FUNDAÇÃO GETULIO VARGAS
ESCOLA DE ECONOMIA DE SÃO PAULO

CLEMENS DE MEIJ

PRIVATE EQUITY AND VENTURE CAPITAL EARNING MANAGEMENT IN IPOs. SAMPLE FROM BRAZIL (2000-2015)

SÃO PAULO
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Campo do Conhecimento: International Master in Finance

Orientador Prof. Fernando Daniel Changue

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RESUMO

Este relatório levará em consideração o artigo “Capital de risco e gerenciamento de resultados em IPOs”, escrito por Sabrina P. Ozawa Gioielli, Antonio Gledson de Carvalho e Joelson Oliveira Sampaio. O artigo foi publicado em 2013 pela Brazilian Business Review e investiga o gerenciamento de resultados em IPOs e o papel de private equity e venture capital. EM é uma intervenção intencional no processo de relatório financeiro externo com qualquer intenção que não seja representar a realidade intrínseca ao negócio. EM é importante, especialmente no momento de um IPO, porque se os ganhos foram inflados artificialmente, os investidores que não sabem disso podem estar levando a pagar um preço artificialmente alto. O artigo mostra que, quando analisadas, as empresas EM para PEVC e não patrocinadas por PEVC devem ser tratadas como amostras diferentes: de uma divisão das amostras, o R-quadrado aumenta drasticamente para ambas as subamostras. No artigo, os IPOs patrocinados pela PEVC, o EM, são marginais, porque estão relacionados principalmente às características das empresas e pouco relacionados às fases dos IPOs. Por outro lado, para IPOs não patrocinados pelo PEVC, o EM é significativo porque está principalmente relacionado às fases dos IPOs e pouco relacionado às características das empresas. O artigo conclui fazendo uma análise geral dos vários estudos sobre o EM no momento da oferta pública, usando dados anuais e investigando o comportamento do EM em quatro fases de dois trimestres: pré-IPO, IPO, lock-up e pós-lock-up. acima. Estimativa EM para cada oito trimestres e indicando que EM ocorre principalmente na fase de IPO. O objetivo deste artigo é analisar o gerenciamento de resultados (EM) em IPOs e o papel de private equity ou venture capital em dificultar tal prática, intercalando os resultados da pesquisa de mina e os resultados com o documento mencionado acima.

KEY WORDS:

Private Equity, Venture Capital, Earning Management, Jones Model, IPO

ABSTRACT

This report will take in consideration the paper "***Venture capital and earnings management in IPOs***" written by Sabrina P. Ozawa Gioielli, Antonio Gledson de Carvalho and Joelson Oliveira Sampaio. The paper has been published in 2013 by Brazilian Business Review and investigate the earnings management in IPOs and the role of private equity and venture capital. EM is a purposeful intervention in the external financial reporting process with any intention other than to represent the reality intrinsic to the business. EM is important especially at the time of an IPO because if the earnings were artificially inflated, investors who are unaware of this can be leading to pay an artificially high price. The paper shows that, when analyzed the EM for PEVC and non-PEVC sponsored firms should be treated as different samples: of one split the samples, R-squared increases drastically for both subsamples. In the paper, the IPOs sponsored by PEVC the EM is marginal because is mostly related to firms' characteristics and little related to the phases of the IPOs. In the other hand, for non-PEVC sponsored IPOs, EM is significant because is mostly related to the phases of the IPOs and little related to firms' characteristics. The paper concludes doing a general analysis of the several studies concerning the EM at the time of public offering, using annual data and investigating the behavior of EM in four two-quarter phases: pre-IPO, IPO, lock-up and post lock-up. Estimating EM for each eight quarters and indicating that EM occurs mainly in the IPO phase. The aim of this paper is to analyze the earnings management (EM) in IPOs and the role of private equity or venture capital in hampering such practice, compering the results of mine research and results with the paper mentioned above.

KEY WORDS:

Private Equity, Venture Capital, Earning Management, Jones Model, IPO

CONTENTS

1 INTRODUCTION

This report will take in consideration the paper "***Venture capital and earnings management in IPOs***" written by Sabrina P. Ozawa Gioielli, Antonio Gledson de Carvalho and Joelson Oliveira Sampaio. The paper has been published in 2013 by Brazilian Business Review and investigate the earnings management in IPOs and the role of private equity and venture capital. EM is a purposeful intervention in the external financial reporting process with any intention other than to represent the reality intrinsic to the business. EM is important especially at the time of an IPO because if the earnings were artificially inflated, investors who are unaware of this can be leading to pay an artificially high price. The paper shows that, when analyzed the EM for PEVC and non-PEVC sponsored firms should be treated as different samples: of one split the samples, R-squared increases drastically for both subsamples. In the paper, the IPOs sponsored by PEVC the EM is marginal because is mostly related to firms' characteristics and little related to the phases of the IPOs. In the other hand, for non-PEVC sponsored IPOs, EM is significant because is mostly related to the phases of the IPOs and little related to firms' characteristics. The paper concludes doing a general analysis of the several studies concerning the EM at the time of public offering, using annual data and investigating the behavior of EM in four two-quarter phases: pre-IPO, IPO, lock-up and post lock-up. Estimating EM for each eight quarters and indicating that EM occurs mainly in the IPO phase. The aim of this paper is to analyze the earnings management (EM) in IPOs and the role of private equity or venture capital in hampering such practice, compering the results of mine research and results with the paper mentioned above. In terms of sample data, in order to analyze the EM, I will take a larger period of time (2000-2015) than suggest by the paper above (2004-2010), and more quarters, going from 6 of the paper mentioned to 12, the number of quarters that I will use in my sample. To wrap up, in this

paper I will analyze the EM in IPOs baked by PEVC and non-PEVC, compare the results, and see the differences between this report and the other in terms of outcomes.

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

2 Stages of PE and VC Activities in Brazil 1995 - 2015

2.1.1 "Growth and Optimism" 1995-1999

According to Roger Leeds (2015), Until around 1995 there were just a few of GPs working in Brazil, and private equity could barely be named as a particular resource class. There was no administration acknowledgment or support for private equity, nor did universal private equity financial specialists show more than intermittent enthusiasm for wandering into this unexplored domain. But in the mid-1990s the private equity scene started to change, and there were clear signs of an industry balanced for a take-off. Locally, the Brazilian economy hinted at recuperation and development in the fallout of the incapacitating outer obligation emergency of the purported lost decade of the 1980s. More grounded macroeconomic execution was impelled by a scope of new activities, including the administration's 1994 presentation of a much-proclaimed new currency, (i.e., Plano Real) by Minister of Finance Fernando Henrique Cardoso (who might before long progressed toward becoming president), a progression of lawful changes that out of the blue built up systems characterizing how investment and private equity assets ought to be sorted out and directed, and the dispatch of a goal-oriented privatization program in 1997 that caught the consideration of outside financial specialists. These good advancements added to a flood of enthusiasm for private equity. In excess of 60 new private equity funds were working by 1997 with capital under management totaling more than US$8 billion, double the amount two years earlier. Also, as a further indication of increasing momentum, a portion of the significant international banks and private equity funds, for example, Advent International, were opening workplaces in the nation. Brazil appeared to be ready to establish and build up itself as a dependable private equity market with the capability to finance a broad range of companies at a time when the economy was growing, and the private sector was rapidly diversifying.

2.1.2 "The Nuclear Winter" 2000-2003

A combination of global and household factors unfolded throughout the following couple of years that turned around the direction of both the economy and the juvenile private equity industry. A few components were not really one of a kind to Brazil, for example, global contagion following the Asian financial crisis in 1997, the Russian government default a year later, and after that in 2001 the blasting of the Web bubble, causing a sudden compression of the global pool of liquidity that had been streaming to emerging markets. In an example that has rehashed itself as far back as money related markets existed, the financial specialist group charged for the ways out looking for less risky resources. By 2002, first narrative outcomes for Brazil's private equity funds that had been made during the 1990s started to stream out. In the same way as other developing business sector nations amid this period, Brazil's execution was well underneath speculators' grand desires, and prospects for raising extra capital went to an unexpected end. Veteran Brazilian private equity investors who survived those long stretches of gigantic disillusionment allude to this age as the business' "nuclear winter," a time of soak monetary misfortunes, and all the more critically, a mass migration of unsettled financial specialists. Many even theorized whether the benefit class was so seriously undermined that maybe it would not recuperate.

2.1.3 "The boom years" 2004-2010

Exactly when this skeptical viewpoint appeared to probably turn into an inevitable outcome, another sensational unforeseen development prompted a private equity resurgence. In 2004 Brazil started to ride the peak of a developing rush of restored universal enthusiasm for developing business sector private equity that was like 10 years earlier. This time, nonetheless, it was not just solid worldwide monetary development and expanding liquidity that was driving the recuperation. By for all intents and purposes each measurement, the private equity industry's development amid this period paralleled or surpassed the nation's

solid macroeconomic execution. As showed in the Exhibit 1, speculation expanded at a comparable pace, profiting organizations over an assorted cluster of divisions, including agribusiness, consumer goods, pharmaceuticals, electricity and power, and software development. Notwithstanding representing the nation's overwhelming size contrasted with whatever is left of Latin America, Brazil's private equity change was impressive. A lot of aggregate Latin American private equity activity has since a long time ago overshadowed whatever remains of the Southern Side of the equator, and reliably spoke to 55 percent to 60 percent of aggregate gathering pledges pretty much consistently from 2002 to 2009, and more than 50 percent of aggregate contributing (see Exhibits 2).

2.1.4 "Repeat of a familiar pattern" 2011-2015

As the macroeconomic deteriorated in terms of performances, private equity fundraising and investments had the same deterioration (see Exhibit 3). Private equity fundraising and investment activities did not achieve the level of 2006 to 2008, remaining below the expectations and with an economy demonstrating encouraging resilience. Giving this reason, Brazil was falling out of favor with investors comparing to other emerging markets. In 2011, private equity activity was having a rebound with encouraging signs and optimism gave to Brazil a short live. During 2012 and 2013, PE fundraising and investments had a strong decline of 64% and 39%, respectively, and although the comparable numbers for the rest of Latin America were also disappointing during this period (down 38 percent and 22 percent, respectively), Brazil fared considerably worse than its neighbors. The erosion of speculator certainty was reflected in one study about LPs' developing business sector private equity inclinations, uncovering that Brazil had tumbled from positioning first, as far as appeal in 2011 to 6th in 2013. These frustrating numbers made it simple to reason that indeed the advantage class had all the earmarks of being confronting a questionable future in Brazil. In

any case, such a negative interpretation, disregarded huge increases made amid the past two decades. As opposed to a harbinger of an independently dreary future, a more nuanced evaluation of the private equity industry uncovers noteworthy qualities notwithstanding shortcomings.

3 DATA

In order to implement this paper on my report, I have to take in consideration two main points for my data: Variables, and Sample description.

3.1 Variables

Variables for my report are two: Measures of EM, the phases of the IPO and other variables.

3.1.1 Measures of EM

Earning management is not directly observable, and for this reason, several models has been developed to gauge it. These models are based on accruals: the difference between reported earnings and cash flows from operations. The total accruals can be decomposed into current (short-term) and non-current (long-term) components. Non-current accruals involve only long-term net assets such as, decelerating depreciation, decreasing deferred taxes, and realizing unusual gains. Instead, current accruals, involve only short-term assets and liabilities supporting the day to day operations of the company. In this report, I also use discretionary current accruals as proxy for of EM due to the fact that, short-term accounts are vulnerable to manipulation; and to the fact that Brazilian accounting rules do not require quarterly disclosure of some data necessary to calculate non-current accruals. If the cash flow statements are not available, as in Brazil, accruals are calculated as the variation in current assets minus the variation in current liabilities (Hochberg,2012; and Teoh et al., 1998a and 1998b). I have to mention also, that to calculate accruals, it is necessary at list two consecutive balance sheets.

Positive accruals by themselves are not enough to evidence the 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. This give the opportunity to managers to manipulate, especially in the cases when they increase or decrease

accruals with other purposes than to express the real economy and financial situation of the business. Therefore, is necessary to decompose accruals into non-discretionary accruals, which are derived by the company's activities, and discretionary accrual, which are artificial and have the only purpose of manipulating results. In order to make such decomposition, several methodologies have been developed, for example, Healy (1985), Angelo (1986), Jones (1991), Dechow at al. (1995), Kang and Sivaramakrishnan (1995) and Kothari et al. (2005).

To estimate non-discretionary current accruals, I will use three 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 by Kothari et al., 2005). Due to my focus on IPOs, firms in my 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. Appendix A details these models.

3.1.2 Phases of the IPO

Because the porpoise of this report is to study the dynamics of EM in IPOs, I focused in 4 phases around the IPO date: **Pre-IPO phases, IPO phases, Lock-up phases, Post-lock-up phases.**

Pre-IPO phases: comprises the two-quarterly financial statemet observations that are calculated from the two-quarters balance sheets before the IPO. In this phase, I expect to find lower levels of earning manipulation.

IPO phases: in this phase I repeat the previous process, adding also 12 quarterly financial statements after the IPO has been public. 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. I included also 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: Lock-up phase is a window of time when investors of a hedge fund or in this case a Private equity or a Venture Capital are not allowed to redeem or sell shares. This phase helps portfolio managers avoid liquidity problems while capital is put to work in something illiquid investments. In this case, the composed of the 12 quarterly observations are obtained from the balance sheets immediately subsequent to the IPO. Insiders who wish to sell their stocks after the lock-up period have incentives to support the stock price of the firm and, consequently, manage earnings in the period (Rangan, 1998)

Post-lock-up phases: Last phase, includes the quarterly observations immediately subsequent to the quarters right after the lock-up period calculated from the third, fourth and fifth quarterly balance sheets published after the IPO. In this phase, the insiders have no longer incentives to manipulate earnings.

3.1.3 Other Variables

The variable controlling for firm's heterogeneity are:

Auditor: a dummy variable assuming value one when firm I had their financial statements audited by one of the Big Four auditing companies and zero otherwise.

Underwriter: The Cater-Manaster index of the member of the underwriting syndicate with the highest score.

Size: Is the natural logarithm of total assets of firm I at quarter t (in millions, currency depends from which country the information is coming from)

Growth: is the change in net operating revenues.

Leverage: The firm's I leverage at quarter t.

ROA: return on assets between quarters t-1 and t for firm I, calculated as the ratio of net income to total assets.

3.2 Sample description

The data of the report are coming from several sources: IPO prospectuses, Economatica, Bloomberg Terminal, scientific papers and firms' quarterly financial statements available at the website of CVM. My final sample consists of IPOs from Brazil, as previously mentioned, between **January 2000 and December 2015**. For the final sample and to estimate non-discretionary accruals for quarter t the 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**. Therefore, my final sample consists of 74 IPOs, comprising 825 firm-quarter observations. This sample decomposes into 44 PEVC-sponsored firms comprising 484 firm quarter observations and 30 non-PEVC-sponsored firms comprising 341 firm-quarter observations (Table 1 summarizes the sample). For that it would be necessary twelve consecutive quarterly balance sheets: four before the IPO and eight after the IPO.

Table 2 Instead, presents basic statistics for the variables characterizing firms' heterogeneity. I initially observe that for these variables, PEVC-sponsored and PEVC-non-sponsored firms are very similar. For example: The variables: ***Auditor*** is a dummy with 1 (0) for big four (non-big four) for each auditing firm i; ***Size*** is firm i's natural logarithm of book value of assets at quarter t; ***Growth*** is firm i's % change in net operating revenues at quarter t; ***Leverage*** is firm i's % change in EBIT divided by % change in revenue at quarter t; ***ROA*** is firm i's return on assets calculated by net income divided by the book value of total assets at quarter t; ***Underwr.*** is underwriter and is firm i's Cater-Manaster index of the member of the underwriting syndicate with the highest score. *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.

Table 3 reports correlation among the exogenous variables for PEVC and non-PEVC. 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 underwriter, present higher leverage and lower ROA. Firms that hire top auditors and underwriters are less indebted.

4 METHODOLOGY

4.1 Hypotheses

H1: PEVC-sponsored firms present lower level of earnings management at the time of the IPO than non- PEVC-sponsored ones.

Teoh et al. (1998b) point that the IPO process gives entrepreneurs both motivation and opportunities to engage into EM, giving by the fact that there is high information asymmetric between investors and issuers during the time of the IPO. For instance, Rao (1993) reports the lack of news media coverage of firms before their IPO. Therefore, prospectus id the main source of information for IPO. 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 at the time of the IPO. For those reasons, managers of issuing firms have both the opportunity and the motivation to manipulate earnings in order to inflate offering price.

4.2 Regression Model

To test the hypothesis H1, I will use panel regressions where the dependent variable is the level of EM for firm *i* at time *t, EMi,t (*measured by the discretionary current accruals for firm i at time t). The variable of interest PEVCi, a time unvarying dummy variable assuming value one when the observation comes from a firm with PECV sponsorship. To confirm H1, the coefficient of the dummy variable must be negative. The model also includes a number of control variables that can influence the incentives for earnings manipulation:

$$EMi,t = \beta 0 + \beta 1 PECVi + \beta 2 Auditor\ i + \beta 4 Size\ i,t + \beta 5 Growth\ i,t + \beta 6 Leverage\ i,t + \beta 7 ROA + \varepsilon\ i,t$$

5 EMPIRICAL RESULTS

In Table 4 the descriptive statistics for the outcome of each of the earnings management models are reported by the PEVC and non-PEVC categories. In addition, the mean differences between the two PEVC categories are tested. The 2-tailed t-statistics are given for each model earnings management proxy, viz. for the Jones ($t = -0.27$), Modified Jones ($t = -0.25$), and Modified Jones with ROA ($t = 0.42$). However, none of the earnings management differences are significant at any of the significance levels 1, 5 or 10 per cent. In the table the number of observations, mean, standard deviation, 25^{th} and 75^{th} percentile statistics are summarized per model outcome. The total sample consists of 825 firm-quarter EM observations, the PEVC-sponsored firms sample has 484 observations while the non-PEVC-sponsored sample has 341 EM observations. The statistics of the Jones and Modified Jones earnings management are approximately similar. In same way the EMs across all models do not show very large differences (0.0098 and 0.0097 resp.). The EM variations are approximately between 36 (0.0098/0.00021) and 47 (0.0097/0.00027) times the mean for the total sample. The average EM lies below the middle observation for all models (resp. -0.00021>-0.0009; -0.00027>-0.0010). According to the 25^{th} and 75^{th} percentiles 50 per cent of the observations lie between the values -0.0040 and 0.0021 with a range of 0.0061 (0.0021 - -0.0040) for the Jones model. The range is resp. 0.0060 and 0.0057 for Modified Jones and Modified Jones with ROA. The latter model has less value dispersion compared to the other 3 models (0.0057<0.0060<0.0061), with the smallest standard deviation and the largest absolute mean EM. The mean difference between PEVC and non-PEVC sample for the Jones (Modified Jones model) is -0.00019 (-0.00018) while this difference is much larger for the Modified Jones with ROA EM (-0.00029). This larger dissimilarity between the two groups results in a relatively later t-statistic (0.42) however not sufficiently large significant

difference. Figure 1 shows the EM means of the 3 models by sponsor category. Obviously, the PEVC-sponsored firms have a smaller EM compared to the non-PEVC sample and the Modified Jones with ROA shows an even smaller EM when sponsored. These findings suggest that Jones and Modified Jones should not yield different results while the Modified Jones with ROA is differentiated the most by the dummy variable PEVC.

In Table 5 the results of the OLS regressions for the 3 EM models are reported, for the pooled and the random effects estimates. The mean difference between the PEVC- and non-PEVC-sponsored firms EM, namely the beta below each model 1-6 is -0.0002, approximately similar to the mean EM differences in Table 4 (-0.00019, -0.00018, and -0.00029). Accordingly, EM is not significantly different between the PEVC and non-PEVC-sponsored firms, as was revealed in the t-tests above. The firm size in all models is significant with 0.0008 for models 1-4 and 0.0006 for models 5-6. A 1 per cent increase in firm size results in an increase of 0.0008 ($p<5\%$) and 0.0006 for models 5-6 ($p>5\%$). Thus, models 1-4 provide the most sensitive EM outcome with respect to the firm size, while models 5-6 react relatively flatter to size change. The latter two model size betas are insignificant. Dummy Auditor, firm growth and leverage have no significant impact on the 3 EM proxies ($p>5\%$). ROA betas are highly significant in model 1-4 with betas 0.0152 and 0.0153 ($p<1\%$). A 1 per cent in crease of a firm's scaled net income, increases the EM on average by 0.052 or 0.053. ROA beta in models 5-6 is insignificant. Except in model 5-6, constants are significant at the 5 per cent level. The constant is the mean EM value for the non-PEVC-sponsored firms, when controlled for the independent variables in the models. The number of observations for all estimations is 825, which is the joint number of observations for all model variables. Model 1-4 (5-6) estimations have an explanatory power – i.e. a R^2 of 1.4 (0.5) per cent. All models have included quarter dummy variables and the standard errors are clustered by the firm id, to account for heterogeneous effects between firms. Before performing the random

effects estimations, the Hausman test is performed to test for the difference in the betas of the fixed and random effect panel regressions. The null hypothesis states that both panel estimates produce same coefficients, which is not rejected as it appears from the p-values (0.667, 0.671, 0.674). While there are a few independent variables having a significant effect on the EMs, none of the models are significant. This is shown by the p-value below the F-test for the pooled OLS and the Wald Chi2 test for the Random effects panel regressions in the table. All of the p-values are above 5 per cent. While there is sufficient number of observations and a couple of significant control variables, the model cannot distinguish the Jones, Modified Jones and Modified Jones with ROA earnings management proxy between the PEVC and non-PEVC-sponsored firms.

6 CONCLUSIONS

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 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. I investigated the behaviour of the EM in the two main phases: pre-IPO and post-IPO and combined to have an overall of the EM at the end of those phases. Estimating the EM for each phase, taking four financial quarters pre-IPO and eight financial quarters post-IPO for each sample (PEVC sponsored and non-PEVC sponsored firms). As previous explained, in the section "Results", using the descriptive statistics, shows that the mean difference between PEVC and non-PEVC sample for the Jones (Modified Jones model) is -0.00019 (-0.00018) while this difference is much larger for the Modified Jones with ROA EM (-0.00029). This larger dissimilarity between the two groups results in a relatively later t-statistic (0.42) however not sufficiently large significant difference. Figure 1 shows the EM means of the 3 models by sponsor category. Obviously, the PEVC-sponsored firms have a smaller EM compared to the non-PEVC sample and the Modified Jones with ROA shows an even smaller EM when sponsored. These findings suggest that Jones and Modified Jones should not yield different results while the Modified Jones with ROA is differentiated the most by the dummy variable PEVC. Moreover, the results from the OLS regressions indicates that the null hypothesis states that both panel estimates produce same coefficients, which is not rejected as it appears from the p-values (0.667, 0.671, 0.674). While there are a few independent variables having a significant

effect on the EMs, none of the models are significant. This is shown by the p-value below the F-test for the pooled OLS and the Wald Chi2 test for the Random effects panel regressions in the table. All of the p-values are above 5 per cent. Comparing to the paper mentioned in the introduction, is possible to see that there are significant differences regarding the hypothesis H1, between the two researches. Having a longer sample, in terms of period and financial quarters and the combination of the results above, brings me to a conclusion that, EM is shown in non-PEVC sponsored firms, confirming my hypothesis H1 giving by the facts that: historically ups and downs in term of economy (2000-2015) and strongly relation with scandals (Corruption-ex. Lula Government or Operation Car Wash) impacted more to companies related to the public sector and backed as IPO from non-PEVC firms than PEVC. In a future research, this model could be used with different proxies for the total current accruals, in combination with different EM models.

7 REFERENCES

Angelo, L. E. Accounting numbers as market valuation substitute: a study of management buyouts of public stockholders. Accounting Review, Jul.1986

Bartov, E.; Gul, F.; Tsui, J. S. L. Discretionary accruals models and audit qualifications. Journal of Accounting and Economics. Dic.2000

Bloomberg Terminal: IPO data

Dechow, P. M.; Sloan, R.G.; Sweeney, A.P. Detecting earnings management. Accounting Review. Apr.1995

Economatica: Quarterly financial statements for the IPOs

Healy, P. M., 1985. The effect of bonus schemes on accounting decisions. *Journal of Accounting and Economics* 7, 85-107.

Hochberg, Y. V., 2012. Venture Capital and Corporate Governance in the Newly Public Firm. Review of Finance, 16 (2), 429-480.

Jones, J. J., 1991. Earnings management during import relief investigations. *Journal of Accounting Research* 29 (2), 193-228.

Kang, S., Sivaramakrishanan, K., 1995. Issues in testing earnings management: an instrumental variable approach. *Journal of Accounting Research* 33 (2), 353-367.

Kothari, S. P., Leone, A. J., Wasley, C. E., 2005. Performance matched discretionary accrual measures. *Journal of Accounting and Economics* 39 (1), 163-197.

Leeds, R. (2016). Private equity investing in emerging markets: Opportunities for value creation. Place of publication not identified: Palgrave Macmillan.

Rangan, S., 1998. Earnings management and the performance of seasoned equity offerings. Journal of Financial Economics 50 (1), 101-122.

Rao, G. R., 1993. The relation between stock returns and earnings: a study of newly-public firms. *Working paper*, Kidder Peabody and Co., New York.

Teoh, S. H., Welch, I., Wong, T. J., 1998. Earnings management and the underperformance of

seasoned equity offerings. Journal of Financial Economics 50 (1), 101-122.

Teoh, S. H., Welch, I., Wong, T. J., 1998. Earnings management and the long-run market performance of initial public offerings. Journal of Finance 53 (6), 1935–1974.

Sampaio, J. O.; de Carvalho, A. G.; Gioielli, S. P. O. Venture Capital and earnings management in IPOs. Brazilian Business Review. Dec.2013

Subramanyan, K. R., 1996. The pricing of discretionary accruals. *Journal of Accounting and Economics* 22, 249-281.

8 APPENDIX

8.1 Methodology to for Estimating Earning Management

Following Teoh et al. (1998b), I define current accruals for firm i at time t , CAcc i,t , as:

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

Where:

CA i,t is the current assets of firm i at time t , excluding cash; and

CLi,t is the current liabilities of firm i at time t , excluding short-term debt.

I 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:

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

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:

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

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:

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

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-estate 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:

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

Where:

$\hat{\beta}_1$ and $\hat{\beta}_2$ are the estimates from the Regression from the Jones Model.

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* :

$$EM_{i,t} = \frac{CAcc_{i,t}}{TA_{i,t-1}} - NDCA_{i,t}$$

8.2 Tables and Exhibits

Table 2
Descriptive Statistics of Financial Characteristics

The variables: ***Auditor*** is a dummy with 1 (0) for big four (non-big four) for each auditing firm *i*; ***Size*** is firm *i*'s natural logarithm of book value of assets at quarter *t*; ***Growth*** is firm *i*'s % change in net operating revenues at quarter *t*; ***Leverage*** is firm *i*'s % change in EBIT divided by % change in revenue at quarter *t*; ***ROA*** is firm *i*'s return on assets calculated by net income divided by the book value of total assets at quarter *t*; ***Underwr.*** is underwriter and is firm *i*'s Cater-Manaster index of the member of the underwriting syndicate with the highest score. *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 Firms			Non-PEVC-Sponsored Firms			
	N=825			N=484			N=341			
	74 IPOs			44 IPOs			30 IPOs			
	Mean	**Median**	**Std. Dev.**	**Mean**	**Median**	**Std. Dev.**	**Mean**	**Median**	**Std. Dev.**	**t-Stat**
Auditor	0.70	1.00	0.53	0.73	1.00	0.54	0.67	1.00	0.52	-1.56
Size	14.52	14.49	0.97	14.38	14.38	0.98	14.72	14.67	0.93	**4.95**
Growth	-0.90	-0.71	1.86	-0.87	-0.72	1.80	-0.94	-0.69	1.94	-0.48
Leverage	-0.26	-0.10	3.76	-0.36	-0.11	3.84	-0.10	-0.07	3.63	0.98
ROA	0.03	0.03	0.07	0.04	0.03	0.06	0.02	0.02	0.07	**-3.71**
Underwr.	0.69	1.00	0.52	0.77	1.00	0.47	0.56	1.00	0.56	**5.83**

Table 3
Correlation Matrix for (Independent) Variables

Panel A: Total Sample

	EM_{JM}	EM_{MJM}	EM_{MJMROA}	*PEVC*	*Auditor*	*Size*	*Growth*	*Leverage*	*ROA*
EM_{JM}	1								
EM_{MJM}	**1.000*****	1							
EM_{MJMROA}	**0.996*****	**0.997*****	1						
PEVC	-0.009	-0.009	-0.015	1					
Auditor	-0.006	-0.006	-0.006	0.054	1				
Size	0.062	0.062	0.055	**-0.170*****	-0.050	1			
Growth	0.013	0.012	0.012	0.017	**-0.077***	0.028	1		
Leverage	0.013	0.013	0.012	-0.034	-0.062	0.068	**0.380*****	1	
ROA	**0.084***	**0.086***	0.018	**0.128*****	-0.004	**-0.141*****	-0.028	0.033	1
Underw.	0.020	0.021	0.017	**0.199*****	**0.291*****	0.003	0.028	0.005	**0.101****

Panel B: PEVC sample

	EM_{JM}	EM_{MJM}	EM_{MJMROA}	*Auditor*	*Size*	*Growth*	*Leverage*	*ROA*	*Underw.*
EM_{JM}	1								
EM_{MJM}	**1.000*****	1							
EM_{MJMROA}	**0.997*****	**0.997*****	1						
Auditor	0.023	0.023	0.028	1					
Size	**0.101***	**0.101***	**0.089***	0.038	1				
Growth	-0.011	-0.013	-0.013	-0.075	0.053	1			
Leverage	0.021	0.022	0.020	-0.062	0.061	**0.315*****	1		
ROA	**0.108***	**0.111***	0.044	**-0.095***	-0.073	-0.057	0.027	1	
Underw.	0.048	0.049	0.050	**0.204*****	**0.304*****	0.078	0.022	-0.035	1

Panel B: non-PEVC sample

	EM_{JM}	EM_{MJM}	EM_{MJMROA}	*Auditor*	*Size*	*Growth*	*Leverage*	*ROA*	*Underw.*
EM_{JM}	1								
EM_{MJM}	**1.000*****	1							
EM_{MJMROA}	**0.996*****	**0.996*****	1						
Auditor	-0.047	-0.047	-0.055	1					
Size	0.002	0.002	$-1.82E^{-4}$	**-0.163****	1				
Growth	0.046	0.046	0.045	-0.082	0.001	1			
Leverage	$-4.24E^{-5}$	$8.57E^{-5}$	-0.002	-0.057	0.067	**0.473*****	1		
ROA	0.058	0.059	-0.011	0.098	**-0.188*****	$-2.85E^{-6}$	0.052	1	
Underw.	-0.008	-0.009	-0.015	**0.392*****	**-0.297*****	-0.034	$4.78E^{-4}$	**0.199*****	1

*, ** and *** denote significance at the 5%, 1% and 0.1% levels (for two-tailed tests), respectively.

Table 4
Earnings management in PEVC and Non-PEVC

Descriptive statistics for the level of earnings management (EM). The sample consists of 825 firm-quarter observations from 74 IPOs at BM & FBovespa from 30 September 2004 to 30 September 2017. The three measurements of EM are based on Jones, Modified Jones and Modified Jones with ROA models. EM is in percentage of total assets. None of the differences are significant.

Model	Sample	N	Mean	Standard Deviation	25th percentile	Median	75th percentile
Jones	All observations	825	-0.00021	0.0098	-0.0040	-0.0009	0.0021
	PEVC-Sponsored	484	-0.00029	0.0098	-0.0040	-0.0008	0.0021
	Non-PEVC-Sponsored	341	-0.00010	0.0098	-0.0037	-0.0010	0.0021
	Difference		-0.00019	t −Statistic = -0.27			
Modified Jones	All observations	825	-0.00021	0.0098	-0.0040	-0.0009	0.0020
	PEVC-Sponsored	484	-0.00029	0.0098	-0.0041	-0.0008	0.0020
	Non-PEVC-Sponsored	341	-0.00011	0.0098	-0.0037	-0.0011	0.0021
	Difference		-0.00018	t −Statistic = -0.25			
Modified Jones with ROA	All observations	825	-0.00027	0.0097	-0.0039	-0.0010	0.0018
	PEVC-Sponsored	484	-0.00039	0.0097	-0.0042	-0.0009	0.0018
	Non-PEVC-Sponsored	341	-0.00010	0.0098	-0.0036	-0.0011	0.0020
	Difference		-0.00029	t −Statistic = 0.42			

Figure 1

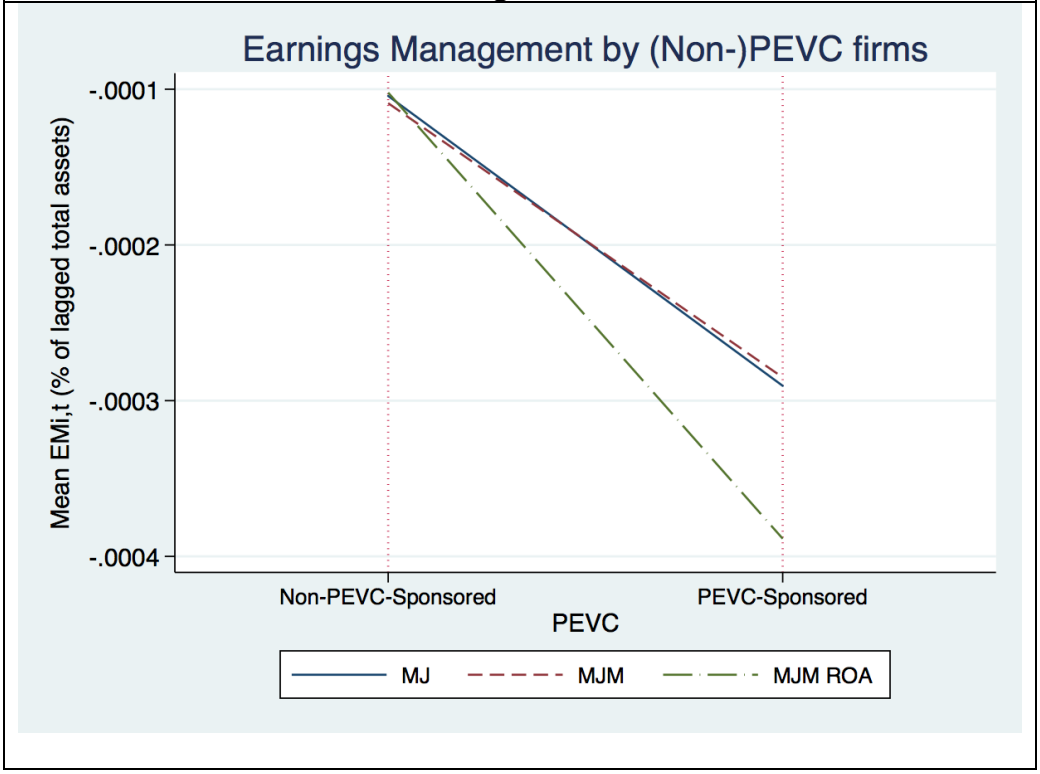


Table 5
PEVC-Sponsorship and Earnings Management

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 825 firm-quarter observations from 74 IPOs at BM&FBovespa from 30 September 2004 to 30 September 2017. Robust heteroskedastic-consistent standard errors are between parentheses.

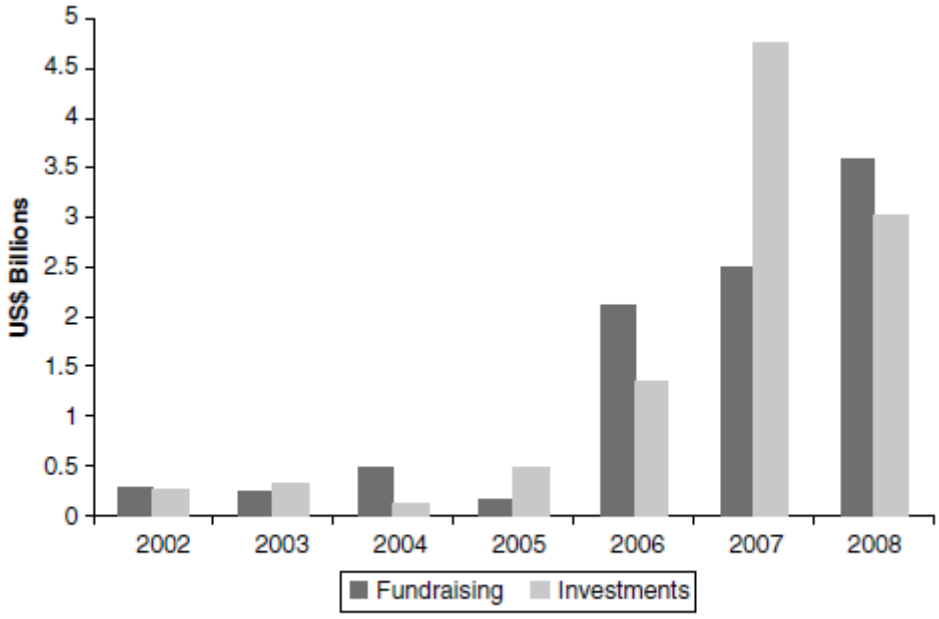
	Jones		**Modified Jones**		**Modified Jones with ROA**	
Variable	**Pooled OLS**	**Random Effects**	**Pooled OLS**	**Random Effects**	**Pooled OLS**	**Random Effects**
Model:	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
PEVC	-0.0002	-0.0002	-0.0002	-0.0002	-0.0002	-0.0002
	(0.0007)	(0.0007)	(0.0007)	(0.0007)	(0.0007)	(0.0007)
Auditor	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
	(0.0005)	(0.0005)	(0.0005)	(0.0005)	(0.0005)	(0.0005)
Size	**0.0008****	**0.0008****	**0.0008****	**0.0008****	**0.0006***	**0.0006***
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
Growth	-0.0000	-0.0000	0.0000	0.0000	0.0000	0.0000
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Leverage	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
ROA	**0.0152*****	**0.0152*****	**0.0153*****	**0.0153*****	0.0043	0.0043
	(0.0055)	(0.0055)	(0.0055)	(0.0055)	(0.0053)	(0.0053)
Constant	**-0.0111****	**-0.0111****	**-0.0113****	**-0.0113****	**-0.0085***	**-0.0085***
	(0.0048)	(0.0048)	(0.0048)	(0.0048)	(0.0048)	(0.0048)
Quarter Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Firm Clusters	Yes	Yes	Yes	Yes	Yes	Yes
# of Observations	825	825	825	825	825	825
R^2	0.014	0.014	0.014	0.014	0.005	0.005
F-Test (Pooled OLS) and Wald Chi2test (Random Effects)						
Statistic	1.684	15.155	1.692	15.230	0.547	4.919
p-value	0.108	0.713	0.106	0.708	0.836	0.999
Hausman Test for Random Effects						
p-value		0.667		0.671		0.674

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

Hausman test: The null is that the two estimation methods are both OK and that therefore they should yield coefficients that are "similar". The alternative hypothesis is that the fixed effects estimation is OK, and the random effects estimation is not; if this is the case, then we would expect to see differences between the two sets of coefficients.

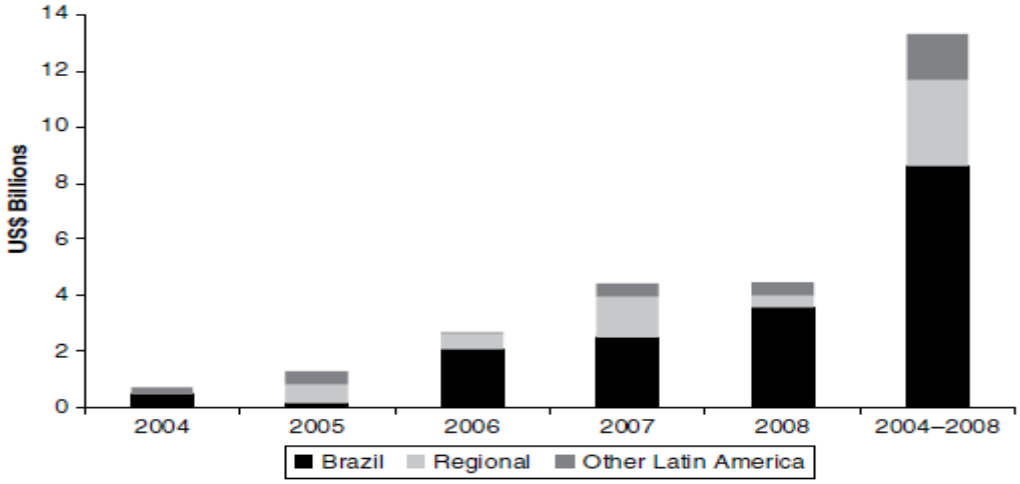
What this text above is saying is that both fixed and random effects regression are ok.

Exhibits 1: Brazil Private Equity Fundraising, 2002-2008 (US$ Billions)



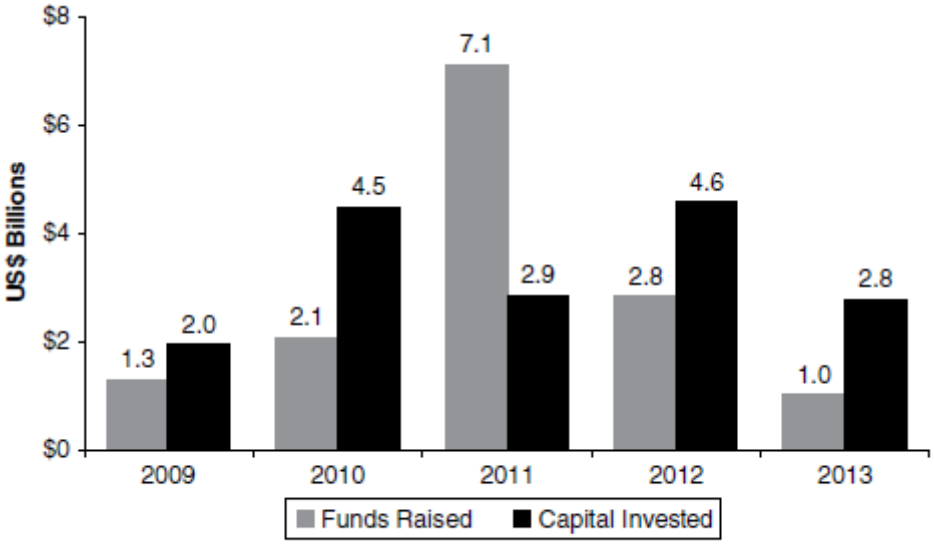
Source: EMPEA.

Exhibits 2: Latin America Private Equity Fundraising, 2004-2008 (US$ Billions)



Source: EMPEA

Exhibits 3: Private Equity Fundraising and Investment in Brazil, 2009-2013 (US$ Billions)



Source: EMPEA.

Earning Management

Earnings management is the use of accounting techniques to produce financial reports that present an overly positive view of a company's business activities and financial position. Many accounting rules and principles require company management to make judgments following these principles. Earnings management takes advantage of how accounting rules are applied and creates financial statements that inflate earnings, revenue, or total assets.

Null Hypothesis

A null hypothesis is a type of hypothesis used in statistics that proposes that no statistical significance exists in a set of given observations. The null hypothesis attempts to show that no variation exists between variables or that a single variable is no different than its mean. It is presumed to be true until statistical evidence nullifies it for an alternative hypothesis.

Wald Chi-Squared Test

The Wald test (also called the Wald Chi-Squared Test) is a way to find out if explanatory variables in a model are significant. “Significant” means that they add something to the model; variables that add nothing can be deleted without affecting the model in any meaningful way. The test can be used for a multitude of different models including those with binary variables or continuous variables.

The null hypothesis for the test is: some parameter = some value. For example, you might be studying if weight is affected by eating junk food twice a week. “Weight” would be your parameter. The value could be zero (indicating that you don’t think weight is affected by eating junk food). If the null hypothesis is rejected, it suggests that the variables in question can be removed without much harm to the model fit.

If the Wald test shows that the parameters for certain explanatory variables are zero, you can remove the variables from the model.

If the test shows the parameters are not zero, you should include the variables in the model.

The Wald test is usually talked about in terms of chi-squared, because the sampling distribution (as n approaches infinity) is usually known. This variant of the test is sometimes called the Wald Chi-Squared Test to differentiate it from the Wald Log-Linear Chi-Square Test, which is a non-parametric variant based on the log odds ratios.

T Statistic

The T Statistic is used in a T test when you are deciding if you should support or reject the null hypothesis. It’s very similar to a Z-score and you use it in the same way: find a cut off point, find your t score, and compare the two. You use the t statistic when you have a small sample size, or if you don’t know the population standard deviation.

The T statistic doesn’t really tell you much on its own. It’s like the word “average” doesn’t mean anything on it’s own either, without some context. If I say “the average was 150,” it means nothing. If I say “the average weight of dogs seen in a veterinary office was 50lbs,” then the picture becomes clearer. In the same way, you need some more information along with your t statistic for it to make sense. You get this information by taking a sample and running a hypothesis test.

When you run a hypothesis test, you use the T statistic with a p value. The p-value tells you what the odds are that your results could have happened by chance. Let's say you and a group of friends score an average of 205 on a bowling game. You know the average bowler scores 79.7. Should you and your friends consider professional bowling? Or are those scores a fluke? Finding the t statistic and the probability value will give you a good idea. More technically, finding those values will give you evidence of a significant difference between your team's mean and the population mean (i.e. everyone). The greater the T, the more evidence you have that your team's scores are significantly different from average. A smaller T value is evidence that your team's score is not significantly different from average. It's pretty obvious that your team's score (205) is significantly different from 79.7, so you'd want to take a look at the probability value. If the p-value is larger than 5%, the odds are your team getting those scores are due to chance. Very small (under 5%), you're onto something: think about going professional.

P-Value

When you perform a hypothesis test in statistics, a p-value helps you determine the significance of your results. Hypothesis tests are used to test the validity of a claim that is made about a population. This claim that's on trial, in essence, is called the null hypothesis.

The alternative hypothesis is the one you would believe if the null hypothesis is concluded to be untrue. The evidence in the trial is your data and the statistics that go along with it. All hypothesis tests ultimately use a p-value to weigh the strength of the evidence (what the data are telling you about the population). The p-value is a number between 0 and 1 and interpreted in the following way:

A small p-value (typically ≤ 0.05) indicates strong evidence against the null hypothesis, so you reject the null hypothesis.

A large p-value (> 0.05) indicates weak evidence against the null hypothesis, so you fail to reject the null hypothesis.

p-values very close to the cutoff (0.05) are considered to be marginal (could go either way). Always report the p-value so your readers can draw their own conclusions.