The Impact of Venture Capital Financing on Earnings Management and Earnings Quality

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Abstract

This study expands the existing earnings management research by examining earnings data of private companies prior to and after receiving venture capital (VC) financing. Analyses are ran on a unique financial information database of 556 Belgian companies, receiving VC financing between 1988 and 1997. Each VC backed company is matched on size, industry and age with a non-VC backed company. Distributions of absolute earnings as well as earnings changes and univariate test-statistics suggest that VC backed companies manage earnings upward in the run-up to the VC financing. Additionally, multivariate regressions as in Teoh et al. (1998) confirm our univariate results, revealing a significant increase in discretionary current accruals levels up to the year of participation, followed by a significant reversal of these accrual levels in the post-investment years. Moreover, discretionary current accruals levels of the control sample are lower in the years prior to investment of their matched counterparts and are more stable in all observed years. This evidence is consistent with the signaling hypothesis stating that VC searching companies, on average, manage earnings upward to obtain financing more easily and/or at more favorable rates. Additionally, time-series regressions are applied to study differences in post-investment earnings quality. We show that the extent of earnings quality (i.e. timeliness of loss incorporation and degree of financial disclosure) is positively associated with the level of monitoring by VC investors. This evidence is consistent with our monitoring hypothesis: the closer VC financiers monitor their ventures after participation, the more this results in superior earnings quality of financial statement figures.

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I. Introduction

Throughout the years, numerous studies have detected conclusive evidence of companies managing earnings around specific corporate events. Traditional earnings management research typically examines earnings management behavior around initial public offerings (IPOs), seasoned equity offerings (SEOs), management buy-outs (MBOs), (convertible) debt issues and debt covenant violations. (*for an extended literature overview, we refer to Healy and Wahlen (1999)*. It can be argued that in these specific circumstances, corporate incentives to manage earnings are likely to be high. In all above-mentioned situations (except for MBOs) a company is better off with reporting good/higher earnings figures before the event. IPOs and SEOs will both have more chance of succeeding, debt issues can be done at favorable rates and debt covenant violations can be avoided if companies succeed in reporting good/stable financial figures. An MBO, on the contrary, is a corporate event where managers are better off with downward managed earnings figures as this results into a downward biased takeover price. Most of the academic evidence seems to confirm these propositions. [1]

Until now, very few studies dealt with the financial reporting behavior of companies around VC equity financing. This event is of particular interest, as it might create an excellent opportunity for a company to window-dress its annual accounts and hence to mislead (*read: guide the investment decision of*) potential VC financing providers. Finance literature shows that entrepreneurs who are actively seeking for (VC) financing, can communicate value and commitment signals by keeping a significant level of personal investment in their venture (Leland and Pyle, 1977; Wright and Robbie, 1998). However, MacMillan et al. (1987) show that VC investors rank, next to entrepreneurial characteristics, profitability and financial performance as leading elements in screening and selecting possible ventures. In a recent study, Manigart et al. (2000) ascertain that in a financially oriented context where investors often have a more financial or banking background (as is the case in Belgium), VC investors might emphasize accounting and financial statement information even more than in traditional research settings as the UK and the USA. Moreover, Wright and Robbie (1998) argue that

[1] Teoh et al. (1998a) find that firms report positive unexpected accruals - i.e. a commonly used measure for earnings management - prior to IPOs. In a consecutive study (*Ibidem*, 1998b), the authors report similar evidence for a sample of firms conducting an SEO. In debt contracting context, DeFond and Jiambalvo (1994) report that firms artificially increase earnings one year prior to a debt covenant violation. Recent work by Margetis (2002) indicates that firms manage earnings around convertible debt issues but does not detect earnings management evidence around straight debt issues. For a sample of MBO-firms, Perry and Williams (1994) ascertain negative unexpected accruals (i.e. earnings decreasing) prior to a management buy-out. However, earlier research by DeAngelo (1988) detected only little evidence for earnings management prior to MBO deals.

accounting information represents very important information to value a company in the pre-investment stage. Hence, we *first* argue that venture seeking companies are very likely to report an optimal financial situation (i.e. showing a solid sales level or sales growth, increasing profitability, etc.) to reach a deal at most favorable terms and hence to optimize their valuation. This reasoning results in our *signaling hypothesis* (hypothesis 1): companies signal higher quality prior to the VC financing date by managing reported earnings upward, hereby trying to receive financing more easily or at more favorable terms and to maximize the company value. Therefore, we test whether companies that received VC financing actively managed their annual accounts in the run-up to this participation date. *Secondly*, VC literature also shows that VC investors, besides spending a considerable amount of time and effort in screening their possible investments prior to the deal, also monitor their investments rigorously afterwards (Sahlman, 1990; Kaplan, 2001). Possible monitoring devices are *(i)* periodic controls of the projects' status, *(ii)* the establishment of VC representatives in the board of directors and *(iii)* the preservation of options to abandon the project when ex post realizations do not meet a priori targets. Hence, our *monitoring hypothesis* (hypothesis 2) asserts that ex post monitoring could reduce the financial reporting degrees of freedom resulting in lower earnings management levels and higher earnings quality. Therefore, we test for significant differences in the financial reporting behavior of VC-backed companies conditioned on differences in monitoring levels.

For reasons of robustness, we examine three different research methods to jointly test our both hypotheses. *First*, earnings distributions as in Burgstahler and Dichev (1997) and Degeorge et al. (1999) are drawn and *t*-statistics are calculated. *Second*, a cross-sectional analysis as Teoh et al. (1998a & 1998b) allows us to determine the discretionary accruals evolution prior to and after the participation date. *Finally*, we expand our earnings management study focus by adopting a variant of the time-series regression approach as in Ball and Shivakumar (2002). This technique allows to distinguish differences in reported earnings quality in closely versus moderately monitored VC backed companies. This study has three primary findings. First, scaled earnings distributions of VC backed firms show an abnormally high number of observations with small earnings (growth) compared to abnormally few observations with small earnings (decreases) in the year prior to participation; a pattern which is not explicitly detected for a matched sample of non-VC backed companies. This result suggests that VC backed companies manage earnings upward prior to the VC financing deal and is consistent with our signaling hypothesis. After participation date, no significant differences in earnings

distributions between both samples are detected. Second, median discretionary current accruals (DCA) levels, obtained through cross-sectional regressions, are significantly positive in the run-up to the VC financing and reach a maximum level at the VC participation date. This evidence is not only consistent with our signaling hypothesis, it also identifies discretionary accruals as being the instruments by which venture seeking companies manage their earnings upward. Furthermore, a significant reversal of discretionary accrual levels after the participation date provides indirect evidence for our monitoring hypothesis. Finally, looking into more detail to the extent of VC monitoring and the financial reporting quality highlights that closely monitored VC-backed companies report earnings of a significantly higher quality (i.e. recognize losses more timely). Hence, our monitoring hypothesis is soundly supported. Results are consistent for several robustness checks in monitoring degree and type of reported earnings level.

The remainder of this study goes as follows. Section 2 develops the hypotheses based on the existing literature. Section 3 gives a detailed description of the different research methodologies we use. In section 4, we present our sample selection and provide descriptive statistics. Section 5 shows the empirical results while section 6 summarizes the findings and concludes the study.

II. Hypotheses

II. 1 Earnings management

The participation of VC financiers in a companies' life is a corporate event that goes along with two well documented problems in the corporate finance literature. First, an *adverse selection* problem arises because VC investors are unable to value the exact worth of their potential investments due to information asymmetries between entrepreneurs and investors. The entrepreneur has superior (private) information of the company's potential that the investor does not have, causing a myriad of firms facing difficulties to find appropriate financing. The existence of this ‘equity gap’ has been well document in the VC literature (e.g. Mason and Richardson, 1992; Murray, 1994) Therefore, entrepreneurs who are eager to attract VC financing might try to reduce this information asymmetry by signaling their superior value to outside investors. It is common knowledge that entrepreneurs can communicate value and commitment signals by keeping a significant level of personal

investment in their venture (e.g. Leland and Pyle, 1977). Besides keeping a large equity stake in the company, entrepreneurs can also signal value showing good financial figures. Several researchers stressed the use of accounting numbers in financial contracting (Zimmermann and Watts, 1986; Basu, 1997). In a VC context, MacMillan et al. (1987) show that VC investors rank profitability and financial performance next to entrepreneurial characteristics as leading elements in screening and selecting possible ventures. In a recent study, Manigart et al. (2000) ascertain that in a financially oriented context where investors have a more financial or banking background (as in Belgium is the case), VC investors emphasize accounting and financial statement information even more than in the UK and the USA. Hence, we argue that the observed VC backed companies in the run-up to their equity financing have major incentives to manage earnings upward in an attempt to facilitate the VC financing supply and/or to pursue favorable financing rates. Moreover, Wright and Robbie (1998) argue that accounting information represents essential information for the valuation of a company in the pre-investment stage. This also suspects entrepreneurs managing earnings upward in the run-up to equity financing as higher profit figures ultimately will result into a higher valuation. The preceding discussion results in our first hypothesis:

H1: "VC backed companies manage earnings upward prior to receiving VC financing to signal their superior quality (hereby facilitating the attraction of VC funds and/or in an attempt to obtain the highest possible value for their equity stake)"

However, this opportunistic upward earnings management behavior of corporate managers prior to the financing deal has reverse consequences in the following periods. National GAAP generally allow managers to report accounting earnings in an accrual accounting based system. This reporting system is more flexible than the traditional cash accounting reporting and allows managers to shift revenues and expenses into the period they are actually incurred. Hence, accrual accounting systems better match revenues and expenses hereby allowing entrepreneurs to generate more value relevant accounting figures than cash accounting would do (Ball and Brown, 1968; Dechow, 1994). Thus, accrual accounting helps investors better in assessing firm values and operating performance than operating cash flows do. However, these accrual systems also allow managers to manipulate earnings figures opportunistically in certain time periods by shifting income aggressively between consecutive periods. As we expect earnings to be managed upward in the run-up to the VC equity financing, this normally should result in a backlash after the objective has been met (i.e. after VC financing date). As a

result, we argue that post-VC-financing earnings will be biased more downward compared to pre-VC earnings. However, this pattern can also be intensified by the restrictive monitoring impact of VC investors on the ex post financial reporting flexibility. This argument brings us to the development of our second hypothesis.

II. 1 Earnings quality

This second argument results from a commonly known phenomenon associated with the VC financing context, namely intensified monitoring resulting from the *agency* problem. After the VC participation has taken place, the entrepreneur is no longer the sole owner of the firm. Hence, typical agency problems arise between the entrepreneur (the agent) and the VC investors (the principals) (cfr. Jensen and Meckling, 1976). Gompers (1995) reports that the private benefits of entrepreneurs are not always perfectly correlated with shareholders' returns. Entrepreneurs may invest in projects that have high personal benefits but low monetary returns for investors, only to maximize their personal wealth (Gompers, 1995). Therefore, VCists frequently circumvent this problem by including monitoring stipulations in the VC financing contract. Possible monitoring devices are *(i)* periodic evaluations of the projects' status determining the activation of options to abandon subsequent financing and *(ii)* the establishment of VC representatives in the board of directors (Wright and Robbie, 1998). Other examples are periodically check-ups of the day-to-day activities and prerequisite periodical financial reports (e.g. Gompers, 1995). We argue that this monitoring impact will result in a reduction of post-investment financial reporting flexibilities, eventually causing a noticeable positive trend in the post-VC-investments financial statements quality. This relationship could even be influenced determinedly by the monitoring level (high versus low) which firms have to tolerate. As a result, our second hypothesis states that closely monitored VC companies (proxied by percentage equity stake taken by the VCist) report higher quality earnings figures than moderately monitored companies.

H2: "Closely monitored VC backed companies report higher quality earnings than moderately monitored VC backed companies"

III. Research Design

This section discusses the methods used for measuring the presence and extent of earnings management and the differences in post-investment earnings quality.

III. 1 Earnings Management

The applied research methods combine commonly used earnings management research methods with elements that are of specific interest in this research context. *First*, our paper builds on the research method by Burgstahler and Dichev (1997) and Degeorge et al. (1999). The former authors find compelling evidence that scaled earnings distributions of US companies are discontinuously distributed around zero, showing small loss avoidance and small profit pursuance. Distributions of earnings changes indicate a similar pattern. The main advantage of this type of studies is that they are able to detect tentative indications that earnings are managed to achieve certain earnings targets. Therefore, we believe it is relevant to apply distribution-based modeling techniques on the available sample to study preliminary earnings management indications in our VC sample. Consistent with Burgstahler and Dichev (1997), the statistical significance of small loss avoidance and small profit pursuance is tested by a standardized smoothness measure. Under the null hypothesis, the earnings distribution is thought to be relatively smooth, i.e. the expected number of observations in any given interval is the average of the number of observations in the two immediately adjacent intervals (Burgstahler and Dichev, 1997).[2] This statistical test measure is then defined as follows:

$$\frac{\left[N_{\text{actual}} - N_{\text{expected}}\right]}{\sigma}, \text{ where}$$

N_{actual} = the number of actual observations in the interval
N_{expected} = the expected number of observations, based on the average of the two adjacent intervals
σ = standard deviation of the difference between observed and expected observations [3]

[2] In constructing empirical histograms, researchers often face the problem of choosing an optimal bin width that balances (i) the need for a precise density estimate and (ii) the need for a fine resolution. Scott (1992) recommends a bin width that is positively related to the variability in the data and negatively to the number of observations. High variation in the data calls for wider bins and the number of observations determines the size of bin widths adversely. The suggested measure, also used in Degeorge et al. (1999) and Plummer and Mest (2001), to calculate an optimal bin width is: $2.IQR.n^{-1/3}$. Note that *IQR* = interquartile range, a measure for variability in the data and *n* = total number of observations.

In the result description, *t*-statistics immediately right and left of zero of *(i)* scaled earnings and *(ii)* scaled earnings changes as some distribution plots are reported. A prime advantage of this technique is found in the combination of visualization and statistical certainty about the magnitude of discontinuity. The most relevant earnings measure described in this distribution based modeling is bottom line results, i.e. profit after taxes. All earnings levels are scaled by lagged total assets to avoid heteroscedasticity in our results.

Distribution based earnings management modeling is only a recent research technique and most earnings management studies analyze the unexpected discretionary accruals in their search for earnings management. McNichols (2001) reports that before 1999, over 45% of all earnings management studies published in leading accounting journals were developed by using a variant of the accruals model. Although this accruals research technique has often been criticized because of its underlying assumptions, it might be still relevant to combine this research technique and the distribution based modeling. A study by Gore et al. (2001) on UK data, e.g., showed that the exclusion of discretionary accruals from the earnings levels causes the discontinuity to disappear, indicating the explicit use of discretionary accruals to avoid small losses (respectively earnings decreases). Both elements motivate our choice to examine, next to earnings distributions, also discretionary accruals in our earnings management pursuit. Hence, in a second part of the analysis, we apply a cross-sectional regression model as in Teoh et al. (1998), which is an extension of the most widely used earnings management model: the Jones (1991) model. Here, accruals are used to detect the degree of earnings management in a company's financial figures. Accruals are defined as accounting adjustments that distinguish reported earnings from cash flow from operations and hence allow managers to report earnings with some flexibility. Accruals are typically divided in long-term and short-term accruals. We argue that working capital accruals are most easily manageable in the observed sample firms and therefore only study short-term (current) accruals. Concrete, these current accruals are calculated as follows:

$$\text{Current accruals} = \Delta(\text{accounts receivable} + \text{inventory} + \text{other current assets}) - \Delta(\text{accounts payable} + \text{tax payable} + \text{other current liabilities}) \quad \text{(Formula 2)}$$

[3] This standardized difference is based the following formula (Burgstahler and Dichev, 1997): $\sigma^2 = N.p_i.(1 - p_i) + \frac{1}{4}.N.(p_{i-1} + p_{i+1}).(1 - p_{i-1} - p_{i+1})$, where N = number of observations, p_i = the probability that an observation falls in interval i, p_{i-1} = the probability that an observation falls in interval *(i-1)* and p_{i+1} = the probability that an observation falls in interval *(i+1)*.

These accruals normally result from the natural activities of a company and enable a company to report earnings in the period they are realized. Therefore, accrual based accounting systems are expected to generate more value relevant accounting performance measures than cash flows because they are better at matching revenues and expenses (Ball and Brown, 1968; Dechow, 1994). Accrual accounting measures help investors better assess firm values and operating performance than operating cash flows do (Hung, 2001). However, accrual systems also allow managers to opportunistically manipulate accruals. Therefore, current accruals are modeled into (*1*) discretionary accruals (i.e. made at the discretion of management) and (*2*) nondiscretionary accruals (i.e. inherently resulting from the natural business activities). Expected, nondiscretionary current accruals are estimated in cross-sectional regressions of current accruals on the change in sales of all one-digit NACE code peers available in the sample.[4] Financial data of a NACE peer member are only maintained when it (1) did not receive VC financing or (2) received VC financing but not in the 2 years surrounding the participation date of firm *i*. The exclusion of these company-years are necessary to avoid distortion in the parameter estimation. To calculate the expected current accruals of a VC backed firm at the time of participation, we run the following cross-sectional OLS regression on the NACE peer group:

$$\frac{CA_{j,t}}{TA_{j,t-1}} = \alpha_0\left(\frac{1}{TA_{j,t-1}}\right) + \alpha_1\left(\frac{\Delta Sales_{j,t} - \Delta TR_{j,t}}{TA_{j,t-1}}\right) + \varepsilon_t \ , \qquad \text{(Formula 3)}$$

Nondiscretionary current accruals for an individual VC firm *i* for each observation year *t* is calculated using the estimated coefficients for α_0 en α_1 :

$$NDCA_{i,t} = a_0\left(\frac{1}{TA_{i,t-1}}\right) + a_1\left(\frac{\Delta Sales_{i,t} - \Delta TR_{i,t}}{TA_{i,t-1}}\right), \qquad \text{(Formula 4)}$$

and the discretionary current accrual component for VC firm *i* at the time of participation is the difference between the observed accruals and the expected accruals :

[4] NACE = Nomenclature générale des Activités économiques dans les Communautés Européennes. Roughly translated, a general classification of economic activity codes within the European Community.

$$DCA_{i,t} = \frac{CA_{i,t}}{TA_{i,t-1}} - NDCA_{i,t} \qquad \text{(Formula 5)}$$

III. 2 Earnings Quality

In addition to our earnings management research, we study differences in earnings quality of companies receiving VC financing discriminating for monitoring extent. Our monitoring hypothesis not only suggests a reduction in earnings management after the VC financing but also an increase in earnings quality from the VC participation date on. To estimate the differences in earnings quality we apply a variant of the Ball and Shivakumar model (2002), which is based on Basu (1997), and check whether closely monitored and moderately monitored VC backed companies recognize accounting income qualitatively equal. Companies with an external VC equity stake above the median value are defined as closely monitored and moderately monitored elsewhere.

To some extent, earnings quality is equal to earnings conservativeness where bad news is recognized more timely than good news. From a time-series viewpoint this means that earnings are of a higher quality if bad news reflected in current earnings level appear as transitory shocks or one-time dips (Basu, 1997). As in Ball and Shivakumar (2002), we measure timely loss incorporation for our sample by focusing on the tendency for decreases in accounting income to reverse. Therefore, the first-order serial dependence in earnings changes is allowed to be dependent on the conditional sign of the prior earnings change (Ball and Shivakumar, 2002). This method enables us to separately identify transitory gain and transitory loss components.[5] If prior-period decreases exhibit a higher tendency to reverse in one subsample, this provides evidence of a higher willingness to timely recognize losses and therefore signals a higher earnings quality. These transitory gain and loss components are estimated by using the following time-series regression [6]:

$$\begin{aligned}\Delta NI_t = {} & \alpha_0 + \alpha_1 D\Delta NI_{t-1} + \alpha_2 \Delta NI_{t-1} + \alpha_3 D\Delta NI_{t-1} * \Delta NI_{t-1} + \alpha_4 DHM + \alpha_5 DHM * D\Delta NI_{t-1} \\ & + \alpha_6 DHM * \Delta NI_{t-1} + \alpha_7 DHM * D\Delta NI_{t-1} * \Delta NI_{t-1} + \alpha_8 DEQ * D\Delta NI_{t-1} * \Delta NI_{t-1} + \varepsilon_t ,\end{aligned}$$

[5] Applying this time-series model has the disadvantage of only capturing a single attribute of quality, namely 'timeliness'. Nevertheless, Basu (1997), argues that *"...the timeliness of loss recognition is an important attribute of earnings quality because it makes financial statements more useful in several contexts, primarily in corporate governance and loan agreements"*.

[6] This regression is only applied on the earnings data of VC backed companies after the VC participation date.

(Formula 6)

where ΔNI_{t-1} is the change in earnings from the previous period, $D\Delta NI_{t-1}$ is a dummy variable taking the value 1 when previous years' earnings are negative and *DHM* ('High Monitoring' dummy) is a dummy variable taking the value 1 when the proportional equity stake of the VCist is higher than the median value. It is hypothesized that the ex post monitoring impact is higher when the VCist obtains a higher proportional stake of the company. The model is extended by adding a dummy for earnings quality (*DEQ*) and multiplying this by the change in earnings, conditional on an earnings decrease in last years' earnings figures. This dummy for earnings quality takes the value of 1 when a company voluntarily reports a complete financial statement.[7]

Untimely recognition of economic gains implies a smoother earnings pattern where one-time dips are avoided by exploiting accruals shifting. Hence, this would cause a positive coefficient for α_2, i.e. gains would show up as persistent. Asymmetry in the accounting recognition of economic losses and gains in the total sample implies a negative coefficient for α_3 denoting that earnings decreases are more transitory than increases. Consistent with our monitoring hypothesis, closely monitored VC backed firms are expected to report more high quality earnings than moderately monitored firms when α_7 has a negative coefficient. This would imply that especially closely monitored VC backed companies have a higher tendency to report transitory losses. The coefficient of the last term (α_8) indicates the tendency of VC backed firms which voluntarily report full financial statements to report transitory bad news. Again, a negative coefficient would indicate higher earnings quality for this specific subsample. We apply several robustness checks on the data. In reporting the regression estimates, we report results for (1) current profits before taxes, but after financial income, (2) profit before taxes but after extraordinary income and (3) profit after taxes (i.e. bottom line results). We also check if marginal adjustments in external VC equity stake impacts the coefficients.

[7] As discussed in more detail in the data description section, a company is obliged to report a complete financial statement when (1) the average number of employees is more than 100 or when (2) more than one of the following thresholds is exceeded: (a) reported sales are > 6,250,000 euro, (b) total assets are > 3,125,000 euro and (c) the average number of full time employees > 50. This dummy is created to highlight the differences in earnings quality of financial statements between companies that voluntarily report complete statements and those who are legally obliged. The interaction variable designates the tendency of VC backed companies which voluntarily report complete financial statements to report transitory bad news.

IV. Data description

All analyses are ran on a unique sample of Belgian companies in which VC backers invested between 1988 and 1997. We used secondary sources, such as yearly financial accounts recorded in the files of the National Bank of Belgium, investment reports and press releases of VC backers to draw up a comprehensive sample of Belgian companies receiving VC financing during this 10-year period. This resulted in an initial sample of 859 companies (56% of the total number of VC investments in Belgian companies - source*: EVCA yearbooks*). Investee companies in the financial sector and holding companies were excluded because of their very specific nature. Moreover, to be included in the final sample, the companies have to be recorded in the financial statement information database of the National Bank of Belgium. According to the Royal Decree of 8 October 1976, each non-financial company with its activity center in Belgium and a sales level of more than 25 million Belgian Francs has to report its annual accounts at the National Bank of Belgium. This selection procedure results in a final sample size of 556 companies, representing still more than 36% of all VC investments during the 1988-1997 period.

Our analyses mainly focus on differences in earnings management and earnings quality patterns of VC backed firms before, at and after the participation date. However, we decided additionally to select a sample of matched non-VC backed companies to supplement the results. Comparing the event sample where a VC financing event takes place with a control sample could provide more robust results than an pre-post analysis only. Following Megginson and Weiss (1991) and Lerner (1999), each VC backed company is matched with a non-VC backed company on three criteria in the year before investment: (*1*) activity - measured by a two-digit sector code -, (*2*) size - proxied by total assets -, and (*3*) age.[8] Hence, we obtain a sample of companies with a specific event - namely VC equity financing - and a comparable sample where no equivalent event appeared during the observation period. Table 1 reports descriptive data of the 556 companies in our sample.

[8] Megginson and Weiss (1991) check for differences in returns and gross spreads for a sample of VC backed IPO firms and a sample non-VC backed IPOs. Their results indicate a significantly lower initial return and lower gross spreads for the VC backed sample. Lerner (1999) finds that Small Business Innovation Research laureates (awardees of a US government grant for VC firms) grow significantly faster and are more likely to attract venture financing than non-awardees.

INSERT TABLE 1 ABOUT HERE

Panel A combines the origin of the backers (government versus private or captive) and company age, divided in three main categories (start-up, early and later stage).[9] About 37% of the observed companies receive VC financing in a start-up stage, 18% in an early stage and 45% are later stage deals. Traditionally, government backers are the most important VC financiers in the Belgian context (*EVCA statistics*). This phenomenon is also reflected in our sample as over 70% of the observed companies are backed by a government-related company. Although government and private backers finance proportionally the same number of early stage deals (for both 18%), we notice a considerable difference in the proportion of start-up and later stage investments between both investor types. Government backers finance approximately an equal percentage of start-up and later stage deals (41% versus 43%). Private and captive backers, by contrast, favor later stage above start-up deals by far (53% versus 28%).

Panel B gives the distribution across one-digit NACE sectors. Sector 6 (Distributive trades), sector 8 (Business services) and sector 3 (Mechanical engineering) have the highest concentration (respectively 21.6%, 19.2% and 18.9%). Not surprisingly, primary sectors (agriculture, forestry and fishing) and energy sectors are highly underrepresented in this sample of Belgian VC backed firms (all < 1%).

Finally, Panel C reports descriptive statistics on company age and changes in sales for the years surrounding the VC equity financing. The median company age in our sample is 7 years, varying between 0 and 74 years. Looking at changes in sales shows fairly high extremes. Our sample contains companies with a substantially high growth profile, consistent with other VC backed research. Analyzing the evolution in the median sales changes (ΔSales) over the observed time frame shows no abrupt patterns for any observation year. The two percent extreme values are deleted to minimize the distorting impact of extreme values. Median ΔSales vary slightly between 10.8% and 13.9%. Median ΔSales reach a minimum of 10.8% in the year before participation. This figures may seem somewhat surprising at first sight, because evidence in line with hypothesis 1 would expect upward managed sales levels

[9] Start-up companies are younger than 2 years old at participation date, early stage companies are between 2 and 5 years old, while later stage companies are over 5 years.

at that time. However, this dip in sales growth results mainly from the specific character of VC seeking companies. These companies often have the potential to realize high sales growth but these cannot be realized because cash constraints limit their operational power. This cash constraint situation becomes most visible very close to the actual funding date. In a further part of the analysis, we will study whether these companies do succeed in reporting improved profitability figures to potential investors even in the absent of growing sales levels .

In this preliminary data testing, we also consider the voluntarily reporting of complete financial statements. In Belgium, all companies which fall within the scope of the Accounting Law are obliged to report an annual financial statement in compliance with the Royal Decree of 8 October 1976. Moreover, these accounting numbers have to be submitted annually to the National Bank of Belgium. This profusion of accounting and financial statement information in a Belgian context creates an excellent opportunity to study accounting reporting behavior, even for small and/or fairly young firms. Moreover, Belgian law allows small companies to report an abbreviated, i.e. less detailed, annual account when there are *(1)* no more than 100 employees on average per year registered or *(2)* if not more than one of the following criteria is met: *(i)* annual turnover > 6,250,000 euro, *(ii)* balance sheet total > 3,125,000 euro and *(iii)* average number of employees > 50.[10] Preliminary tests reveal that a substantial number of companies reports complete (full) annual accounts, although legally only an abbreviated format is instructed. Hence, it can be said that these companies voluntarily report more disclosed annual accounts. Reasons for this behavior might be twofold. First, this increased disclosure might be dictated by banks or other creditors to achieve more detailed accounting data. Second, companies might decide voluntarily to report more disclosed accounting data in an attempt to attract external investors.

Our dataset enables us to study to what extent the external VC equity financier instructs this higher disclosure. Therefore, we study the proportional evolution of both VC backed and non-VC backed companies, voluntarily reporting complete financial statements. A first look at the sample reveals that 5,689 (53%) of the company-years report abbreviated financial statement data and 5,145 (47%) report complete financial statement data. However, more than 10 % of

[10] These are the current minimum criteria and evolved over our observation period. Up to 1993, e.g., annual turnover had to be lower than < 170,000,000 Belgian Francs (BEF) and total assets < 84,000,000 BEF. Between 1994 and 2000, the maximum level for annual turnover was 200,000,000 BEF and for total assets 100,000,000 BEF. Note that Belgian Francs is the former currency of Belgium (Before 01 January 2002): 1 Euro = 40.3399 BEF.

the company-years (531 out of 5,145) with full accounting formats are legally only required to report an abbreviated statement. A more detailed look at these figures shows that these 531 company-years consist of 341 VC backed companies (64%) and only 190 come from non-VC backed companies (36%). Out of these 341 company-years of VC backed companies, 233 (68%) originate from after the VC participation and 108 (32%) from before the participation. Figure 1 plots the proportional number of companies that voluntarily report complete financial statements from two years before until two years after the participation date, both for the VC backed sample and the control sample.

*** INSERT FIGURE 1 ABOUT HERE***

At first sight, we detect a slightly rising number of VC backed companies, voluntarily disclosing more financial information from the year prior to funding on (from 3.7% to 4.2%). In the participation year, this number heftily jumps to 6.8% before reaching a maximum of 8% in the year after participation. Two years after participation, the percentage seems to stabilize around this level. Comparing this remarkably rising trend in the VC backed sample with the non-VC backed firms clearly denotes the impact of external VC equity financiers for this higher disclosure. In the control sample, the proportional number fluctuates around 4% over almost every observation year. This provides preliminary evidence of VCists demanding more disclosed financial statement information before taking a participation. Moreover, this discrepancy between both samples also provides some indirect support for our monitoring hypothesis. Therefore, companies which are voluntarily reporting full annual account formats are also used as control variables in further regressions.

V. Empirical results

V. 1 Earnings Management

a. Earnings Distributions

In a first part of the analysis, we search for tentative indications of unexpected earnings patterns that might indicate earnings management presence in the observed sample(s). Therefore, we first explore earnings distributions, deflated by lagged total assets. We check

earnings distributions of VC backed companies 2 or 3 years before participation and compare these with similar earnings distributions one year prior to participation.[11] The closer a company gets to its VC equity financing, the more pronounced the impact of earnings management actions might become. Therefore, we would expect – consistent with our signaling hypothesis – to find a more observable earnings management pattern one year before participation (i.e. very few small losses [*respectively*: earnings decline] and many small profits [*respectively*: increases in earnings]) compared to other years. Additionally, we check whether a similar pattern is observed in our control sample of non-VC backed companies. Because in the control sample no real event is taking place, we do not expect earnings distributions to differ substantially one year prior to participation from other years. Hence, an absence of this pattern for the control sample could intensify the results. Table 2 gives an overview of descriptives and test-statistics on absolute earnings data.

INSERT TABLE 2 ABOUT HERE

Table 2 denotes that, in as well VC backed as non-VC backed observation samples, significantly more than expected observations are situated in the smallest positive interval, with *t*-statistics varying between 3.09 and 3.49 (all statistically significant at 99% confidence level). In the sub-sample with scaled earnings data 2 to 3 years before participation, no significant differences are observed between the VC backed sample and the non-VC backed sample, indicating that earnings patterns behave simultaneously in both samples. Graphs of both earnings distributions (*not reported here*) also show comparable patterns. Interestingly, 1 year prior to participation of the VC backed companies, very small losses are significantly under-represented (t_{-} = -3.17). However, this interval in the control sample of non-VC backed companies is not significantly under-represented at all (t_{-} = -0.18). This information indicates that companies in the run-up for VC financing avoid reporting a small loss in the year before participation in an attempt to encourage potential investors to go for the deal. The results of deflated earnings distributions after the participation date, show no significantly different patterns for any individual year nor for the VC backed versus the non-VC backed sample (*not reported here*).[12]

[11] Analyzing earnings distributions of both samples 3 and 2 years before participation separately yield too few observations to draw reliable conclusions (*n* respectively 152 and 233), resulting in distributions showing substantial 'gaps'.

[12] Eliminating the start-up and early stage companies from the original data set , resulting in a dataset of mature companies (> 5 years), yields similar results *(data available on request)*.

In a second part of the distribution based earnings management modeling, we explore changes in profit after taxes levels, deflated by lagged total assets. Potential VC investors might be guided in their investment decisions by signs of increasing profitability or shrinking loss instead of looking solely to current year's figures. Again, we confront earnings distributions of VC backed companies 2 or 3 years before participation with earnings distributions one year prior to participation and search for similar patterns in our control sample of non-VC backed companies. Table 3 reports summary statistics on these data and graphical visualizations are represented in graph 2.

INSERT TABLE 3 AND GRAPH 2 ABOUT HERE

First, the above data stress the significantly different earnings changes patterns in the VC backed sample 2 or 3 years before participation and 1 year before participation. While VC backed companies have significantly more than expected (t_- = +3.42) small earnings declines 2 and 3 years before participation and less than expected small earnings growths (although not significantly: t_+ = -0.66), this pattern is quite different one year prior to participation. Close to VC participation, we observe insignificantly fewer than expected small earnings declines (t_- = -0.15) and significantly more than expected observations with small earnings growth (t_+ = +2.43) and. Again, this evidence is in accordance with our signaling hypothesis: very close to receiving VC financing, companies seem to prepare their annual accounts for the increased external interest. Specifically, the significantly higher number of tiny earnings growth points at earnings management activities. Moreover, because this pattern is not observed in the control sample it reinsures the impact of pursuing VC financing on the presentation of financial figures. Also here, earnings distributions after the participation do not show major discrepancies (*data available on request*).

b. Discretionary Accruals

Our results based on distribution based modeling provide some tentative but nevertheless interesting indications of earnings management behavior around VC equity financing. In this second part of the analysis, we apply the cross-sectional regression model as in formula 3 on the available data to find confirmation for these preliminary findings. Defining NACE peers

on a two-digit code resulted in very small peer groups (n mostly < 20) which made us decide to run peer regressions for a one-digit NACE peer group.[13] This resulted in coefficients for every NACE group and for each specific observation year. Hereafter, these coefficients were used in formula 4 and 5 to calculate the DCA levels for each individual firm from 2 years before the participation to 2 years after the participation. Results are reported in table 4.

INSERT TABLE 4 ABOUT HERE

Median DCA levels of VC backed companies are significantly positive in all observation years. Moreover, the rising trend in median DCA levels for the years prior to VC participation which abruptly reverses after participation is remarkable: median DCAs increase from 5.36% two years before participation to an all time high of 8.10% in the participation year. After the participation, DCA levels reverse to fairly low values (4.01% in year 1 and 3.67% in year 2). Moreover, results are intensified by a total absence of this pattern in our control sample. Here, DCAs are more stable, fluctuate between boundaries of 5.13% and 6.91% of lagged total assets and are not always significantly different from zero. These results are in line with the findings of Teoh et al. (1998) on DCA levels around IPO date. Earnings figures seem to be massaged upward in the run-up to the deal and DCAs are also for this sample commonly used elements to achieve this goal. Hence, these results provide clear evidence for our signaling hypothesis.

The abrupt decline in median DCA levels after the VC equity participation date can be interpreted in two different ways. One is consistent with our monitoring hypothesis and claims that this reduction in DCA is a direct result of the amplified monitoring activities after the participation, resulting into less financial flexibility and higher disclosure. A second explanation states that the aggressive DCA exaggeration prior to the VC financing deal inevitably has to result in a downward readjustment in the following years. Both elements may partly explain the observed pattern. In the third part of the analysis, we investigate whether ex post monitoring by VCists does indeed result in a more disclosed and qualitative reporting.

[13] Inevitably, this leads to some bias in the estimation sample resulting from the heterogeneity of the peer group. This effect results into sometimes low R^2 for the estimated regressions, varying between 15% and 90%.

V. 2 *Earnings Quality*

We check for differences in earnings quality between closely monitored and moderately monitored VC backed companies. The extent of monitoring is proxied by the proportional VC equity stake. Descriptives show that median (mean) equity stake is 30% (28.5%). Companies with more than 30% external equity stakes are labeled as being 'closely monitored' while companies in the lower half are called 'moderately monitored'. Hence, the high monitoring dummy (DHM) is equal to 1 if a company belongs to the first set, i.e. where external VC investors possess more than 30% of the equity stake, and 0 otherwise. We display regression result for (*1*) current profit after financial results, (*2*) profit after extraordinary items and before taxes and (*3*) profit after taxes.

INSERT TABLE 5 ABOUT HERE

Results of our time-series regression in table 5 show a clear relationship between monitoring extent and earnings quality (measured by timely loss recognition). First, we notice consistent results for profit levels before taxes but after extraordinary income (PBT) and profit after taxes (PAT). Coefficient α_2 is positive for as well profit before and after taxes, but insignificantly (t = 0.22 and 0.24 respectively), so we are unable to draw conclusions about the persistency of gains for the entire sample. However, the estimated coefficient α_3 is significantly positive for both income definitions ($t < 0.001$ for both samples). Hence, VC backed companies do not seem to recognize losses timely on average, even after the VC participation date. However, after controlling for monitoring impact, the relationship becomes significantly negative (α_7 = -1.208 and $t < 0.001$ for both PBT and PAT). Therefore, we can conclude that highly monitored VC backed companies have a higher tendency to report one-time losses and hence report earnings with a significantly higher quality.

Moreover, the likeliness of VC backed companies, with voluntarily full financial statements, to report positive earnings changes conditioned on negative previous years' earnings changes is significantly negative related to current years earnings (α_{8PBT} = -1.365 and $t_{PBT} < 0.001$; (α_{8PAT} = -1.362 and $t_{PAT} < 0.001$). This result also indicates the willingness of companies which voluntarily disclose more to report earnings in a less smoothed way. Hence, the

compliance to report more disclosed financial data also seems to result in a proper booking of losses when they are really incurred instead of smoothing these over several years. Surprisingly, these significant relationships are not supported for current profit income levels (panel A). The positive coefficient for α_2 denotes that current profits, on average, are not smoothed but grow systematically over the observed period. The specific growth character of several companies in our dataset can explain this phenomenon. No other significant relationships are detected.

VI. Conclusion

To our knowledge, this study is the first to provide a comprehensive examination of financial statement information of VC backed companies. This study expands the existing earnings management research by examining earnings reporting behavior of companies around VC equity financing date. Results are obtained for a dataset of 556 Belgian companies receiving VC financing between 1988 and 1997. Summary statistics show that substantially more VC backed companies report voluntarily complete financial statements compared to non-VC backed companies. This number even rises powerfully from the participation date on, suggesting that VC investors call for higher disclosed financial data.

Distribution based earnings management research as in Burgstahler and Dichev (1997) highlights preliminary indications of upward earnings management in the run-up to VC financing. VC backed companies seem to report significantly less than expected small earnings losses and decreases 1 year prior to participation and significantly more than expected small positive earnings and earnings growth. The results are not supported for the control sample, intensifying the results for the VC backed sample.

Cross-sectional regressions as in Teoh et al (1998a and 1998b) study the evolution in discretionary current accruals (DCAs) and show significantly upward managed accruals for VC backed companies in the run-up to VC financing, a pattern which is not detected in the control sample. This finding provides sound evidence for our signaling hypothesis, stating that companies seeking for VC financing manage earnings upward to attract potential investors. DCAs after participation fall sharply for VC backed companies and can be explained in two ways. First, we argue that due to the nature of accruals, aggressive

overestimation of earnings before the participation date inevitably leads to a reversal in earnings in the next periods. Second, this sharp decline in DCA level could also be a result of the intensified monitoring that VC backed companies have to endure.

In a third part of the analysis, this monitoring hypothesis is studied in detail. Applying a variant of a time-series model as in Ball and Shivakumar (2001) reveals that VC backed companies with a high level of external VC monitoring (external VC stake is higher than 30%) report earnings of a higher quality compared to modestly monitored companies. Results are consistent for changes in proportional equity stake by VCists and for profit after extraordinary items but before taxes and for profit after taxes. Regressions on current profit levels have less significant relations.

Summarizing the results confirms not only earlier findings that VCists use financial statement information to support their investment decisions but also finds conclusive evidence of upward earnings management of VC backed companies prior to participation date. The extent of earnings management seems to decline after the participation date. This decline can at least be partly explained by the ex post monitoring impact of VC investors on the financial reporting behavior of VC backed firms.

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VIII. Tables and Graphs

Table 1: Sample characteristics - VC backed companies

Panel A: VC Backer Origin and Stage of Financing *				
	Start-up stage	Early stage	Later stage	Total
Independent & captive	43	29	81	153 (28%)
Government	162	71	170	398 (72%)
Total	205 (37%)	100 (18%)	251 (45%)	556 (100%)

* *Note: We split the sample in government and non-government because Belgian VC investors are typically known as being government-driven. Non-government VC investors are (1) independent investors (= investing funds from third parties) and (2) captive funds, i.e. funds in which the main shareholder of the management company contributes most of the capital from its own internal sources and reinvests realized capital gains into the fund (source: EVCA guide). Further, companies are defined as start-ups when they are younger than two years at the time of participation. Early stage companies are between 3 and 5 years old and later stage companies are older than 5 years.*

Panel B: Sector Distribution *			
Sector code	**Industry**	**Frequency**	**%**
01	Agriculture and hunting	3	0.5
02	Forestry	1	0.2
03	Fishing	3	0.5
10-19	Energy and water	1	0.2
20-29	Chemical industry : extraction, processing of non-energetic production minerals	29	5.2
30-39	Metal manufacture, mechanical, electrical and instrument engineering	105	18.9
40-49	Other manufacturing industries	85	15.3
50-59	Building and civil engineering	32	5.8
60-69	Distributive trades, hotels, catering and repairs	120	21.6
70-79	Transport and communication	21	3.8
80-89	Business services	107	19.2
90-99	Other services	49	8.8
TOTAL	**All sectors**	**556**	**100**

* *Note: to select relative big samples (N > 20) for the NACE peer group estimation in the cross-sectional analyses, we specify on a one-digit sector code instead of the more common way of selection on a two-digit code. Therefore, also in this descriptive panel, only one-digit sector codes are described.*

Panel C: firm descriptives *

	Age	Δ Sales				
Year-end	t_0	t_{-2}	t_{-1}	t_0	t_{+1}	t_{+2}
N	556	221	289	320	362	394
Mean	12.57	0.363	0.325	0.295	0.472	0.317
median	7.00	0.139	0.108	0.115	0.131	0.117
Standard deviation	15.41	0.679	0.702	0.608	1.218	0.866
Minimum	0	-0.472	-0.489	-0.532	-0.461	-0.458
Maximum	74	3.579	4.124	3.155	5.428	6.010

* *Note: Descriptives of the age variable come from the entire VC backed population. Descriptives of Δ Sales are calculated by excluding the 5% most extreme observations of each specific observation year. VC backed firms are typically known as high-growth firms. These characteristics are also reflected in the observed sample: Δ Sales can reach very extreme values. the number of observations for Δ Sales varies between 221 at t_{-2} and 394 at t_{+2}. This asymmetry in available observations in caused by the number of young firms (start-up and early stage) of which we have no available financial statement info before the participation. Moving forward in time results in more available financial info. Nevertheless, most observations come from companies that are older than 2 years at participation date. N is never exactly equal to the total number of observations (556) because of lacking data in certain observation years (e.g. no reported sales in one observation year).*

Table 2: Descriptives and *t*-statistics of Deflated Profit After Taxes (PAT) *

	Interval	Real observations	Expected observations	Variance	Standard deviation	*t*-statistics
VCB, 2&3 years	[-0.01, 0.00]	23.00	38.00	36.88	6.07	-2.47
before participation	[0.00, 0.01]	59.00	32.50	63.46	7.97	3.33
Non-VCB, 2&3	[-0.01, 0.00]	16.00	32.00	28.83	5.37	-2.98
years before part.	[0.00, 0.01]	50.00	27.00	55.51	7.45	3.09
VCB, 1 year before	[-0.01, 0.00]	11.00	25.50	20.88	4.57	-3.17
participation	[0.00, 0.01]	40.00	17.50	41.66	6.45	3.49
Non-VCB, 1 year	[-0.01, 0.00]	22.00	23.00	30.17	5.49	-0.18
before participation	[0.00, 0.01]	45.00	23.00	48.10	6.94	3.17

* *Deflated profit after taxes (PAT) are measured by deflating current years' PAT by lagged total assets. Interval widths are determined by the following formula: $(2IQR).n^{-1/3}$, with IQR = interquartile range and n = total number of observations. This formula optimizes the interval width, given (i) the variability of the data and (ii) the total number of observations (Scoth, 1992). The expected number of observations is the average number of the two adjacent intervals. Variances (σ^2) are equal to $N . p_i . (1 - p_i) + ¼ . N . (p_{i-1} + p_{i+1}).(1 - p_{i-1} - p_{i+1})$ and t-statistics are measured as: (n° of actual observation – n° of observed observations)/σ .*

Table 3: Descriptives and *t*-statistics of Deflated Changes in Profit After Taxes (ΔPAT) *

Sample	Interval	Real observations	Expected observations	Variance	Standard deviation	*t*-statistics
VCB, 2&3 years	[-0.02, 0.00]	66.00	38.00	67.10	8.19	3.42
before participation	[0.00, 0.02]	46.00	51.00	56.94	7.55	-0.66
Non-VCB, 2&3	[-0.02, 0.00]	61.00	49.00	66.60	8.16	1.47
years before part.	[0.00, 0.02]	64.00	44.00	67.38	8.21	2.44
VCB, 1 year before	[-0.02, 0.00]	35.00	36.00	42.36	6.51	-0.15
participation	[0.00, 0.02]	47.00	30.00	48.88	6.99	2.43
Non-VCB, 1 year	[-0.02, 0.00]	49.00	35.00	53.12	7.29	1.92
before participation	[0.00, 0.02]	42.00	42.50	50.08	7.08	-0.07

* *Deflated changes in profit after taxes (ΔPAT) are measured by deflating the change in PAT figures ($PAT_t - PAT_{t-1}$) by lagged total assets. Interval widths are determined by the following formula: $(2IQR).n^{-1/3}$, with IQR = interquartile range and n = total number of observations. This formula optimizes the interval width, given (i) the variability of the data and (ii) the total number of observations (Scoth, 1992). The expected number of observations is the average number of the two adjacent intervals. Variances (σ^2) are equal to $N . p_i . (1 - p_i) + ¼ . N . (p_{i-1} + p_{i+1}).(1 - p_{i-1} - p_{i+1})$ and t-statistics are measured as: (n° of actual observation – n° of observed observations)/σ .*

Table 4: time-series distribution of discretionary accruals (measured as a percentage of $TA_{(t-1)}$) *

	Year - 2	**Year - 1**	**Year 0**	**Year 1**	**Year 2**
Median DCA VCB sample	5.36%	6.66%	8.10%	4.01%	3.67%
N° of observations	203	270	289	331	359
P (*sign-rank*)	0.00	0.00	0.00	0.01	0.03
Median DCA Non VCB sample	5.29%	6.91%	6.51%	5.70%	5.13%
N° of observations	210	301	340	376	378
P (*sign-rank*)	0.01	0.81	0.27	0.02	0.72

* *The sample consists of 556 VC backed firms and 556 control firms, matched on (i) size, (ii) age and (iii) sector code at participation date. Due to data unavailability for specific company-years, median DCA sample sizes vary between 203 and 359 for VC backed firms compared to 210 and 378 for non-VC backed firms. Current accruals consist of the change in non-cash current assets and the change in current liabilities. Discretionary current accruals (DCAs) are current accruals by a within one-digit NACE industry cross-sectional modified Jones model (cfr. Teoh et al., 1998: see formula 3 to 5 for more details). DCAs are scaled by lagged total assets and measure the direction and the average amount of earnings management at each specific observation year. P-values for the Wilcoxon signed rank test are two-tailed.*

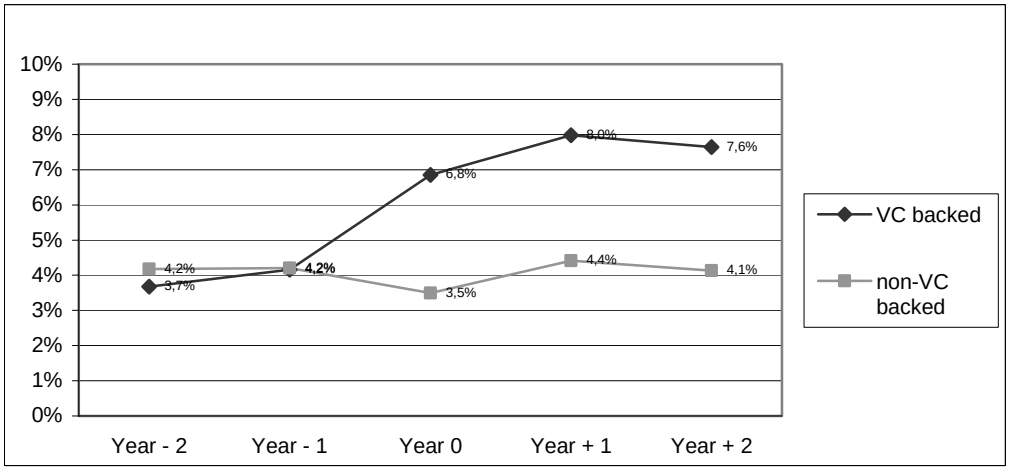
Table 6: results of transitory earnings regression [*]

variable	coefficient	*t*-value	coefficient	*t*-value	coefficient	*t*-value
	Current profit/loss after financial income		**Profit before taxes, after extraordinary income**		**Profit after taxes (bottom line results)**	
Intercept (α_0)	0.062	0.17	-0.009	-0.02	-0.013	-0.03
$D\Delta NI_{t-1}$ (α_1)	-0.760	-1.33	0.162	0.22	0.158	0.22
ΔNI_{t-1} (α_2)	0.036	2.32***	0.046	0.28	0.046	0.28
$D\Delta NI_{t-1} * \Delta NI_{t-1}$ (α_3)	-1.795	-0.84	1.109	3.94***	1.106	3.93***
DHM (α_4)	-0.063	-0.03	0.147	0.19	0.274	0.36
$DHM* D\Delta NI_{t-1}$ (α_5)	0.830	0.33	-1.532	-1.38	-1.786	-1.61
$DHM* \Delta NI_{t-1}$ (α_6)	-0.841	-0.26	-0.010	-0.06	-0.011	-0.06
$DHM*D\Delta NI_{t-1} *D\Delta NI_{t-1}$ (α_7)	5.538	0.60	-1.208	-7.11***	-1.208	-7.11***
$DEQ* D\Delta NI_{t-1}* D\Delta NI_{t-1}$ (α_8)	0.332	0.16	-1.365	-6.03***	-1.362	-6.01***
R^2		0.503		0.650		0.650
Adj. R^2		0.502		0.648		0.648
Durbin Watson statistic		1.68		1.97		1.98
n		2075		2075		2075

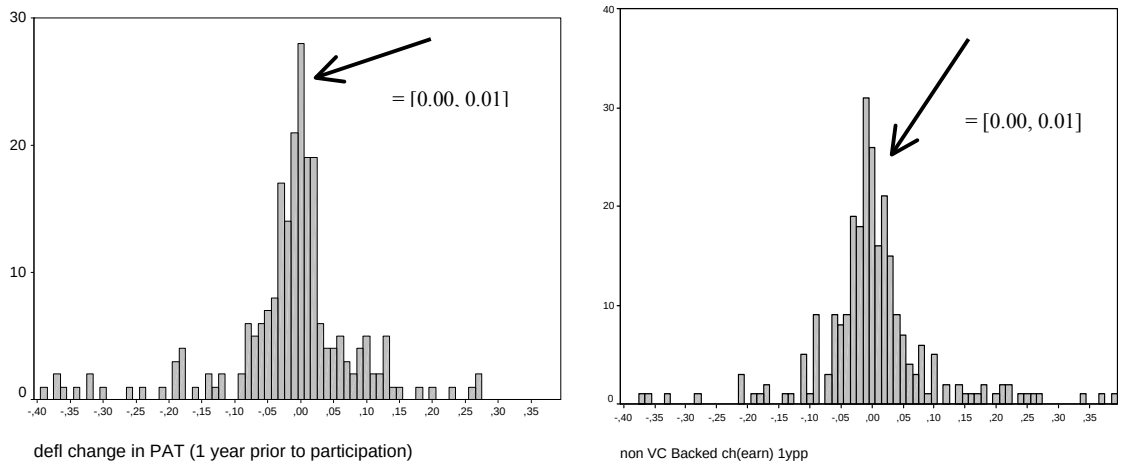
[*] *This time-series regression estimates the impact of changes in past years' earnings changes on current years' earnings changes controlling for (1) previous negative earnings change, (2) monitoring impact and (3) earnings quality.* ΔNI_{t-1} *is the change in earnings from the previous period,* $D\Delta NI_{t-1}$ *is a dummy variable taking the value of 1 when previous years' earnings are negative and DHM ('High Monitoring' dummy) is a dummy variable taking the value 1 when the proportional equity stake of the VCist is higher than the median value. A dummy for earnings quality (DEQ) takes the value of 1 when a company voluntarily reports a complete financial statement. Hypothesis 2 predicts that earnings quality will be most noticeable for highly monitored VC backed companies and therefore supposes a significantly negative coefficient for* α_7. *A significantly negative coefficient for* α_3 *would suggest that earnings quality of the entire sample is relatively high: here, transitory losses would be reported with a high frequency instead of being smoothed over several time periods. Also for coefficient*α_8 *a significantly negative sign is expected: companies that voluntarily disclose more information will also have a higher tendency to report earnings with a higher quality. Test-statistics are White-corrected to control for heteroscedasticity and Durbin-Watson statistics suggest no autocorrelation (DW close to 2). Variance Inflation Factors and Eigenvalues (not reported here) denote a substantial amount of multicollinearity between some dependent variables. However, this finding does not lead to biased estimates and hence is not harmful for the interpretation of our regression results (Blanchard, 1967; Hamilton, 1994).*

Note: ***: statistically significant at 0.1% confidence level, **: statistically significant at 1% confidence level, *: statistically significant at 5% confidence level.

Graph 1: evolution of proportional number of companies voluntarily reporting complete financial statements (earnings quality proxy)



Graph 2: deflated changes in profit after taxes, VC backed sample (left-hand graph) versus non-VC backed sample (right-hand graph) *



* *NOTE: A close look at both graphs denotes a dramatically different distribution around zero: whereas the peak of the VC backed sample lies on the right of zero (very small profit increases), the peak of the non-VC backed sample is situated in the interval with very small profit decreases.*