EARNINGS MANAGEMENT AND INSIDER TRADING AROUND SEASONED EQUITY OFFERINGS

by

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ABSTRACT

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Given the information asymmetry between insiders and investors involved in SEO regarding the firm's plans on how to invest the proceeds from the SEO and the consequent effect on firm's value, insiders have an opportunity to engage in profitable insider trading. This, in turn, provides the market with a signal on firm's intentions. In this study, I examine a sample of 1555 firms that conducted SEOs in the 1987 to 2005 period and their insiders' trading pattern. I find that firms engage in aggressive earnings management to inflate reported earnings. Insiders of SEO firms exhibit the contrarian pattern of trading as shown by my findings of upwards earnings management for value firms. The market is aware of the importance of the insider trading signal. Still, insider trading patterns before and after the SEO year suggest that the market is unable to value the firm correctly. The Sarbanes-Oxley Act of 2002 decreased the scope of earnings management by SEO firms.

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has been approved

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1. Introduction

In management-controlled firms, earnings play a dual role. First, they are a summary statistic that conveys information on what managers did with the assets shareholders and creditors entrusted to them—the stewardship role of accounting. Statement of Financial Accounting Concept No. 1, paragraph 51 and 52 states:

> Earnings information is commonly the focus for assessing management's stewardship or accountability. Management, owners, and others emphasize enterprise performance or profitability in describing how management has discharged its stewardship accountability. A central question for owners, managers, potential investors, the public, and government is how an enterprise and its owners are faring. Since earnings and its components for a single period are often an insufficient basis for assessing management's stewardship, owners and others may estimate "earning power" or on the average they consider "representative" of long-term performance. Financial reporting should provide information that is useful to managers and directors in making decisions in the interests of owners. Although this Statement is concerned primarily with providing information to external users, managers and directors are responsible to owners (and other investors) for enterprise performance as reflected by financial reporting and they are judged at least to some extent on the enterprise performance reported. Thus, how owners have fared during a

period is of equal concern to managers and owners, and information provided should be useful to both in meeting their common goal. (SFAC No. 1, paragraph 51 and 52).

Second, earnings are used to predict future cash flows so that investors can place a value on the firm—the informativeness role of accounting. Statement of Financial Accounting Concepts No.1, paragraph 37, further states that:

> Financial reporting should provide information to help present, potential investors, creditors and other users in assessing the amounts, timing, and uncertainty of prospective cash receipts from dividends or interest and the proceeds from the sale, redemption, or maturity of securities or loans. The prospects for those cash receipts are affected by an enterprise's ability to generate enough cash to meet its obligations when due and its other cash operating needs, to reinvest in operations, and to pay cash dividends and may also be affected by perceptions of investors and creditors generally about that ability, which affect market prices of the enterprise's securities. Thus, financial reporting should provide information to help investors, creditors, and others assess the amounts, timing, and uncertainty of prospective net cash inflows to the related enterprise. (SFAC No. 1, paragraph 37).

For additional discussion, consult, e.g., Sunder (1996, 1997). The second role of earnings is especially important when firms raise funds in seasoned equity offerings (SEOs). Firms allegedly finance expansion during SEOs. In reality,

some firms use the funds to finance growth while other firms prolong their survival, by for example, financing working capital. DeAngelo et al. (2007), who studies a sample of 4,291 firms that conducted SEOs between 1973 to 2001, finds that without the SEO proceeds, 62.6% of issuers would have insufficient cash to implement their chosen operating and non-SEO financing decisions the year after the SEO. That is, most firms conduct SEOs to resolve a near-term liquidity squeeze (see also, Jindra, 2000).

In what follows, I refer to firms that use the SEO's proceeds to finance expansion of operations and growth as strong performers and to firms that use the expansion to prolong their survival as weak. This distinction is important because for the same price, investors would prefer to invest in strong firms instead of the weak ones, but they don't know the firm's type. Only the firms themselves know it.

The information asymmetry between firms and the market creates demand for information, such as earnings. To the extent that earnings predict future cash flows (the second role of accounting information), earnings play an important role in evaluating the SEO firm. I contend then, that the SEO event is a sender-receiver game, where the informed firm is the sender and the market is the receiver, and earnings are the signal used by the receiver as an input in its decision regarding the value to place on the firm.

The importance of earnings to investors provides firms with incentives to manage earnings upwards to increase the issuance price. From a signaling point

of view, depending on the cost of inflating earnings relative to the benefit, two equilibria are possible: separating and pooling. Under both types of equilibria, strong performers have incentives to inflate earnings to boost the market price. Borrowing reported earnings from future periods is unlikely to hurt them because they expect their future performance to be sufficiently strong. Weak firms, with no prospect of future strong performance, find that inflating reported earnings around the SEO is costly. Such firms will suffer the consequences of disappointing the market, including decreases in stock prices, class-action suits by shareholders, restatements that draw attention of the SEC, SEC investigation, and sometimes an accounting scandal. A separating equilibrium occurs if weak firms find that the benefit to aggressively inflating earnings (to get higher proceeds) is lower than the cost of inflating earnings. They then do not manage earnings aggressively. Since the managed portion of earnings is unobservable, in this equilibrium, the market discounts the observable earnings, which, in turn, induces strong performers to report aggressively. Observe that this equilibrium does not preclude poor-performance by strong performers in the long run, because being classified as a strong performance is based on expectations, and ex-post, even an ex-ante strong performer may perform poorly.

If weak firms find that the rewards of SEO based on aggressive reporting exceed the cost of earnings management, the equilibrium is a pooling equilibrium. Unable to distinguish between the two types, the market is likely to discount the earnings signal. In this case, earnings management is likely to be

pernicious because poor performers mimic strong ones and the market then overvalues weak performers and undervalues strong ones.

Since true earnings are unobservable, and the market cannot be sure whether the discount for earnings management is accurate, the market demands additional signals to evaluate the firm. A candidate for an additional signal is insider trading because insiders have superior information on the firm's economic earnings, and possibly, the value of the firm after the SEO event. To emphasize, the market price may discount the earnings of a strong performer. Even if the market's discount of the earnings management is correct on average, it may be too low for some firms and too high for others (Kim & Park, 2005).[1] The party that knows whether the discount reflects firms' earnings management is the insiders, who can then trade on the discount. In this study, I examine earnings management and insider trading for firms that conducted SEOs. I pose the following research questions:

- The seminal study that found evidence of earnings management around SEOs was that of Teoh, Welch and Wang (1998). Will their results extend to SEOs in later periods when the research design employs recent earnings management methodologies?

[1]Kim and Park (2005) analyze the 1989-2000 period. They found that very aggressive earnings management reduces the gap between the closing price at the date of the offer and the offer price. Given that both prices are based on the same earnings information, this result indicates that the market does not fully discount earnings management.

- What is the pattern of earnings management and insider trading in SEO firms? For example, do firms manage earnings upwards to boost the SEO proceeds and insiders sell shares? Is there a connection between firm's characteristics, insider trading behavior, and the magnitude of earnings management?
- Given that the market is rational, how does the market react to the signals of insider trading and earnings management?

The first question is motivated by three concerns. One is a methodological issue. Earlier works employed the Jones model to calculate abnormal, (managed) accruals. This model has been criticized (Dechow, Sloan, & Sweeney, 1995; Kothari, Leone, & Wasley, 2005 and others) as being misspecified because the relationship between accruals and performance is not linear. In this study, I use the Kothari, Leone, and Wasley's methodology, which addresses the non-linearity issue.

Second, the question is also motivated by the effect of the publicizing of academic work on the response of the market. Prior research established that firms manage earnings upwards, reporting thus inflated results (Teoh, Welch, & Wong, 1998; Rangan, 1998; Shivakumar, 2000; Marquardt & Wiedman, 2004; Farinos et al., 2005 and Kim & Park, 2005).[2] They concluded that earnings management is pernicious because of the association between earnings

[2] For international evidence on earnings management at SEO, consult Yoon and Miller (2002), who found evidence on earnings management by 249 Korean seasoned equity offering (SEO) firms during the period 1995-1997.

management before SEOs and post issue underperformance (Teoh et al., 1998 and Rangan, 1998). There are other known phenomena where publication of a paper alerted the market and regulators (such as returns to insider trading and the recent backdating scandal), and if the market has become more sophisticated and attempts to undo earnings management, it may well be the case that firms no longer have incentives to engage in this practice.

Third, in July 2002, the Sarbanes-Oxley Act (henceforth, SOX) was enacted. This act has increased the cost of managing earnings by increasing penalties on misrepresenting performance, improving internal controls, and increasing the independence of the auditor. To the extent that SOX increased the cost of earnings management, I expect earnings management to decline after SOX.

The motivation for the second question follows from the insider trading literature that established that insider trading is a signal of superior insiders' private knowledge (e.g. Seyhun, 1986, 2000). If the market correctly interpreted the earnings signal and the price reflected the economic value of the firm, insider trading would not be profitable. Hence, insiders trading will show no pattern consistent with earnings management. Otherwise, when earnings management reduces the quality of earnings as a value-relevant signal, insiders' trading is likely to have an incremental informational value.

The motivation for the third question is provided by the first two questions and the mixed results in the literature on the interpretation of the response of the

market to earnings management. The first question is concerned with what the firms' does in response to the market. The second is concerned with what insiders do in response to the market and earnings management. The third question consolidates the analysis of the first two and focuses on the market reaction to earnings management and insider trading.

The study of the market's reaction to earnings management around SEO also sheds light on the debate in the literature on the type of earnings management: beneficial, neutral, or pernicious (see e.g., Shivakumar, 1996, 2000; Kim & Park, 2005 and others). Earnings management is beneficial (pernicious) when it is used to truly (falsely) signal strong performance, as in separating (pooling) equilibrium. Earnings management is neutral if it has no effect on market's valuation of the firm (Ronen & Yaari, 2008).[3]

I study a sample of 1,555 non-regulated, non-financial firms that conducted SEOs in the 1987-2005 period. My findings are as follows: I first replicate the test of Teoh et al. using a current version of earnings management model. The new tests reveal that median net income peaks in the year of the SEO. Consistent with a dynamic perspective of Teoh et al., I study discretionary current accruals in the three years before and three years after the SEO. When I replicate the Teoh et al. methodology, I find both mean and median discretionary current accruals peak in the SEO year. Cash flow from operations (CF1) is higher

[3] This equilibrium is different from the separating and pooling equilibria outlined above. It requires that the market discounts earnings management correctly and that firms will play along by inflating earnings by just the amount discounted by the market. The signaling literature defined such equilibrium as a signal jamming one.

in the years after the SEO than before the SEO. This pattern is also confirmed when I restrict the test to firms with observations in all seven years (years -3,-2, -1,0,1,2,3 where year 0 is the SEO year). These results confirm prior studies such as Teoh et al. (1998), Rangan (1998), Kim and Park (2005), and others, who find earnings management around SEOs.

An examination of insider trading shows that most firms with insider trading fall into one of two categories: their insiders either sell or purchase shares in each year, before, during, and after the SEO, (-1, 0, 1). The "purchase" group exhibits income increasing accruals in all the years around the SEO. The insider trading pattern by the "purchase" group before the SEO is consistent with the contrarian pattern of trading. The "sell" group, exhibits income increasing accruals in the year before, during, and after the SEO year. The greater income increasing accrual in the year before the SEO as compared to the other years shows that insiders inflate earnings before they sell to obtain greater profits because of their superior knowledge. The pattern exhibited by the "sell" group of income manipulation upwards before the SEO is consistent with Beneish and Vargus (2002). The temporal behavior of insider trading and the earnings management pattern is consistent with insiders selling undervalued firm's shares and the firm taking steps to reduce the gap between its value and the market's valuation.

Following the insider-trading literature, I argued that firms with high book to market ratio—value firms—have incentives to hoard earnings to appear as

stable performers after the SEO event in contrast to firms with a low book to market—glamour, or growth firms. I find that glamour firms exhibit income increasing accruals in the year before, of and after the SEO. While value firms exhibit income increasing accruals in the year before and after the SEO and income decreasing accruals in the year of the SEO. The results for the value firms is partly consistent with Sawicki (2005) who find downward (upward) earnings management for glamour (value) for the years around the SEO. My results are consistent with value firms being more closely associated with strong performers than growth firms. Indeed, growth firms experience significant unanticipated deterioration in earnings performance following SEOs as compared to mature firms (Lee, 1997).

The tests for my third research question indicates a negative association between cumulative abnormal returns (CAR) and insider trading for the full sample and directors in the year before SEO. To some extent, this result also answers the first question in that it explains why firms have incentives to manage earning; the market did not learn from the evidence of previous earnings management studies and is affected by it. In addition, I find that the SOX influenced earnings management because both mean and median discretionary current accruals were greater pre-SOX than post-SOX. My study thus adds to the literature that has investigated the benefits and costs of the SOX (see Zang, 2005; Klein, 2002 and others).

My study contributes to the insider trading literature as well. Insiders' selling are not a very strong signal of what insiders know because the legal rules of insider trading in the U.S. requires insiders to submit trading plans in order to alleviate the concern that their trade is based on private information. The findings on insider trading before major corporate events are mixed. While insiders trade profitably before earnings announcements, Penman (1985); Chapter 11 bankruptcy filings, Seyhun and Bradley (1997) and dividends initiation John and Lang (1991); they tend to do otherwise for other corporate events. For instance, mergers for acquiring firms; Seyhun (1990) and mergers for target firms Agrawal and Jaffe (1995).

To the best of my knowledge, my study is the first study to investigate the effect of the SOX to earnings management and insider trading for firms that undertake SEO. Overall, this study shows insider trading is a valuable signal that distinguishes between firms that boost earnings aggressively and conservative reporters. It establishes that the pooling equilibrium of weak firms mimicking strong firms does not exist when insider trading volume is high.

Finally, this study contributes to the literature that examines informational signals around SEO. Zhou and Elder (2004) observe the value of audit quality signal for SEO firms (as measured by auditor's size and industry specialization). Lang and Lundholm (2001) find that firms issuing SEOs increase disclosure activities to increase stock prices.

This study proceeds as follows; Section 2 presents hypotheses developments. Section 3 presents sample selection and procedures, section 4 presents the methodology, section 5 presents results, section 6 presents robustness checks, section 7 presents conclusions and future studies.

Chapter 2: Hypotheses Development

In this section, I develop the hypothesis. Hypothesis 1, 2 and 3 address the first research question about whether Teoh, Welch, and Wang's results on the existence of earnings management around SEOs will extend to SEOs in later periods. This is due to the fact that the research designs for the latter periods employ recent earnings management methodologies. Hypotheses 4 and 5 address the second research question about the pattern of earnings management and insider trading in SEO firms. Hypothesis 6, 7, 8 and 9 address the third research question about how the market reacts to the signals of insider trading and earnings management around SEOs.

Table 1: Hypotheses

Hypothesis Number	Hypothesis	Research question*
1	Firms that issue SEO manage earnings upwards before the SEO event.	1
2	a: Reported earnings peak in the year before the SEO. b: Reported earnings peak in the year of the SEO.	1
3	Earnings management is more prevalent in the pre- SOX than post-SOX period	1
4	Firms whose insiders sell shares manage earnings before the SEO event more than firms whose insiders buy shares.	2

5	Insiders of value firms will engage in income decreasing accruals while those from glamour firms will engage in income increasing accruals in the year before the SEO year.	2
6	The cumulative abnormal returns (CAR) around SEO is positively related to earnings management.	3
7	CAR are associated with insider trading around SEOs	3
8	CARs around the announcement of an SEO differ before and after the passage SOX.	3
9	CARs' relationship to earnings management and insider trading around an SEO is sensitive to the identity of the insider.	3
***Research questions:** 1) The existence of earnings management. 2) Earnings management and insiders trading pattern. 3) Market's reaction to insider trading and earnings management.		

2.1. Earnings management and SEOs

To develop my first hypothesis, I argue that SEO firms have incentives to inflate earnings before the SEO. This phenomenon has been referred to as the issuers' greed hypothesis, because earnings provide a signal to investors that affect the issuance price (see e.g., Kim & Park, 2005).

However the publication of scholarly studies might affect the behavior of firms and the market.

For example, after the publicizing of Jaffe's (1974) study on insider trading, the abnormal returns from insider trading was reduced significantly. So, I posit the following hypothesis:

H1: Firms that issue SEO manage earnings upwards before the SEO event.

Observe that H1 has been already examined by Teoh et al. (1998), Rangan (1998), Shivakumar (2000), Marquardt and Wiedman (2004), Farinos et al. (2005) and Kim and Park (2005). My contribution to the literature is that my study uses a later sample period. Teoh, Welch, and Wong's sample covers the 1976-1989 period; Shivakumar's sample covers the 1983-1992 period, Rangan, covers 1987-1990, Marquardt and Wiedman covers 1984-1991, Kim and Park covers 1989-2000 while Farinos et al. covers 1993-2000. My study covers 1987-2005. Antony et al. (2006) sample is the closest to mine, because it covers the 1970-2003 period. Findings that discretionary accruals are 1.54% of assets raises the suspicion that indeed earnings management has declined, but because their horizon predates other studies, a clear conclusion regarding whether earnings management has declined recently cannot be reached.

A related hypothesis to my first hypothesis concerns the pattern of reported earnings of SEO firms before and after the event year. The analysis of this hypothesis contributes to the literature in that it provides further evidence as

to the continued existence of the phenomenon of earnings management around SEOs in recent times.

A higher offer price benefits the issuer in that it results in more cash proceeds; Kim and Park (2005)[4]. Kim and Park refer to this phenomenon as the issuers' greed hypothesis. However, such firms cannot continue to manipulate earnings upwards, because earnings cannot exceed cash flows indefinitely. They will have to reverse this trend. Specifically, such firms are likely to reverse their upward earnings manipulation after the SEO year. This results in earnings peaking in the year prior to the SEO and then declining (see Loughran & Ritter, 1995). This leads to the following hypothesis.

H2a: Reported earnings peaks in the year before the SEO.

Furthermore, in the year of the SEO and the following year, firms may be subject to scrutiny by their investors so there is pressure to perform well not only in year 0 but also in year 1. In the Introduction, I discussed the likelihood that some firms are strong performers who raise capital to finance growth. Such firms are likely to show a trend of increasing earnings, and even if they manage earnings, they are likely to prefer to exhibit a smooth growing trend of accounting performance.

[4] Kim and Park (2005) found that firms that make opportunistic accounting decisions (earnings manipulation) also issue shares at inflated prices.

Firms issue equity that is overvalued and overvaluation peaks at the time of the offering. This is because firms time their SEOs to take advantage of windows of opportunity that exist when equity is overvalued with respect to managers' private information; Jindra (2000). Dechow et al. (2007) also find that accruals are not only high during the period that firm raises capital, but also in the periods after. The dynamics of timing of reporting performance leads to the following hypothesis.

H2b: Reported earnings peak in the year of the SEO.

The nineties were a period with increasing numbers of SEOs. That time was also characterized by a bull market and investors' optimism. In euphoric markets, investors do not pay much attention to earnings; Coffee (2003). Following the burst of the bubble in 2000 and Regulation Fair Disclosure (FD) in 2000 there has been a change in information available to the public. The accounting scandals of such giants as Enron in 2001 and WorldCom in 2002, and the Sarbanes-Oxley Act of 2003 (SOX) also changed the information asymmetry between firms and the market and also changed the attitude towards earnings management.

SOX was enacted to restore the trust of investors in financial reporting in the wake of accounting scandals of Enron in 2001 and WorldCom in 2002.

SOX holds management to higher standards of responsibility. For instance the corporation's chief executive officer and chief financial officer must certify the company's periodic reports (section 302). Financial reports must ensure the adequacy of the internal financial controls of the company and its ability to make timely disclosure of the information required of it. Audit committee are required to have a "financial expert" (section 407), and they must be independent (301). Separation of duties is required so a particular firm cannot perform both auditing and consulting. Finally, the jail time has been increased for management who violate the requirements of the SOX. There is also a change in information asymmetry between firms and the market. The stringent requirements of the SOX lends to the following hypothesis.

H3: Earnings management is more prevalent in the pre SOX than post SOX period.

Observe that earnings management (EM) increased in the 20th century and declined after the enactment of the SOX (see Cohen, Dey, & Lys 2005a; Williams, DaDalt, Sun, & Yaari, 2006; Bartov & Cohen, 2007 and Koh, Matsumoto, & Rajgopal, 2007). My contribution is that none of these studies examined SEO firms. The last three studies focus on the phenomenon of firms beating or meeting the expectations of analysts.

2.2. Insider trading around SEOs

Myers and Majluf's (1984) argue that firms raise capital by issuing stock when they are overvalued while other studies find that equity issues are timed opportunistically. (e.g., SEO were conducted by large firms just when the market showed optimistic expectations towards large firms; Farinos et al., 2005). The SEO event is likely to be characterized by some firms being overvalued by the market. As discussed in the Introduction, the market discounts earnings it suspect of being managed, and since earnings management in itself is unobservable, some firms are likely to be undervalued.

The SEO event then provides a unique setting to examine the behavior of insiders because they can sell overvalued firms and purchase shares of undervalued ones to make profits (Seyhun, 1986, 2000 and Beneish & Vargus, 2002). Furthermore, since earnings management affects market's valuation, there is likely to be a link between earnings management and insider trading pattern. Following earlier literature that found evidence of earnings management and earnings inflation when insiders sell (see Beneish & Vargus, 2002; Akbulut, 2007; Huddart & Louis, 2006 and Jaggi & Tsui, 2007); I propose:

H4: Firms whose insiders sell shares manage earnings before the SEO event more than firms whose insiders buy shares.

My fourth hypothesis answers my second research question about the pattern of insider trading and earnings management around SEOs. Sawicki (2005) and Piotroski and Roulstone (2005) analyzed this phenomena for firms in general. My contribution to the literature in investigating this hypothesis is that this is the first study to analyze the effect of both earnings management and insider trading for firms conducting SEOs. Prior studies have investigated the effects of earnings management and insider trading on firms in general. For instance, earnings management and insider trading are more prevalent when stock prices are high (Kadan & Yang, 2006)[5]. Furthermore, insiders sell their stockholdings at inflated prices as a motive for earnings manipulation, (Agrawal & Cooper, 2007) and they tend to inflate earnings before selling stock[6]. In addition, insiders trading activities can be used to determine earnings management and accrual quality (see Beneish & Vargus, 2002) because they manipulate discretionary accruals to increase earnings in current period before selling in the next period (Park & Park, 2004).

My fifth hypothesis links insider trading to firms' characteristics. It has been found that there is a different pattern of trading by firms with different levels of book to market portfolios: insiders (buy) sell shares in value (glamour) firms; (see Sawicki, 2005; Rozeff & Zaman, 1998 and Piotroski & Roulstone, 2005). Value (growth) firms tend to have a positive (negative) future announcement

[5] Jaggi and Tui (2007) find a positive association between earnings management and insider selling for Hong Kong firms.

[6] During the market bubble's last years, stocks of firms which insiders sold the most rose higher than stocks which insiders sold the least (Huddart & Louis, 2006). Insiders' sales are significantly higher than insiders' buys when the accruals in the year ahead are income increasing.

earnings returns (LaPorta, 1997). Given that information asymmetry between insiders and the market is stronger for growth firm, I expect that firm's type affects insider trading in the unique setting of SEO. Another motivation for this hypothesis is based on prior research that has found insiders to be contrarian investors. A contrarian investor is an investor who trades differently than most investors because he is of the opinion that most investors are wrong and he would benefit from trading differently. For instance, a contrarian investor would purchase shares of companies that are performing poorly and sell them when their situation changes. In addition, insiders sell when performance is strong and other investors buy and buy when performance is poor and other investors sell[7] (Jenter, 2005; Sawicki, 2005; Lakonishok & Lee, 2001 and others). Given that they have the correct expectations on firm's value, this strategy earns them abnormal returns (Seyhun, 1992 and others).[8] Insiders exploit mispricing (Rozeff & Zaman, 1998) about firm value. Additionally, insider trades are linked to future earnings and returns (see Piotroski & Roulstone, 2005) since they have superior

[7] There is also evidence that insiders and corporate decision makers have private information about upcoming return reversals. They buy (sell) when the stock price reaches a 12 month low (high) especially for idiosyncratic firms; (Ben- David & Roulstone, 2007). Insiders are more likely to sell (purchase) shares following periods of price appreciation (declines) in anticipation of subsequent price reversals; Seyhun (1992).

[8] In this study, I focus on the reaction of insiders to earnings management around SEO event. Prior literature examined how insiders react to the SEO event. Gerard and Nanda (1993) show that there is manipulative informed trading around SEOs. For instance, institutional investors sell shares of the offering before the SEO even though they have favorable information about the SEO firms. They do this to conceal the positive information they possess. These trading strategies are however profitable to the institutional investors only if these investors can recoup their losses by obtaining share allocations at reduced prices. Jegadeesh and Titman (1995) find that most of the contrarian profit is attributed to stock price overreaction .

information and they stand to benefit by manipulating reported earnings. This discussion lends my next hypothesis.

H5: Insiders of value (growth) firms will have income increasing (decreasing) accruals in the year before the SEO.

My sixth hypothesis answers my third research question about the market's response to earnings management. The interest in earnings management in SEOs has been motivated by an attempt to explain the underperformance of SEOs firms (see Loughran & Ritter, 1995)[9] and Teoh et. al (1998). In general, since the market is semi-strong efficient, Fama (1980), earnings will provide (noisy) information regarding future performance.

So far, the research has been concerned with the question of whether earnings management is neutral (Ronen & Yaari, 2008). As discussed in the Introduction, in this case, firms manage earnings because of a signal jamming dynamic, wherein firms are encouraged to inflate earnings because if they do not, they are under priced (Kim & Park, 2005; Rangan, 1998).[10] So, for this dynamic to hold, two conditions must be met: (i) firms inflate earnings before SEO, and (ii) the market correctly discounts earnings management. As a result,

[9]Loughran and Ritter (1995) examined companies that issued stock during the 1970-1990 periods. They found that investors obtained only 7% return from SEOs. If investors had instead of investing in these issuers, invested the same amount in a non-issuing firm which was equal in size they would have earned returns of 15% per year.

[10] Example: suppose that the market expects firms to inflate earnings by 20%. A firm that earns 120 then has no reason not to report 144. Because if for example, it reported the truth, the market will evaluate it as if its true earnings are 100.

the market does not respond to earnings management. As discussed above, the equilibrium may be either separating or pooling one. In either case, it seems reasonable to expect the market to respond to managed earnings. If firms manage earnings to signal strong performance (separating equilibrium), more earnings management is better news and hence, are likely to elicit stronger reaction from the market. If firms manage earnings to mislead the market (pooling equilibrium), the market still responds to more earnings management because it is not 100% sure that the SEO firm is not a strong performer.[11] I summarize this discussion with the following hypothesis.

H6: The cumulative abnormal returns around SEOs is positively related to earnings management.

Market returns are influenced by many factors. My seventh hypothesis answers my third research question about the market reaction to insider trading. My contribution to the literature is that prior studies analyzed the effect of insider trading on firms in general while my study analyzes the effect on SEO firms in particular. Not only does earnings management affect stock prices or returns as discussed in the prior section but also insider trading activities may influence the

[11] A numerical example that illustrates this issue is based on Tzur and Yaari (2000). Let strong firm have value of 10 and weak firms the value of 1. Suppose that the prior probability of strong performers is 80% and weak performers is 20%. If the latters' attempt to manage earnings is successful with probability of 0.25 only because the financial reports are imperfectly audited, then, the market price of the firm that attempt to be strong is: [0.80/(0.80+0.20*0.25)]*10 + 0.20*0.25/(0.80+0.20*0.25)*1 > 1.

market's price. Since the SEO setting is characterized by information asymmetry, insider trading is a value-relevant signal. Insider's purchases suggest that the market price of shares is too low while insiders sales suggests a market price that it too high. Because the market is rational, it corrects the price in response to insider's activity.

There is evidence that the market prices additional information besides earnings at the SEO event. For example, the average investor may react less negatively to offerings when managers' incentives are tied to shareholders. In contrast they would react more negatively, when there is insufficient managerial stakes to deter the misuse of SEO proceeds. Investors behave likewise when there are negative signals transmitted by insiders and blockholders, (Kim & Purnanandam, 2006). The finance literature brought to the fore that even without earnings management, the market may be suspicious of the firm. This is because insiders have superior information than investors about the firm; their trade is a value-relevant signal. Insiders therefore choose to issue equity when their firms are overvalued (Myers & Majluf, 1984; Baker & Wurgler, 2000 and Jindra, 2000). Given that the market is aware of the superior information of insiders,[12] I test the following hypothesis.

[12]According to Chemmanur and Jiao (2007), insiders are able to partially assess potential SEO demand for their equity from the pre-offer market price. In this study, I focus on the earnings management aspect of the information asymmetry between the SEO firm and the market.

H7: Cumulative abnormal returns are associated with insider trading around SEOs.

As discussed previously the enactment of SOX resulted in more stringent rules and regulations for firms to adhere to. If firms adhere to these requirements and these requirements are beneficial, then the market would be affected. For instance earnings management has declined post SOX (Cohen, Dey, & Lys, 2005a; Williams, DaDalt, Sun, & Yaari, 2006; Bartov & Cohen, 2007 and Koh, Matsumoto, & Rajgopal, 2007). Then the market would be more responsive in the periods after the SOX than before. If, SOX failed to restore the confidence of investors, then CAR will be lower after SOX even if earnings management has declined. This discussion lends the following hypothesis.

H8: Cumulative abnormal returns around the announcement of an SEO differ before and after the passage of SOX.

The tenant of the earnings management literature is that the party to manage earnings is management. My next hypothesis responds to my third research question about the market reaction to insider trading and earnings management. Given that insiders encompass directors, block holders, management and senior officers, it may well be that the quality of insider trading signal is affected by the identity of the insider. For example, managers tend to

inflate earnings before selling stock, during the market bubble's last years (Huddart & Louis, 2006).

Furthermore since not all the insider groups are equally knowledgeable about earnings manipulation, segregating trading according to cohorts would throw light on the differences in trading patterns which might affect cumulative abnormal returns. Hence, I propose the following hypothesis.

H9: The relationship of Cumulative Abnormal Returns' around an SEO to insider trading is sensitive to the identity of the insider.

Chapter 3: Sample selection

The initial sample contains 10,787 firms issuing seasoned equity offerings between 1985 to 2005, and is obtained from the Thomson SDC Platinum new issues database. The cut-off of 1985 is dictated by my using the statement of cash flows issued in 1987. I delete all SEOs by financial institutions (SIC codes 6000-6999), regulated industries (SIC codes 4000-4999) and firms which do not have sufficient data on Compustat, resulting in a sample of 1,555 firms. For each SEO, I identify all non-issuing firms sharing the same three-digit SIC code as the issuing firm in the year prior to the SEO.[13] Tables 2 presents the sample selection criteria.

Table 2: Sample Selection

Sample	Number of Firms
Total SEO firms	10,787
SEO firms without multiple issues	6,100
SEO firms less financial institutions and regulated industries *	6,077
SEO firms with necessary data on Compustat	1,555
* financial institutions (SIC 6000-6999); regulated industries (SIC 4000-4999)	

[13] While many prior studies match on 2-digit SIC codes (e.g. Teoh et. al, 1998), this methodology results in SEO firms being matched with firms in widely varying industries (see Bernard and Skinner (1996). Using 4-digit SIC codes provides a closer match, but shrinks the sample size considerably. I therefore employ 3-digit SIC codes as a compromise between increased accuracy and sample size.

Table 3 presents the distribution of sample firms across time. The number of SEO in a given year ranges from 9 to 143 with an average of 83. The frequency of issues rose over the sample period, with relatively fewer SEOs in the 1980s and relatively more in the mid 1990s.

TABLE 3: Distribution of Sample Firms by Year

Year	Frequency	Percent	Cumulative frequency	Cumulative percent
1987	9	0.58	9	0.58
1988	26	1.67	35	2.25
1989	41	2.64	76	4.89
1990	35	2.25	111	7.14
1991	82	5.27	193	12.41
1992	88	5.66	281	18.07
1993	129	8.3	410	26.37
1994	84	5.4	494	31.77
1995	130	8.36	624	40.13
1996	143	9.2	767	49.32
1997	143	9.2	910	58.52
1998	85	5.47	995	63.99
1999	102	6.56	1097	70.55
2000	102	6.56	1199	77.11
2001	83	5.34	1282	82.44
2002	73	4.69	1355	87.14
2003	99	6.37	1454	93.50
2004	101	6.5	1555	100.00

To examine whether there is a pattern of SEOs over time, Figure 1 shows the frequency distribution of the firms issuing SEOs. It clearly shows that there are cycles between 1987-1991, 1992-1999[14], 2000-2003, and 2003-2005.

[14] In 1995, there is a drop in the number of SEO firms in my sample, but the 1996 volume is a bit higher than the 1994 volume.

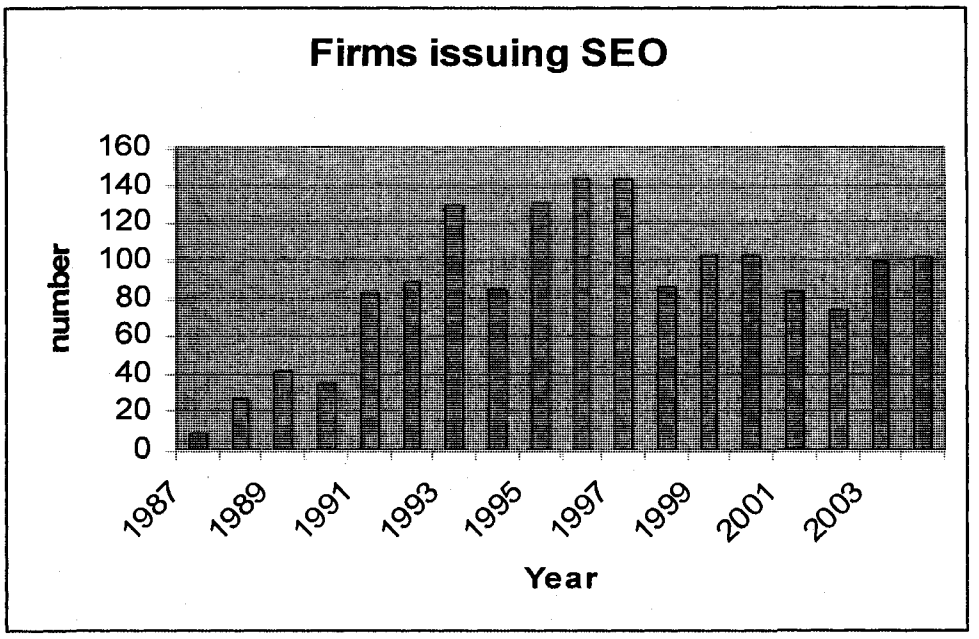

Figure 1: The Distribution of SEO Firms across Years

Table 4a presents the characteristics of the SEO firms. The mean (median) total assets are $1,288.21 ($180.25) million. Mean (median) market value $17.06 ($3.34) million; mean (median) book value are $458.98 ($107.61) million, and mean (median) sales are $884.14 ($135.48) million.

Table 4a: Characteristics of SEO Firms

SEO	Mean	Median	Std. Dev
Total Assets (millions)	1,288.21	180.25	4,195.67
Market Value (millions)	17.06	3.43	108.32
Book Value (millions)	458.98	107.61	1,570
Sales (millions)	884.14	135.48	2,817

Table 4b compares SEO firms with a matched sample of non-SEO firms. The mean (median) difference for total assets is $6.097 (0) million. Mean (median) market value, book value, and sales are $4.793 ($0) million, $153.439 ($169.393) million, and $884.14 ($135.48) million, respectively.

Table 4b: A Comparison of SEO to a Matched non-SEO Firms

	Mean	Median	Standard. Deviation
Total Assets (millions)	6.097	0	45.781
Market Value (millions)	4.793	0	58.577
Book Value (millions)	153.439	169.393	87.413
Sales (millions)	82.687	15.872	592.245

Table 4c presents the financial characteristics of the SEO firms. The mean (median) net income is $33.07 ($6.23) million, the mean (median) depreciation is $361.26 ($14.19), mean (median) cash flows are $101.85 ($8.17) million and mean (median) rate of return on assets (ROA) is -0.03 (0.04).

Table 4c: Financial Characteristics of the SEO Firms

Financial Variable	Mean	Median	Standard. Deviation
Net Income	33.07	6.23	256.87
Depreciation	361.26	14.19	1,740
Cash flow	101.85	8.17	491.06
Return on Assets (ROA)	-0.03	0.04	0.36

Chapter 4: Methodology

4.1: Earnings Management

I measure the extent of earnings management using the cross-sectional variant of the Jones (1991) methodology developed in Teoh, Welch, and Wong, (1998) and Kothari, Leone, and Wasley (2005). These approaches separate accruals into two components; normal, or non-discretionary, accruals that are a consequence of business structure and operations typical to the industry (i.e. credit policy, business conditions, etc...) and abnormal, or discretionary, accruals that arise from earnings management. I identify abnormal accruals (my proxy for earnings management) using a two-step process. Following Hribar and Collins (2002), I identify Total Accruals as the difference between Net Income (Compustat item # 172) and Cash flows from operations (Compustat item # 308).

Total Accruals = Net Income (Compustat item #172) - Cash

flow from operations (Compustat item #308) — (1a)

I define Current Accruals (CA), as follows:

CA = Total Accruals + Depreciation expense (Compustat #196)

+loss/gain on Sale of Property Plant and Equipment

(Compustat item #213). — (1b)

I next decompose current accruals into discretionary and non-discretionary components using a two-stage procedure as follows. In the first stage, I regress accruals on the change in cash sales (change in sales (Compustat item #12) less change in accounts receivables (Compustat item # 2) and lagged return on assets following Kothari et al. To alleviate heteroscedasticity, I scale all variables by lagged total assets (Compustat item #6) A_{t-1}, thereby yielding the following regression.

$$\frac{CA_t}{A_{t-1}} = \hat{\beta}_0 \frac{1}{A_{t-1}} + \hat{\beta}_1 \frac{\Delta Sales_{it} - \Delta AR}{A_{t-1}} + \hat{\beta}_2 \frac{ROA_{t-1}}{A_{t-1}} + \varepsilon_t \qquad — \qquad (2)$$

For each SEO firm, I estimate the regression in Equ. (2) using all non-SEO firms in the same 3-digit SIC code as the SEO firm in the year prior to the announcement of the SEO. I delete all observations with fewer than 20 matched firms. To take care of outliers I delete the top and bottom one percent of accruals. In the second stage of the estimation, I use the coefficients from the regression in Equ. (2) to calculate Discretionary Current Accruals (DCA) as follows:

$$\frac{DCA_{it}}{A_{i,t-1}} = \frac{CA_{it}}{A_{i,t-1}} - \left[\hat{\beta}_0 \frac{1}{A_{t-1}} + \hat{\beta}_1 \frac{\Delta Sales_{it} - \Delta AR_{it}}{A_{t-1}} + \hat{\beta}_2 \frac{ROA_{t-1}}{A_{t-1}} \right] — \quad (3)$$

In Equ. (3), Discretionary Current Accruals, deflated by lagged total assets, (henceforth referred to as DCA) are defined as the difference between total current accruals and "non-discretionary" or "normal" accruals (the bracketed

term on the right hand side of this equation).[15] It represents the "abnormal," or managed, component of current accruals which proxies for earnings management.

I follow a similar procedure in calculating Discretionary (i.e. abnormal) Long-Term Accruals. I first define total accruals (TA) as net income before extraordinary items and discontinued operations less cash flow from operating activities (i.e. Compustat items #123 - #308). I then estimate the following regression for total accruals (the additional regressor, *PPE* is defined as property, plant, and equipment (Compustat item 8).

$$\frac{TA_{it}}{A_{i,t-1}} = \hat{\beta}_0 \frac{1}{A_{t-1}} + \hat{\beta}_1 \frac{\Delta Sales_{it} - \Delta AR_{it}}{A_{t-1}} + \hat{\beta}_2 \frac{PPE_t}{A_{t-1}} + \hat{\beta}_3 \frac{ROA_{t-1}}{A_{t-1}} + \varepsilon_t \quad \text{— (4)}$$

As in the estimation of Discretionary Current Accruals, I then use the coefficients from regression (4) to calculate Discretionary Total Accruals (DTA) as follows:

$$\frac{DTA_i}{A_{t-1}} = \frac{TA_i}{A_{t-1}} - \left[\hat{\beta}_0 \frac{1}{A_{t-1}} + \hat{\beta}_1 \frac{\Delta Sales_t - \Delta AR_i}{A_{t-1}} + \hat{\beta}_2 \frac{PPE_t}{A_{t-1}} + \hat{\beta}_3 \frac{ROA_{t-1}}{A_{t-1}} \right] \text{— (5)}$$

[15] Following Teoh et. al. (1998), I estimate the non-discretionary component of accruals using cash sales to correct for the possibility that firms might have inflated sales by manipulating credit terms (see Dechow et al., 1995).

Finally, I define Discretionary Long-term Accruals (henceforth DLA) as the difference between Discretionary Total Accruals and Discretionary Current Accruals:

$$\frac{DLA_t}{A_{t-1}} = \frac{DTA_t}{A_{t-1}} - \frac{DCA_t}{A_{t-1}} \qquad \text{— (6)}$$

4.2 Post-SEO performance

I measure post-SEO performance using three net income-based metrics. In the first measurement (henceforth denoted NI1), I calculate annual net income scaled by lagged total assets. This measure, however, may be biased by unobserved industry-specific differences. Hence, I also calculate industry-adjusted net income (henceforth denoted NI2) as the difference between the SEO firms' annual asset-scaled net income and the industry-median asset-scaled net income calculated using all firms in the same 3-digit SIC code as the SEO firm. While this measure controls for industry effects, it does not control for time-varying patterns in profitability such as mean reversion in net incomes. Therefore, I calculate performance-matched net incomes (henceforth NI3) as the difference between the SEO firm's asset-scaled net income and the asset-scaled net income of the firm with the closest asset-scaled net income in the year prior to the SEO. I match issuers by non-issuers in the same three-digit SIC code and by the criterion of total assets. That is, I look for the firms which have the closest absolute total assets within that year. I then use the same three methods to

calculate cash flows. I measure the financial performance of firms conducting SEOs by abnormal returns. I first estimate a market model regression using the market index and a three day estimation period; following Brown & Warner, (1985). Return (*R*), is defined as

$$R_{jt} = \alpha_j + \beta_j R_{mt} + \varepsilon_{jt} \qquad \text{— (7)}$$

R_{jt} is defined as the return on the common stock of the jth firm on day t. R_{mt} is the return of the market index (equally weighted) on day Abnormal return is defined as the difference between actual returns and the one estimated in Equ. (7):

$$AR_{jt} = R_{jt} - (\hat{\alpha}_j + \hat{\beta}_j R_{mt}) \qquad \text{— (8)}$$

Where $\hat{\alpha}_j$ *and* $\hat{\beta}_j$ are ordinary least-square estimates of α_j *and* β_j as estimated in the prior regression. Over a period of trading days beginning with T_1 and ending with T_2, the cumulative average abnormal return is:

$$CAR_{T_1T_2} = 1/N \sum_{j=1}^{N} \sum_{t=T_1}^{T_2} AR_{jt} \qquad \text{— (9)}$$

4.3 Shareholdings of Insiders

I obtain data from the Thompson Financial (TFN insider Filing Data), which contains information on all publicly traded U.S. companies. Corporate insiders are defined by the Act of 1934 as those that having access to non-public, material, insider information. These individuals are required to file SEC forms 3, 4, and 5 when they trade in their company stocks. Form 3 is filed for the initial statement of beneficial ownership (direct or indirect) for all officers. Direct beneficial ownership applies to equity securities held in the insider's name, or in the name of a broker, bank or nominee on behalf of the insider. Indirect ownership occurs when an insider's position creates a reportable pecuniary interest [e.g., securities held in a trust when the insider is a beneficiary (investment partnership) and/or securities held by members of the insider's immediate family sharing the same household]. Form 4 requires a report on the change in an insider's ownership position. Form 5 requires a report on the annual change in beneficial ownership which contains activity for exempt transactions not required to be reported on Form 4.

To analyze the pattern of insider trading of SEO firms, I use the insider purchase ratio used by Piotroski and Roulstone, (2005) and Sawicki, (2005) to measure insider-trading behavior. I calculate the insider purchase ratio (IPR) as follows:

$$IPR_t = \frac{BUY_t}{BUY_t + SELL_t} \qquad \text{— (10)}$$

Where BUY_t and $SELL_t$ are (respectively) the number of shares purchased (sold) in open market transactions by registered insiders of a firm during a given fiscal year relative to the year in which the SEO occurs. I analyze insider trading one year prior to the SEO. I divide the sample into quintiles based on the level of IPR_t, and examine the relative levels of abnormal accruals across groups.

To determine if there is an association between abnormal returns and insider trading and discretionary accruals, I estimate the following regression model.

$$CAR = \alpha_0 + \alpha_1 IPR_{t-1} + \alpha_2 DCA_{t-1} + \varepsilon_t \qquad — \quad (11)$$

where CAR is the cumulative abnormal return, IPR is the insider purchase ratio and DCA is Discretionary Current Accruals.

Chapter 5: Results

5.1: Performance Around SEOs

Since net income is composed of accruals and cash flow from operations; I try to determine which component is responsible for its overall behavior. Accruals can be classified into current adjustments involving short-term assets and liabilities such as accelerating revenue recognition (credit sales) and delaying expense recognition. Long term accruals are adjustments such as depreciation, and loss/gain on disposal of assets. The proxy for earnings management is Discretionary Total Accruals, which is made up of the Discretionary Current and Discretionary Long term component. However managers seem to have greater discretion over current than long term accruals (Guenther, 1994). Hence, following Teoh et al (1998), I analyze the relationship between discretionary current accruals, net income and cash flow from operations. This approach implies that there is a difference between net income, cash flows and discretionary current accruals that equals non-discretionary current and long-term accruals and discretionary current and long-term accruals. To determine which of the four components of accruals is primarily responsible for the profile of net income, I segregate accruals into Discretionary Total Accrual (which is the proxy for earnings management), panel A of table 5 and Nondiscretionary Total Accrual, panel B of table 5.

Following Teoh et al. (1998), I further segregate Discretionary and Nondiscretionary Total Accruals into their current and long term portions. As discussed above, Discretionary Total Accruals (which can be decomposed to DCA and DLA) is the proxy for earnings management.

Table 5 segregates accruals into its components. Both median and mean Discretionary Current Accruals are higher in the years before the SEO than the years after that. Median and mean DCA are 0.048 and 0.362 respectively in year -3 as compared to 0.024 and 0.141 respectively in year 3. Median DCA peaks at 0.057, in year 0 which further supports H1. A close examination of mean DCA from year -1 to year 1 shows that mean DCA peaks at 0.366 in year 0 providing support for H1. The behavior of Discretionary Current Accruals supports the notion of earnings management before SEOs as found by prior studies (see Teoh et al., 1998; Rangan, 1998 and others) and also supports H1.

Discretionary and Non- Discretionary Long Term Accruals are negative and higher in the years after the SEO than in the preceding years. Median Non-Discretionary current accruals peaks in year -1, 0.129; while mean was highest in year -3, 0.16.

Table 5: Discretionary and Non- Discretionary Accruals

Year	-3	-2	-1	0	1	2	3
Panel A : Discretionary Total Accruals							
DCA: Discretionary Current Accruals							
Median	0.048[a]	0.049[a]	0.030[a]	0.057[a]	0.021[a]	0.023[a]	0.024[a]
Mean	0.362[b]	0.399[a]	0.183[c]	0.366[a]	0.076[a]	0.135[a]	0.141[a]
N	575	701	901	1,131	1,074	1,031	942
DLA: Discretionary Long Term Accruals							
Median	-0.048[a]	-0.070[a]	-0.060[a]	-0.061[a]	-0.028[a]	-0.026[a]	-0.029[a]
Mean	-0.532[a]	-0.387[a]	-0.344[a]	-0.413[a]	-0.122[a]	-0.112[a]	-0.140[b]
N	575	701	901	1,131	1,074	1,031	942
Panel B : Non- Discretionary Accruals							
NDCA: Non- Discretionary Current Accruals							
Median	0.0016[a]	0.0008[c]	0.129[c]	0.003[a]	0.032[b]	0.001[a]	0.001[b]
Mean	0.160[c]	0.032[c]	0.0037[a]	0.0028	0.003[a]	0.0003	-0.0001[c]
N	575	701	901	1,131	1,074	1031	942
NDLA :Non- Discretionary Long Term Accruals							
Median	-0.015[a]	-0.013[a]	-0.019[a]	-0.016[a]	-0.008[a]	-0.012[a]	-0.009[a]
Mean	-0.286[a]	-0.230[a]	-0.265[a]	-0.106[c]	-0.033[a]	-0.073	-0.065[a]
N	575	701	901	1,131	1,074	1,031	942

[a] represents statistical significance level 1% for t-test for means and Wilcoxson p-value for median.

[b] represents statistical significance level 5% for t-test for means and Wilcoxson p-value for median.

[c] represents statistical significance level 10% for t-test for means and Wilcoxson p-value for median.

Table 6 presents the patterns of net income, NI1, NI2, and NI3 for the seven year window around the SEO year. The mean NI, mean and median NI2, and mean NI3 support hypothesis H2. Consistent with prior studies, (e.g., Teoh et al. 1998), I find that median net income (NI1) ("raw" or unadjusted Net Income) increases from 0.004 in year -3 and peaks at 0.02 in year 0 and decreases thereafter. This provides support for H2b.

Mean NI1 increases from 0.322 in year -2 to 0.333 in year –1, declines slightly to 0.200 in year 0 and increases to 0.298 in year 3 which provides support for H2a. Median industry-adjusted Net Income, NI2 peaks at 0.035 in year -1. This supports H2a. Mean NI2 decreases from 0.641 in year -3 to 0.272 in year 0, increases in year 2 and decreases to 0.345 in year 3. Median performance matched Net Income, NI3, peaks in year-2, at 0.007 while mean NI3 peaks in year -1, at 0.783, which provides support for H2b. NI3 however declines and increases again at year 3. The median NI3 conflicts with the other findings, since it shows positive earnings management in every year besides years -1 and 0. However, the statistics at year 0 is not significant, which suggests that the negative income in this year is not reliable.

Table 6: Raw, Industry-Adjusted and Performance- Matched Net Income

Year	-3	-2	-1	0	1	2	3
NI1: raw or unadjusted net income							
Median	0.004[a]	0.008[a]	0.013[a]	0.020[a]	0.013[a]	0.011[a]	0.013[a]
Mean	0.463[a]	0.322[a]	0.333[a]	0.200[a]	0.253[a]	0.276[a]	0.298[a]
N	811	1036	1440	1552	1437	1335	1237
NI2: industry-adjusted Net Income							
Median	0.034	0.018[a]	0.035[a]	0.019[a]	0.023[a]	0.021[a]	0.013[a]
Mean	0.641[a]	0.417[a]	0.407[a]	0.272[a]	0.311[a]	0.381[a]	0.345[a]
N	811	1036	1440	1552	1437	1335	1237
NI3: performance matched Net Income							
Median	0.003[a]	0.007[a]	-.002[a]	-0.016	0.002[a]	0.005[a]	0.004[a]
Mean	-1.863	-0.417	0.783	0.187	-1.336	0.756[c]	2.261
N	811	1036	1440	1552	1437	1335	1237

[a] represents statistical significance level 1% for t-test for means and Wilcoxson p-value for median.
[b] represents statistical significance level 5% for t-test for means and Wilcoxson p-value for median.
[c] represents statistical significance level 10% for t-test for means and Wilcoxson p-value for median.

Table 7 presents the cash flows from operations over the seven-year window around the SEO event. All statistics indicate higher cash flows from operations in the year preceding the SEO event, a decrease in the SEO year, and increase thereafter. The median CF1 increases from 0.02 in year -3 to 0.028 in year -1 declines to 0.023 in year 0 and increases to 0.042 in year 3. Mean CF1 declines from 1.4 in year -3 to 0.508 in year 0 and then increases again to 0.835 in year 2 and then declines to 0.695 in year 3. Unlike median NI1, median CF1 was higher in the years after the SEO than the years before, which reflects the infusion of cash in the wake of SEO. Median CF2 is lowest at 0.016 in year 0. Mean CF2 declines from 1.44 in year -3 to 0.487 in year 0, increases and declines to 0.655 in year 3. Median and mean CF3 also decreases till year 0, (-0.009) 0.356 and increases after that.

Table 7: The Raw, Industry-adjusted and Performance-Matched Cash Flows from Operations

Year	-3	-2	-1	0	1	2	3
CF1: raw or unadjusted cash flow							
Median	0.020[a]	0.022[a]	0.028[a]	0.023[a]	0.028[a]	0.034[a]	0.042[a]
Mean	1.400[a]	0.951[a]	0.852[a]	0.508[a]	0.778[a]	0.835[a]	0.695[a]
N	811	1036	1440	1552	1437	1335	1237
CF2: industry-adjusted cash flow							
Median	0.062[a]	0.039[a]	0.044[a]	0.016[a]	0.028[a]	0.041[a]	0.035[a]
Mean	1.442[a]	1.022[a]	0.836[a]	0.487[a]	0.768[a]	0.807[a]	0.655[a]
N	811	1036	1440	1552	1437	1335	1237
CF3: performance-matched cash flow							
Median	0.012[a]	0.017[a]	0.002[a]	-0.009[c]	0.011[a]	0.011[a]	0.008[a]
Mean	1.220[a]	0.971[a]	0.567[a]	0.356[a]	0.821[a]	0.699[a]	0.891[a]
N	811	1,036	1,440	1,552	1,437	1,335	1,237

[a] represents statistical significance level 1% for t-test for means and Wilcoxson p-value for median.
[b] represents statistical significance level 5% for t-test for means and Wilcoxson p-value for median.
[c] represents statistical significance level 10% for t-test for means and Wilcoxson p-value for median.

Figure 2 presents a pictorial representation of the pattern of median raw net income (NI1), cash flows from operations (CF1) and Discretionary Current Accruals in the seven-year period that starts three years before the SEO and ends the three years afterwards. Net income peaks in year 0 and this may be due to the fact that firms are aware of the market scrutiny post SEO event. Discretionary Current Accruals are higher in the years before the SEO than after that. Cash flows from operations are higher in the years after the SEO than in

the preceding year. Discretionary Current Accruals and cash flow from operations behaving in an opposite fashion provides support for the presence of earnings management before SEOs, as found in prior studies (Rangan, 1998; Teoh et al., 1998 and others).

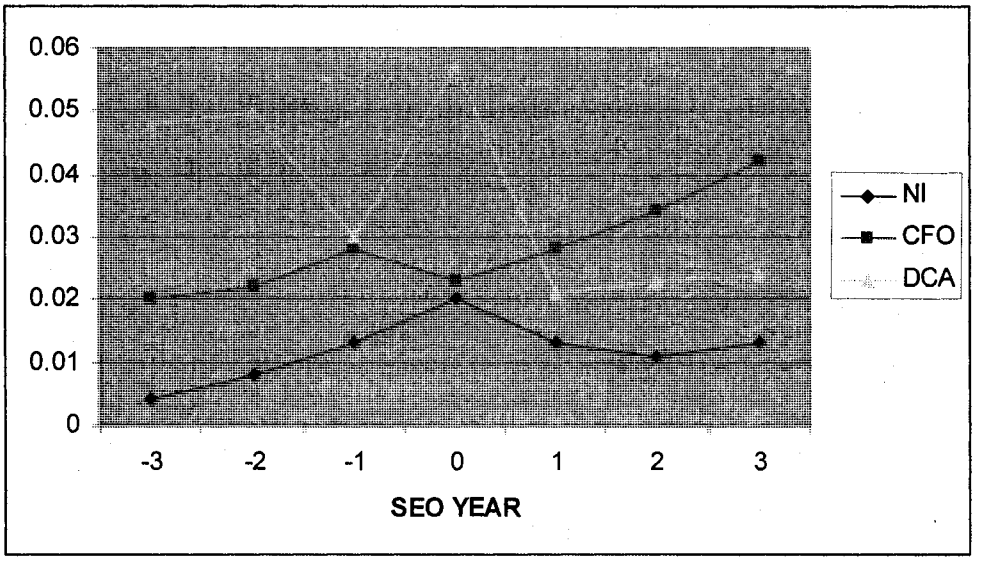

Figure 2: Median Raw Net income (NI1), cash flow from operations (CF1) and Discretionary Current Accruals (DCA)

Table 8 presents accruals before and after the enactment of the SOX. Both the mean and the median Discretionary Current Accruals are significantly higher in the period before the enactment of the Sarbanes-Oxley Act (SOX) than the period afterwards 0.050 and 0.306 respectively, as compared to 0.01, and -0.194, respectively. These results support H3.

The SOX has been effective in decreasing earnings management. Long-term discretionary accruals are also lower post SOX. Discretionary and Non-Discretionary Long term accruals are negative while mean Non- Discretionary current accruals are slightly lower pre SOX than post. Median Non- Discretionary current accruals are higher pre SOX than post.

Table 8: Accruals before and after the SOX

Period	01/01/87 to 06/30/01	07/01/01 to 06/30/06
Panel A : Discretionary Total Accruals		
DCA : Discretionary Current Accruals		
Median	0.050[a]	0.011
Mean	0.309[b]	-0.194 [b]
N	681	226
DLA: Discretionary Long Term Accruals		
Median	-0.094[a]	-0.0154[a]
Mean	-0.433[a]	-0.0774
N	681	226
Panel B : Non- Discretionary Accruals		
NDCA: Non- Discretionary Current Accruals		
Median	0.005[a]	0.001
Mean	0.120	0.154
N	681	226
NDLA :Non- Discretionary Long Term Accruals		
Median	-0.020[a]	-0.0158[a]
Mean	-0.278[a]	-0.226 [a]
N	681	226

[a] represents statistical significance level 1% for t-test for means and Wilcoxson p-value for median.

[b] represents statistical significance level 5% for t-test for means and Wilcoxson p-value for median.

[c] represents statistical significance level 10% for t-test for means and Wilcoxson p-value for median.

Table 9 presents accruals within sub-periods. Following Bartov and Cohen (2007), I divide my sample into four sub-periods. My first one, from 1987 to 1993, is the early pre-accounting scandal period. My second, from 1994 to 2001, is the late pre-accounting scandal period. Bartov and Cohen divide their scandal period into two because of the anecdotal evidence found of the increase in analyst estimates as a benchmark for firm performance. To find out if discretionary accruals are affected by analysts estimates I follow their sub- division. My third, from July 2001 to June 2002 is known as the accounting scandals period (see Cohen, Dey, & Lys, 2005); and my last period is post-SOX, from July 2002 to June 2006. I find that median DCA is significantly highest in my second sub-period; accounting scandals period (0.094) and significantly lowest post SOX (0.02). Mean DCA is significantly highest (0.426) in my first sub-period and lowest post SOX (-0.194). This provides further evidence for H3. Discretionary and Non-discretionary Long Term Accruals are mostly negative; while median Non-Discretionary Current Accruals is highest in the first period and lowest post SOX. Mean Non-Discretionary Current Accruals is highest in the first sub-period and lowest in the third period.

Table 9: Accruals within sub-periods

Year	01/01/87 to 12/31/93	01/01/94 to 06/30/01	07/01/01 to 06/30/02	07/01/02 to 12/31/06
Panel A : Discretionary Total Accruals				
DCA : Discretionary Current Accruals				
Median	0.067[a]	0.094[a]	0.0015[c]	0.010[b]
Mean	0.426[c]	0.287[c]	0.0011	-0.194
N	182	431	68	226
DLA: Discretionary Long Term Accruals				
Median	-0.158[a]	-0.09778[a]	-0.0156[a]	-0.015[a]
Mean	-0.7077[a]	-0.3606[a]	-0.1602[c]	-0.077
N	182	431	68	226
Panel B : Non- Discretionary Accruals				
NDCA: Non- Discretionary Current Accruals				
Median	0.007[a]	0.005[a]	0.0011	0.0011
Mean	0.3047[c]	0.0641	-0.016	0.154
N	182	431	68	226
NDLA :Non- Discretionary Long Term Accruals				
Median	-0.0047[a]	-0.038[a]	-0.0074[a]	-0.0158[a]
Mean	-0.229[c]	-0.330[a]	-0.0786[c]	-0.2269
N	182	431	68	226

[a] represents statistical significance level 1% for t-test for means and Wilcoxson p-value for median.
[b] represents statistical significance level 5% for t-test for means and Wilcoxson p-value for median.
[c] represents statistical significance level 10% for t-test for means and Wilcoxson p-value for median.

Table 10 presents the relationship between earnings management and insider trading. Quintiles 1 and 2 include SEO firms with high IPR ratio, which represents the majority of the "sales" group; quintiles 4 and 5 include firms with low IPR ratio, which is the majority of the "purchases" group, while quintile 3 is neutral.

The "sales" group exhibits income increasing accruals before the SEO year and decreasing accruals during and after the SEO's year. The firms in the "purchases" group exhibit income increasing accruals throughout. This provides partial support for H4 because even though firms in the "purchases" group increase earnings by DCA of 0.036, before the SEO, still the DCA is smaller than that of the "sales" group of 0.108.

Table 10: DCA by portfolios of Insider purchases and sales

Quintiles	Variable	N	Mean	Std. Dev.
1	DCA_{t-1}	30	0.036	1.982
	DCA_t	60	-0.026	1.755
	DCA_{t+1}	60	-0.017	0.577
2	DCA_{t-1}	44	0.373	1.196
	DCA_t	62	0.165	2.009
	DCA_{t+1}	62	0.076	0.344
3	DCA_{t-1}	51	0.241	1.357
	DCA_t	62	0.504	1.839
	DCA_{t+1}	57	0.058	0.604
4	DCA_{t-1}	54	0.245	1.491
	DCA_t	60	-0.284	3.373
	DCA_{t+1}	56	0.113	0.353
5	DCA_{t-1}	54	0.108	1.259
	DCA_t	62	0.103	2.046
	DCA_{t+1}	62	0.141	0.315

DCA_{t-1} Discretionary Current accruals in the year before the SEO
DCA_t Discretionary Current accruals in the year of the SEO
DCA_{t+1} Discretionary Current accruals in the year after the SEO
Quintile 1 and 2 represents the "sales" group
Quintiles 4 and 5 represents "purchases" group

An examination of the dynamic behavior of sales and purchases of insider trading in the years surrounding the SEO year, indicates that most trades falls between two groups; firms whose insiders purchase in year -1, 0, 1, and firms whose insiders sell in these years. Table 11 presents accruals in years -1, 0, and +1 for the two groups. In what follows, I refer to firms whose insiders only purchase in all three years as PPP and to firms whose insiders only sell in all years as SSS.

Panel A of table 11 shows that when insider trades are all purchases, there is income increasing accruals in all the years around the SEO. The managed accruals are higher in the year before the SEO than during and after the SEO. This is an indication of insider's buying under valued firms.

Panel B of table 11 presents insider trades all being sales. There is income increasing accruals in the year before, during, and after the SEO year. The greater income increasing accrual in the year before the SEO as compared to the other years is consistent with insiders inflating earnings before they sell to obtain greater profits.

Table 11: Accruals of Firms Whose Insiders Purchase and Sell shares in Years 1,0 and -1

Panel A : DCA of Insiders Purchase					
Variable	N	Mean	STD	Min	Max
DCA_{t-1}	44	0.289	1.225	-3.041	4.801
DCA_t	44	0.043	2.347	-13.903	4.923
DCA_{t+1}	44	0.161	0.364	-0.324	1.911
Panel B: DCA of Insiders sells					
DCA_{t-1}	181	0.237	1.468	-8.227	6.797
DCA_t	246	0.098	2.327	-17.128	10.966
DCA_{t+1}	236	0.060	0.485	-3.980	2.163

DCA_{t-1} =Discretionary current accruals in the year preceding the SEOs year
DCA_t =Discretionary current accruals in the year of the SEO
DCA_{t+1} =Discretionary current accruals in the year following the SEO's year

5.2: High versus low book-to-market firms

Given the information asymmetry between firms and investors at the time of an SEO, the market is likely to take into account firm's type when it discounts some of its earnings. Insiders of each firm have superior information on the quality of their SEO. One expects that firm's type: high- vis-à-vis low-growth firm will affect both insider trading behavior and earnings management practice. (Rozeff & Zaman, 1998; Piotroski & Roulstone, 2005 and LaPorta et al. 1987)

I divide the sample into quartiles based on book to market ratio and examine the relative levels of abnormal accruals across groups.

Table 12 presents the firms with high and low book to market ratio. Quartile 1 and 2 presents firms with low book to market ratio (glamour firms) while quartile 3 and 4 shows firms with high book to market ratios (value firms).

The results for value firms provide partial support for H5 and exhibits the contrarian pattern of behavior and in addition is consistent with Sawicki (2005) who found similar pattern of behavior for firms in general (not SEO firms) .

Table 12: Discretionary Accruals for High versus Low Book to Market Firms

Quartile	Variable	N	Mean	Std. Dev.
1	DCA_{t-1}	64	0.228	2.310
	DCA_t	75	0.081	3.447
	DCA_{t+1}	65	0.117	0.389
2	DCA_{t-1}	48	0.331	1.104
	DCA_t	73	0.416	1.521
	DCA_{t+1}	72	0.106	0.382
3	DCA_{t-1}	58	0.264	1.123
	DCA_t	80	-0.021	1.455
	DCA_{t+1}	83	-0.057	0.577
4	DCA_{t-1}	63	0.051	0.259
	DCA_t	78	-0.070	2.155
	DCA_{t+1}	77	0.151	0.392

DCA_{t-1} Discretionary current accruals in the year before the SEO
DCA_t Discretionary current accruals in the year of the SEO
DCA_{t+1} Discretionary current accruals in the year after the SEO
Quartile 1 and 2 presents firms with low book to market (glamour) ratio while 3 and 4 shows firms with high book to market (value) ratios.

5.3: Market's Response

To determine the reaction of the market when there is insider trading and earnings management, I perform the following regression analysis. The sample of firms with sufficient data for analysis is 230. Table 13 presents the results of a regression analysis of CAR for three days (dependent variable) on independent variables of insider purchase ratio (one year prior to the SEO event) and discretionary current accruals for the year preceding the SEO. The results suggest that there is a significant negative association between abnormal returns and IPR. This shows that the market is engaging in contrarian behavior and reacts negatively to insider trading. No association, however, is found between abnormal returns and the discretionary current accruals for the year before the SEO. H6 is not supported, however H7 is supported.

Table 13: Regression for the Market Returns to Insider Trading and Discretionary Current Accruals for the Full Sample in the Year before the SEO

$$CAR_3 = \alpha_0 + \alpha_1 IPR_{t-1} + \alpha_2 DCA_{t-1} + \varepsilon_t$$

Regression analysis of cumulative abnormal returns for three days; dependent variable on independent variables of insider purchase ratio (a year prior to the SEO event) and discretionary accruals in the year before the SEO.

Dependent variable CAR_3				
Independent Variable	α	Standard error	t-value	p value
Intercept	-0.044	0.120	-0.37	0.712
IPR	-0.505	0.271	-1.86	0.064
DCA_{t-1}	-0.078	0.070	-1.12	0.264
N = 230 R^2 = 0.0193 Adj R^2= 0.0107				

IPR= the Insider Purchase Ratio
DTA_{t-1} = Discretionary total accruals in the year of the SEO
CAR_3 = Cumulative abnormal return (three days)

Chapter 6: Robustness Checks

6.1: Earnings Management

My first test strictly replicates Teoh et al's method. That is, a firm that did not have data for the seven-year window is included in the sample. As the number of firms per year indicates, in any other year besides year 0, the number of firms is smaller than the 1,555 observations for the full sample. Some firms are lost from year to year because of missing data, when calculating net income, cash flow and discretionary current accruals (similar to Teoh et al. Table 2 and 3). For a better comparison, I focus on firms that have enough information to calculate net income, cash flows, and discretionary current accruals in all seven years.

Tables 14, 15 and 16 presents the performance of firms that have seven-year data for accruals, net income and cash flows. Median DCA declines from year -3 to year -2 increases to 0.105 in year -1 and declines to 0.067 in year 0. It then increases, declines and increases slightly to 0.018 in year 3. Mean DCA peaks at 0.52 in year 0, and then and declines to 0.091 in year 3. This provides further support for H2b that firms manage earnings in the SEO year. Medain and mean DLA are negative. They are -0.077 and -0.408 respectively in year 0.

Median NDCA is mostly 0.003 and decreases to 0.001 in year 2 and 3. Mean NDCA however peaks at 0.189 in year -1. Median and mean NDLA are negative. Medain and mean NDLA are -0.067 (-0.010).

Table 14: Discretionary Accruals for Firms with all seven-year data

Year	-3	-2	-1	0	1	2	3
Panel A : Discretionary Accruals							
DCA: Discretionary Current Accruals							
Median	0.130[a]	0.090[a]	0.105[a]	0.067[a]	0.125[a]	0.017[a]	0.018[a]
Mean	0.464[c]	0.445[a]	0.283	0.520[b]	0.040[a]	0.107[a]	0.091[a]
N	197	197	197	197	197	197	197
DLA : Discretionary Long Term Accruals							
Median	-0.122	-0.172[a]	-0.166[a]	-0.077[a]	-0.053[a]	-0.027[a]	-0.028[a]
Mean	-0.537[b]	-0.567[a]	-0.409[a]	-0.408[a]	-0.174[a]	-0.116[a]	-0.113[c]
N	197	197	197	197	197	197	197
Panel B : Non- Discretionary Accruals							
NDCA : Non- Discretionary Current Accruals							
Median	0.003[a]	0.002[b]	0.003[a]	0.003[a]	0.002[a]	0.001[b]	0.001[c]
Mean	0.184[c]	0.103[c]	0.189	-0.055	0.032	0.020[c]	0.010
N	197	197	197	197	197	197	197
NDLA : Non- Discretionary Long Term Accruals							
Median	-0.013[a]	-0.007[a]	-0.012[a]	-0.067	-0.009[a]	-0.005[b]	-0.006[a]
Mean	-0.383[a]	-0.138[a]	-0.195[c]	-0.010[a]	-0.030[c]	-0.053[b]	-0.042[c]
N	197	197	197	197	197	197	197

[a] represents statistical significance level 1% for t-test for means and Wilcoxson p-value for median.

[b] represents statistical significance level 5% for t-test for means and Wilcoxson p-value for median.

[c] represents statistical significance level 10% for t-test for means and Wilcoxson p-value for median.

Table 15 presents net income within all the seven years. I find that median net income (NI1) peaks at 0.026 in year 0, which supports H2b. Mean NI1 in contrast, fluctuates, but the trend seems to be declining over time. Median net industry-adjusted income (NI2) is highest at year 1, 0.063. However a close look at the years surrounding the SEO shows that NI2 peaks in year -1, 0.32 providing further support for H2a.

Mean NI2 declines to 0.296 in year 0, rises slightly in year 1 and 2 and declines in year 3. While median NI3 fluctuates, mean NI3 rises up to 5.577 in year 0, declines after that and rises again in year 3, 8.133. The mean N1, the median and mean NI2, and median NI3 provide additional support for H2a, while mean N1 also provides additional support H2b.

Table 15: Net Income of Firms with all Seven- Year data

Year	-3	-2	-1	0	1	2	3
NI1: raw or unadjusted net income							
Median	0.005 [a]	0.011 [a]	0.015 [a]	0.026 [a]	0.015 [a]	0.006 [c]	0.012 [a]
Mean	0.502 [a]	0.521 [a]	0.378 [a]	0.265 [a]	0.352 [a]	0.252 [b]	0.274 [a]
N	266	266	266	266	266	266	266
NI2: industry-adjusted Net Income							
Median	0.022 [b]	0.020 [a]	0.032 [a]	0.014 [b]	0.063 [a]	0.041 [a]	0.025 [a]
Mean	0.635 [a]	0.576 [a]	0.436 [a]	0.296 [a]	0.393 [a]	0.416 [a]	0.315 [a]
N	266	266	266	266	266	266	266
NI3: performance-matched Net Income							
Median	-0.005	0.002 [c]	0.001	-0.013	0.010 [b]	0.027 [a]	0.019
Mean	-0.120	-1.876	1.700 [c]	5.577	0.537	1.172 [c]	8.133 [a]
N	266	266	266	266	266	266	266

[a] represents statistical significance level 1% for t-test for means and Wilcoxson p-value for median.
[b] represents statistical significance level 5% for t-test for means and Wilcoxson p-value for median.
[c] represents statistical significance level 10% for t-test for means and Wilcoxson p-value for median.

Median cash flows from operations CF1 increases from year -3 to year -1 declines to 0.027 in year 0 and peaks at 0.058 in year 2 then declines slightly in year 3. Mean CF1 declines from year -3 to 0.624 in year 0, increases in year 1 and 2 and declines again in year 3. Median CF2 increases to 0.046 in year -1

declines in year 0 increases up to 0.095 in year 3. Performance-matched median cash flows, CF3, remains the same in year -3 and -2 declines to -0.013 in year 0 and increases in year 1 and fluctuates afterwards. Mean CF3 declines to 0.482 in year 0 and then increases in year 1, declines and increases again in year 3. The measures of cash flows show a decline in cash flows from year -1 to year 0 and then an increase thereafter. These results may be due to the fact that firms delay directing the cash proceeds to operating capital or that they divert cash flows from internal resources and the SEO proceeds to investment activities.

Table 16: Cash Flow from Operations for Firms with all Seven-Year Data.

Year	-3	-2	-1	0	1	2	3
CF1: raw or unadjusted cash flow							
Median	0.013[a]	0.026[a]	0.033[a]	0.027[a]	0.029[a]	0.058[a]	0.053[a]
Mean	1.344[a]	1.048[a]	0.944[a]	0.620[a]	0.921[a]	0.945[a]	0.799[a]
N	266	266	266	266	266	266	266
CF2: industry-adjusted cash flow							
Median	0.029[a]	0.028[a]	0.046[a]	0.016[a]	0.041[a]	0.087[a]	0.095[a]
Mean	1.387[a]	1.051[a]	0.932[a]	0.595[a]	0.877[a]	0.930[a]	0.766[a]
N	266	266	266	266	266	266	266
CF3: performance-matched cash flow							
Median	0.010[a]	0.010[a]	-0.010	-0.013	0.043[a]	0.027[a]	0.035[a]
Mean	1.257[a]	0.975[a]	0.808[a]	0.482[b]	1.139[a]	0.970[a]	1.114[a]
N	266	266	266	266	266	266	266

[a] represents statistical significance level 1% for t-test for means and Wilcoxson p-value for median.
[b] represents statistical significance level 5% for t-test for means and Wilcoxson p-value for median.
[c] represents statistical significance level 10% for t-test for means and Wilcoxson p-value for median.

Figure 3 presents median net income, cash flow from operations, and discretionary current accruals for firms with all seven-year data. Discretionary Current Accruals are higher in the pre-SEO years than after that; they peak in year 1. Around the SEO years they are highest in year -1. Net income peaks in year 0, which supports H2b. Cash flow from operations is higher in the years preceding the SEO than in the following years. These finding provide further support for earnings management before SEOs and also provides support for H1 and H2a.

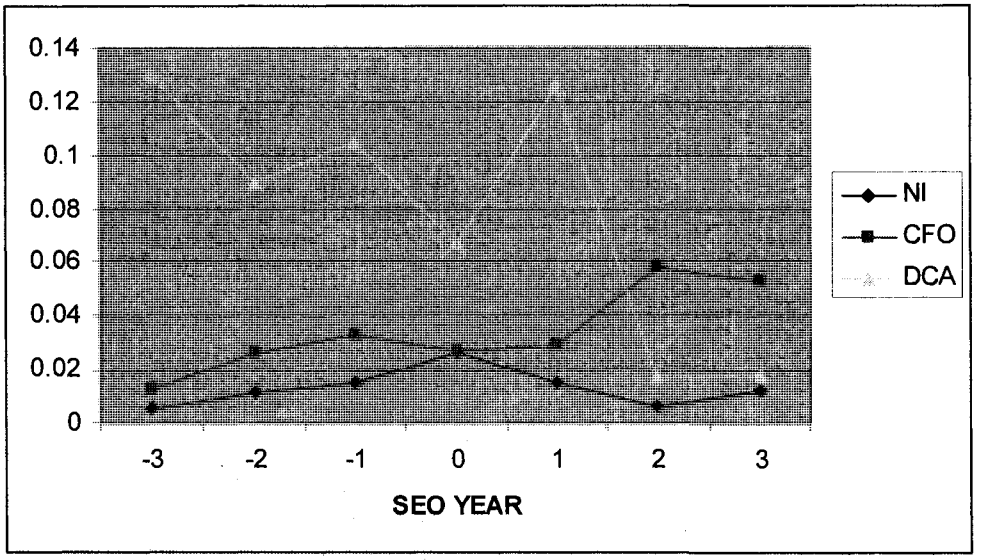

Figure 3: Median Net Income, Cash Flows from Operations and Discretionary Current Accruals

6.2: Market Response

Table 17 shows the regression results for three-day CAR and the sub periods with and without Discretionary Current Accruals. Insider purchase ratio is negatively associated with CAR. No association is found between CAR and the various sub-periods. H7 is not supported. Evidence is not found to support the fact that the Sarbanes-Oxley Act of 2003 (SOX), may be sensitive to CAR.

Table 17: Regression of the three day CAR to "sub periods" with and without Discretionary Current Accruals and Insider Purchase Ratio.

$$CAR_{b3} = \alpha_0 + \alpha_1 DCA_{t-1} + \alpha_2 D9401 + \alpha_3 D0102 + \alpha_4 D0206 + \alpha_5 Dum9401 + \alpha_6 Dum0102 + \alpha_7 Dum0206 + \alpha_8 IPR_{t-1} + \varepsilon_t$$

Dependent variable CAR				
Independent Variable	α	Standard error	t-Value	Pr > |t|
Intercept	-0.016	0.200	-0.08	0.936
D9401	-0.135	0.229	-0.59	0.557
D0102	0.497	0.390	1.27	0.204
D0206	0.021	0.279	0.08	0.938
Dum9401	-0.316	0.168	-1.88	0.061
Dum0102	-0.471	0.530	-0.89	0.374
Dum0206	-0.296	0.257	-1.15	0.249
IPR	-0.505	0.272	-1.85	0.065
DCA_{t-1}	0.170	0.142	1.20	0.232
N = 230		R^2 = 0.0508	Adj R^2=0.0165	

Intercept = Sub- period 1987 to 1994
D9401= Sub- period 1994 to 2001
D0102 = Sub- period 2001 to 2002
D0206 = Sub- period 2002 to 2006
Dum9401= Sub- period 1994 to 2001 X DCA_{t-1}
Dum0102 = Sub- period 2001 to 2002 X DCA_{t-1}
Dum0206 = Sub- period 2002 to 2006 X DCA_{t-1}

Table 18 presents the regression of three-day CAR on Discretionary Current Accruals and insider purchase ratio in the sub periods. There is a negative association between CAR and insider purchases ratio. No association is found between CAR and insider trading in any of the sub-period from 1987 to 2006. These results do not support H8.

Table 18: Regression of three-day CAR on Discretionary Current Accruals and Insider Purchase Ratio in the sub periods.

$$CAR_3 = \alpha_0 + \alpha_1 D9401 + \alpha_2 D0102 + \alpha_3 D0206 + \alpha_4 IPR + DCA_t + \varepsilon_t$$

Dependent variable CAR_3				
Independent Variable	α	Standard error	t-value	Pr > |t|
Intercept	0.012	0.200	0.06	0.954
D9401	-0.205	0.227	-0.90	0.367
D0102	0.402	0.367	1.10	0.275
D0206	-0.010	0.278	-0.04	0.971
IPR	-0.470	0.271	-1.73	0.085
DCA_{t-1}	-0.068	0.071	-0.97	0.334
N = 230 R^2 = 0.0343 Adj R^2= 0.0127				

Intercept = Sub- period 1987 to 1994
D9401= Sub- period 1994 to 2001
D0102 = Sub- period 2001 to 2002
D0206 = Sub- period 2002 to 2006

Table 19 shows the regression results for three-day CAR in the sub periods, with and without Discretionary Current Accruals. Insider purchase ratio is negatively associated with CAR. No association is found between CAR and the

various sub-periods. H8 is not supported. No evidence is found to support the fact that the Sarbanes-Oxley Act of 2003 (SOX) may be sensitive to CAR.

Table 19: Regression of three-day CAR on Discretionary Current Accruals and Insider Purchase Ratio in the "sub periods".

$$CAR_3 = \alpha_0 + \alpha_1 DCA_t + \alpha_2 Dum9401 + \alpha_3 Dum0102 + \alpha_4 Dum0206 + \alpha_5 IPR + \varepsilon_t$$

Dependent variable CAR_3				
Independent Variable	α	Standard error	t Value	Pr > |t|
Intercept	-0.027	0.120	-0.22	0.824
Dum9401	-0.340	0.166	-2.06	0.041
Dum0102	-0.173	0.493	-0.35	0.726
Dum0206	-0.304	0.256	-1.19	0.236
IPR	-0.54678	0.27122	-2.02	0.045
DCA_{t-1}	0.173	0.141	1.22	0.223
N = 230	R^2 = 0.0378		Adj R^2= 0.0164	

Intercept = Sub- period 1987 to 1994 X DCA_{t-1}
Dum9401= Sub- period 1994 to 2001 X DCA_{t-1}
Dum0102 = Sub- period 2001 to 2002 X DCA_{t-1}
Dum0206 = Sub- period 2002 to 2006 X DCA_{t-1}
IPR = Insider purchase ratio
DCA_{t-1} = Discretionary current accruals

Table 20 presents the results for the regression of the three-day CAR on sub periods with Discretionary Current Accruals. The first sub- periods is negatively associated with CAR. No association is found between CAR and the other sub-periods.

H8 is partially supported. Evidence is partially found to support the fact that the Sarbanes-Oxley Act of 2003 (SOX), may have caused a change in earnings management.

Table 20: Regression of the three days-CAR to "sub periods" with Discretionary Current Accruals .

$$CAR_3 = \alpha_0 + \alpha_1 DCA_{t-1} + \alpha_2 Dum9401 + \alpha_3 Dum0102 + \alpha_4 Dum0206 + \varepsilon_t$$

Dependent variable CAR_3				
Independent Variable	α	Standard error	t Value	Pr > |t|
Intercept	-0.181	0.094	-1.92	0.056
Dum9401	-0.314	0.166	-1.89	0.060
Dum0102	-0.174	0.496	-0.35	0.727
Dum0206	-0.294	0.258	-1.14	0.254
DCA_{t-1}	0.163	0.142	1.15	0.251
N = 230	R^2 = 0.0204		Adj R^2= 0.003	

Intercept = Sub- period 1987 to 1994 X DCA_{t-1}
Dum9401= Sub- period 1994 to 2001 X DCA_{t-1}
Dum0102 = Sub- period 2001 to 2002 X DCA_{t-1}
Dum0206 = Sub- period 2002 to 2006 X DCA_{t-1}
DCA_{t-1} = Discretionary Current Accruals

6.3: Insider trading cohorts

Following Agrawal and Cooper (2007), I segregate insiders according to cohorts, where top management category includes Chairmen, Chief executive Officers (CEO), Chief Operating Officers (COO), and Presidents.

Top financial officers are the Chief financial Officers (CFO), Controllers, and Treasurers. The category of all officers include the corporate officers, top management, principal financial officers, principal accounting officers, vice presidents in charge of principal business units, divisions or functions, and other persons who perform a policy making function. All directors include members of the companies' boards. Blockholders are beneficial owners holding at least 10% of the company's outstanding equity. Insiders are segregated into cohorts to find out if the identity of the insider has an effect on their trading patterns, which, consequently influences abnormal returns. Furthermore, since not all the insider groups are equally knowledgeable about earnings manipulation, this segregation might throw light on the differences in trading pattern and the consequent cumulative abnormal returns.

The results for directors in Table 21 provide evidence that there is an association between cumulative abnormal returns for the three-day window surrounding the SEO announcement and IPR. This provides partial support for H9 which states that CARs' relationship to earnings management and insider trading around an SEO is sensitive to the identity of the insider.

Table 21: Regression for the market returns to insider trading and discretionary current accruals by directors in the year before the SEO

$$CAR_{d3} = \alpha_0 + \alpha_1 IPR_{t-1} + \alpha_2 DCA_{t-1} + \varepsilon_t$$

Dependent variable CAR_{d3}				
Independent Variable	α	Standard error	t- value	p value
Intercept	0.139	0.245	0.57	0.5709
IPR	-1.440	0.502	-2.87	0.0055
DCA_{t-1}	-0.098	0.190	-0.51	0.6095
N = 68	R^2 = 0.1128	Adj R^2= 0.0855		

IPR is the Insider Purchase Ratio
DCA_{t-1} Discretionary total accruals in the year of the SEO
CAR_{d3} = Cumulative abnormal return in a three-day window around the SEO event for directors

None of the other cohorts showed an association between CAR and IPR or DCA. This might be due to the small sample size. Allofficers had a sample of 27, while the other cohorts had sample sizes of less than 15.

Chapter 7: Conclusion

I study earnings management and insider trading in a sample of 1,555 non-financial, non-utility firms that conducted SEOs in the 1987-2005 periods. I answer three research questions: first, do firms manage earnings in this period? How do insider trading and earnings management behave in firms that conduct SEO? And what is the market reaction to insider trading and earnings management?

To answer my first research question about the continued existence of earnings management around SEOs, I replicate the test of Teoh et al. (1998) using a current version of earnings management model. The new tests reveal that median net income peaks in the year of the SEO, while mean net income peaks in the year before the SEO. Consistent with a dynamic perspective of Teoh et al., I study discretionary current accruals in the three years before and three years after the SEO. When I replicate the Teoh et al. methodology, I find both mean and median discretionary current accruals peaks in the SEO year. Cash flow from operations (CF1) is higher in the years after the SEO than before the SEO. This pattern is also confirmed when I restrict the test to firms with observations in all seven years (years -3,-2,-1,0,1,2,3 where year 0 is the SEO year). These results confirm prior studies such as Teoh et al. (1998), Rangan (1998), Kim and Park (2005), and others, who find earnings management around SEOs.

Since the insider trading literature established that insider trading is a signal of superior insiders' private knowledge (e.g. Seyhun, 1986, 2000); I am of the opinion that insider's behavior can provide a valuable signal as to the intentions of management. Therefore to answer my second research question I examine insider trading around SEOs. My results presents that most firms with insider trading fall into one of two categories: their insiders either sell or purchase shares in each year: before, during, and after the SEO year's event.

The "purchase" group exhibits income increasing accruals in all the years around the SEO. The insider trading pattern by the "purchase" group before the SEO is consistent with Sawicki (2005) who find insiders to exhibit contrarian pattern of trading. In the "sell" group, there is income increasing accruals in the year before, during, and after the SEO year. The greater income increasing accrual in the year before the SEO as compared to the other years shows that insiders inflate earnings before they sell to obtain greater profits because of their superior knowledge. The pattern that the "sell" group exhibits of income manipulation upwards before the SEO is consistent with Beneish and Vargus (2002).

Following the insider-trading literature, I argue that firms with high book to market ratio-value firms, have incentives to hoard earnings to appear as stable performers before the SEO year in contrast to firms with low book to market-glamour, or growth firms.

I find that glamour firms exhibit income increasing accruals in the year before, of and after the SEO. While value firms exhibit income increasing accruals in the year before and after the SEO and income decreasing accruals in the year of the SEO. The results for the value firms is partly consistent with Sawicki (2005) who find downward (upward) earnings management for glamour (value) for the years around the SEO.

If the market is efficient as established by Fama (1980), then the market must respond to signals given by insiders and earnings. The tests for my third research question indicate a negative association between cumulative abnormal returns (CAR) and insider trading for my full sample and also by directors. To some extent, this result also supports the first question in that it shows that the market did not learn from earnings management and is affected by it. I find that SOX influence earnings management because median Discretionary Current Accruals is greater pre-SOX than post-SOX.

To the best of my knowledge my study is the first study to link earnings management and insider trading around the SOX for firms that undertake SEO. I find that the signals of insider trading and earnings management are understood by the market, as evidenced by the negative association between CAR and IPR for the full sample and directors. Overall, this study shows that the market did not learn from prior SEOs and that earnings management around SEO still exists.

Furthermore insider trading is a valuable signal that distinguishes between firms that boost earnings too much and others. I find evidence to support the fact that SOX influences the markets earnings manipulation behavior with regards to SEOs and in addition is affected by the insider trading signal.

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