	0.0445	**0.2441*** **	**0.0644***	0.0468	**0.2390*** **	**0.0641** **
	(1.20)	**(2.92)**	**(1.97)**	(1.21)	**(2.76)**	**(1.93)**	(1.33)	**(2.68)**	**(1.97)**
IPO	**0.1037*** **	**0.2326*** **	**0.1134*** **	**0.1029*** **	**0.2234*** **	**0.1117*** **	**0.1034*** **	**0.2186*** **	**0.1109*** **
	(3.10)	**(2.95)**	**(3.21)**	**(3.09)**	**(2.85)**	**(3.20)**	**(3.17)**	**(2.81)**	**(3.26)**
Lock-up	-0.0074	0.0415	-0.0064	-0.0088	0.0361	-0.0079	-0.0070	0.0340	-0.0066
	(-0.52)	(1.60)	(-0.45)	(-0.62)	(1.42)	(-0.56)	(-0.52)	(1.30)	(-0.49)
Auditor	-0.0363	-	-0.0446	-0.0366	-	-0.0443	-0.0395	-	-0.0463
	(-1.15)		(-1.36)	(-1.18)		(-1.37)	(-1.30)		(-1.48)
Underwriter	0.0050	-	0.0061	0.0052	-	0.0062	0.0056	-	0.0063
	(0.77)		(0.91)	(0.82)		(0.94)	(0.91)		(1.00)
Size	-0.0221	-0.0722	-0.0202	-0.0208	-0.0691	-0.0190	-0.0202	-0.0553	-0.0186
	(-1.18)	(-1.07)	(-1.02)	(-1.13)	(-1.06)	(-0.98)	(-1.16)	(-0.90)	(-1.02)

Growth	0.0103	**0.0077***	**0.0101***	0.0111	**0.0082***	**0.0108***	**0.0119***	**0.0091***	**0.0116***
	(1.62)	**(1.78)**	**(1.78)**	(1.66)	**(1.76)**	**(1.79)**	**(1.70)**	**(1.78)**	**(1.79)**
Leverage	-0.1066	**-0.4340****	**-0.1599***	**-0.1107***	**-0.4333****	**-0.1593****	**-0.1176***	**-0.4199****	**-0.1588****
	(-1.63)	**(-2.64)**	**(-1.96)**	**(-1.71)**	**(-2.66)**	**(-1.99)**	**(-1.83)**	**(-2.59)**	**(-2.06)**
ROA	-0.0003	-0.0001	0.0001	-0.0008	-0.0005	-0.0004	-0.0024	-0.0017	-0.0021
	(-0.14)	(-0.06)	(0.04)	(-0.43)	(-0.21)	(-0.23)	(-1.21)	(-0.68)	(-1.01)
SEO	0.0382	0.0095	0.0424	0.0407	0.0126	0.0448	0.0057	-0.0019	0.0123
	(0.50)	(0.10)	(0.52)	(0.54)	(0.13)	(0.56)	(0.08)	(-0.02)	(0.17)
Intercept	0.3782	1.5631	0.4254	0.3467	1.5040	0.4546	0.3277	1.2794	0.3065
	(1.40)	(1.42)	(1.46)	(1.30)	(1.41)	(1.35)	(1.29)	(1.26)	(1.16)
Quarter Dum	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Firm Clusters	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
# of obs.	288	288	288	288	288	288	288	288	288
R^2 Total	0.1827	0.2919	0.2254	0.1798	0.2882	0.2232	0.1907	0.2858	0.2294
R^2 - Phases	0.1246	0.2022	0.1301	0.1206	0.1996	0.1269	0.1312	0.1980	0.1330
R^2- Controls	0.1291	0.1494	0.1287	0.1275	0.1466	0.1268	0.1323	0.1541	0.1345
F-test (Pooled OLS and Fixed Effects) and Chi2-test (Random Effects) for phases of the IPO									
p-value	**0.0093**	**0.0289**	**0.0033**	**0.0093**	**0.0354**	**0.0035**	**0.0089**	**0.0366**	**0.0033**
F-test (Pooled OLS and Fixed Effects) and Chi2-test (Random Effects) for controls variables									
p-value	0.5786	**0.0295**	0.5376	0.5819	**0.0272**	0.5252	0.2138	**0.0421**	0.2326
F-test (Pooled OLS and Fixed Effects) and Chi2-test (Random Effects) for all variables									
p-value	0.1649	**0.0668**	0.1374	0.1870	**0.0686**	0.1530	0.1121	0.1096	0.1004
Breusch-Pagan LM Test for Random Effects:									
p-value:		**0.0013**			**0.0023**			**0.0029**	
Hausman Test:									
p-value:		**0.0000**			**0.0000**			**0.0000**	

*, ** and *** denote significance at the 10%, 5% and 1% levels (for two-tailed tests), respectively.

Table 8: Earnings Management with Treatment for the Endogenous Choice of PEVC-Sponsorship

Panel regressions analysis with instrumental variables. Estimates come from instrumental variables approach (IV) by Pooled 2SLS and G2SLS with random effects (RE). The dependent variable is earnings management for firm i in the quarter t as percentage of the total assets. It was calculated using three different models (Jones, Modified Jones and Modified Jones with ROA). The instrumentalized variable is the PEVC sponsorship. The instruments are industry dummies, the state in which the company's headquarters is located. The sample consists of 460 firm-quarter observations from 92 IPOs at BM&FBovespa from January/2004 to September/2010. T (or z) statistics heteroskedastic-consistent by White (1980) are in brackets. First-stage regressions are omitted.

	Instrumental Variables (IV)			
Variable	**Pooled 2SLS**	**Pooled 2SLS**	**Random Effects**	**Random Effects**
	(1)	**(2)**	**(3)**	**(4)**
PEVC	**-0.0414****	**-0.1783*****	-0.0341	**-0.1520*****
	(-2.43)	**(-3.25)**	(-1.34)	**(-3.47)**
Auditor	-0.0145	-0.0184	-0.0199	-0.0247
	(-0.63)	(-0.82)	(-0.85)	(-1.05)
Underwriter	-0.0018	**-0.0018***	-0.0019	-0.0021
	(-1.45)	**(-1.67)**	(-1.34)	(-1.53)
Size	**-0.0201***	-0.0129	**-0.0231*****	-0.0115
	(-1.75)	(-1.20)	**(-3.14)**	(-1.51)
Growth	-0.0027	0.0011	**-0.0025***	0.0005
	(-1.34)	(0.20)	**(-1.66)**	(0.10)
Leverage	0.0034	**-0.0997*****	0.0026	**-0.1648*****
	(0.54)	**(-2.65)**	(0.54)	**(-4.48)**
ROA	**-0.0588****	-0.0016	**-0.0932*****	-0.0012
	(-2.26)	(-0.78)	**(-2.85)**	(-0.80)
SEO	0.0116	0.0117	0.0058	0.0097
	(0.67)	(0.65)	(0.20)	(0.34)
Pre-IPO	**0.3825****	**-0.1150*****	**0.4417*****	**-0.0814*****
	(2.23)	**(-2.69)**	**(4.07)**	**(-2.93)**
Lock-up		**-0.1418*****		**-0.1350*****
		(-3.73)		**(-5.92)**
Post-lock-up		**-0.1445*****		**-0.1348*****
		(-4.23)		**(-5.76)**
PEVC x Pre-IPO		**0.1785*****		**0.1296*****

		(2.83)		**(2.77)**
PEVC x Lock-up		**0.1732*** **		**0.1353*** **
		(3.01)		**(3.36)**
PEVC x Post-lock-up		**0.1775*** **		**0.1377*** **
		(3.43)		**(3.31)**
Intercept		**0.4086** **		**0.4206*** **
		(2.39)		**(3.85)**
Quarter Dummies	**Yes**	**Yes**	**Yes**	**Yes**
Firm Clusters	**Yes**	**Yes**	**Yes**	**Yes**
# of Obs.	460	460	460	460
R^2	**0.0461**	**0.0932**	**0.0374**	**0.0825**
F-test (Pooled 2SLS) and Chi2-test (Random Effects) for IV First Stage				
p-value:	**0.000**	**0.000**	**0.000**	**0.000**

*, ** and *** denote significance at the 10%, 5% and 1% levels (for two-tailed tests), respectively

[i] We are grateful to Rodrigo De Losso Bueno, Alexandre di Miceli Da Silveira, Claudio Furtado, Humberto Gallucci Netto, Ricardo Leal, and an anonymous referee for their valuable comments. Gioielli gratefully acknowledges the financial support from Banco Central do Brasil, GVcepe and CAPES. De Carvalho acknowlwgdes financial suport from FAPESP (Procjet 03/08825-7) and CNPq (Project 477572/2003-0). The views expressed in this paper are those of the authors and do not reflect those of Banco Central do Brasil or its members. Errors or omissions are our responsibility.

[ii] Rangan (1998) reports high discretionary accruals in quarters 0 and 1. In his words, quarter 0 is the quarter that has the first earnings announcement after the offering announcement.

[iii] This section is based on Carvalho (2012).

[iv] In our sample, all but two firms are listed at BM&FBovespa's Novo Mercado or Level 2 [BM&FBovespa (2001)]. The listing requirements for these markets prevent insiders of issuing firms from selling their holdings for 180 days after the IPO date. The other two firms (Dufry South America and Wilson Sons) for not being incorporated in Brazil could not list at BM&FBovespa's Novo Mercado or Level 2. However, their IPO had established a 180-day lock-up period.

[v] This ranking varies from 1.1 to 9.1. When none of the IPO underwriters in the syndicate was included in the international ranking, we attributed value 1.1.

[vi] These sites are cvm.gov.br and BM&FBovespa.com.br.

[vii] Porto Seguro, Banco Nossa Caixa, Brasilagro, GP Investments, Shopping Iguatemi, Banco Pine, BR Malls, Banco Sofisa, Tarpon Investment Group, Paraná Banco, Banco Cruzeiro do Sul, Banco Daycoval, Banco Indusval, Redecard, Invest Tur, Banco Patagonia, Banco ABC Brasil, Multiplan and General Shopping.

[viii] These firms were incorporated shortly before its IPO: Abril Educa, Arezzo, Autometal, Hrt Petroleo, IMC Holdings,Qualicorp, Mills, Raia and Thechnos.

[ix] Some companies do not provide financial statements for all the quarters preceding the IPO (sometime because it was recently incorporated). Some other may have gone through merger or acquisition before the IPO.

[x] BM&FBovespa's requirements to list on Novo Mercado or Level 2 include the obligation to present annual financial statements for the previous three years.

[xi] Following Economática® dataset classification.

[xii] The VC industry is notorious for being geographically concentrated. Carvalho et al. (2006) that conducted a full census of the Brazilian private equity and venture capital industry found that the PE/VC organizations are heavily concentrated in the states of São Paulo and Rio de Janeiro.

[xiii] In fact, the significance level was never inferior to 0.62.

[xiv] In non-reported results, we omit the variable $Lock\text{-}up_{i,t}$ instead of the dummy for the IPO phase. In this case, as in the univariate analysis, there is no evidence that EM in the lock-up phase is higher than in the Pre-IPO or Post-lock-up phases.

[xv] We focus only on the F-tests for pooled OLS and random effects because in the case of fixed effects, all the firms's characteristics that are time invariant (such as Auditor and Underwriter) are ignored.

[xvi] One should be careful when reading the results for Model 2 (Columns 2 and 4): Stata automatically adds the instrumentalized variable (*PEVC*). In Model 2 we would like to have the interactions of *PEVC* with the dummies for phases of the IPO. To deal with this, we included the interactions of *PEVC* with the Pre-IPO, Lock-up and Post-Lock-up phases. Therefore the coefficient on *PEVC* is in fact the coefficient of the variable *PEVC* interacted with the IPO dummy. The coefficient for the Pre-IPO phase interacted with *PEVC* is the sum of the coefficient on the variables *PEVC* and *PEVC* x Pre-IPO, and so on.