

Sarbanes-Oxley Act, Insider Trading and Earnings Management.

By

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Abstract

The empirical motivation of this dissertation is the increasing importance of financial market's regulation pursuant of the Sarbanes Oxley Act of 2002 (SOX). There is currently incomplete knowledge on the relationship between insider trading and earnings management on the one hand and earnings management and firm performance on the other in light of the recent regulatory intervention (SOX). Moreover, the relevance of political regulation of financial markets has not yet been thoroughly investigated.

The research aims of the dissertation are: 1) To evaluate the effectiveness of financial market regulation (SOX) on Insider trading and Earnings management 2) To empirically examine how the different techniques used to manage earnings influence firm performance in light of the recent regulatory intervention (SOX). Both tests suggest ways in which investors can examine and unravel a comprehensive set of earnings management signals and their impact on either insider trading or future firm performance.

The thesis is divided into two main empirical chapters: The first main empirical chapter (chapter 4) discusses insider trading and earnings management in light of the recent regulatory intervention mandated by the SOX. The second main empirical chapter (Chapter 5) discuss changes in earnings management and firm performance relationship in light of the recent regulatory intervention as prescribed by SOX. In an attempt to obtain a comprehensive understanding of several conceptual issues, the different techniques used to manage earnings are employed including, discretionary accruals techniques, real earnings management and the probability of financial statements distortion as measured by the Beneish M-Score. Overall, the focus is on managers of S&P 500 companies, holders of private information about the firm's prospects, preparers and senders of financial reports and investors and analysts as receivers and users of these financial statements.

Findings on the relationship between insider trading and earnings management in light of the recent regulatory intervention suggest that after the Sarbanes Oxley Act of 2002, managers are less likely to time their trade and boast earnings to benefit at the expense of outside investors. Furthermore, under stricter regulations, market participants detect and react to insider trading and earnings management practices.

Findings on the relationship between a comprehensive set of earnings management signals and firm performance suggest that there have been greater monitoring of financial

statements in the Post SOX era. When firms attempt to manage earnings during periods of intense market regulation, investors discount this through disappointing stock returns. Overall, the results suggest that there should be broad based approach in analysing financial statements.

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1.0: Introduction of the Dissertation.

In the first part of chapter 1, the main issues addressed in the thesis and the motivations behind them are discussed. The second section presents the research questions to be answered and the third section specifies the overall structure of the thesis. The fourth section analyses the research results. Section five discusses the contributions of the thesis. This chapter ends with a final section that present an outline of the thesis.

1.1: Issues Addressed in the Thesis and Motivation.

This first part of the thesis discusses the relationship between managers' insider transactions and their strategic earnings management behaviour. The second part of the thesis evaluates the strategic behaviour of earnings management by managers and their impact on future firm performance¹. In both cases, the thesis extends the capital market literature using a regulatory approach. It does so by investigating these constructs in light of the recent regulatory intervention as prescribed by the Sarbanes Oxley Act of 2002 (hereafter SOX).

As earnings management is a generic term that is customarily used to define all issues relating to financial statements distortions, to investigate changes in earnings management during the Pre and Post Sarbanes Oxley period, the thesis utilize two proxies to operationalise the notion of earnings management. The two main dimensions of earnings management discussed in the thesis are:

- 1) The discretionary accruals model, which is a benchmarking model that separates accruals into its normal and discretionary component. The normal portion is the portion that can be explained by the firm's business activities and past accounting transactions and the discretionary component is the component that is driven by managers' intention to manage earnings² or is at least an apparent deviation from the implied benchmark level. As discussed in prior literature (e.g. Dechow *et al.*, 1996, Becker *et al.*, 1998, Balsam *et al.*, 2003), researchers have often used the

¹ In this Thesis, a firm is equivalent to the term group and/or corporation, and refers to firms listed in the S&P 500 companies at any one time of the study period.

² The overall component of accruals is normally observable, while the discretionary component is unobservable and reflects the manipulated component of earnings.

magnitude of discretionary accruals to indicate the flexibility in reporting earnings from business transactions.

- 2) Earnings management through real operating decisions that customarily involve practices that are legal and most often viewed as being within business rules but dubious, e.g. asset sales to book gains in bad years, changes in R&D expenditures, sales pull forwards through quantity discounts, fraudulent recognition of accounts receivables and payables, overproduction to spread unit production costs etc (e.g., Gunny, 2006 and Roychowdhury, 2006). It is important to note that, strategic changes in accounting policy e.g. LIFO/FIFO switch, goodwill write-ups can be used to boast/depress earnings over time.

The tendencies of both real and discretionary earnings management have always been to influence reported earnings, where financial reports reflects the hopes and desires of management as opposed to the company's underlying financial performance (Healy and Whalen, 1999). The rationale for differentiating the two techniques is to provide clarity as to which combination of techniques management employ to manage earnings during periods of strict market regulations.

There have been many definitions of earnings management as discussed in section 2.3. However, this research employs the Healy and Wahlen, (1999, p. 368) definition that has become popular in the literature and defines earnings management as:

“Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers.”

According to Ronen and Yaari (2009, p. 27), this definition captures both the costly-contracting approach (suggesting that earnings management is used to influence contractual outcomes) and the informational approach (which suggest that earnings management is used to mislead investors). The precision is that the prerequisite for earnings management is to mislead external stakeholders; however whether this is opportunistic is not totally clear. The Thesis employs this definition because the sample

does not include only firms that are being accused for having managed earnings according to the Security and Exchange Commission Accounting and Auditing Enforcement Releases. As in Dechow and Skinner (2000), the focus is on earnings management activities that falls within GAAP. Firms that are accused of outright fraud fall under the classification of earnings manipulation (Beneish, 1997, 1999).

Both real and discretionary earnings management involve changing accounting methods, deferring expenses or accelerating revenues, and recognizing one-time items (e.g. asset sales/purchases and R&D expenditures or cuts). Nevertheless, firms differ as to the extent to which they manage earnings. It is important to recognise that all firms do manage earnings influenced by different motivations. However, the extent of earnings management is what has guided the contrasting definitions. Beneish (1997, 1997) categorised firms going through enforcement releases by the Securities and Exchange Commission as having manipulated (not managed) earnings. These are normally firms that have managed earnings to an egregious level (e.g. Enron and WorldCom), the type customarily described as accounting fraud that caught the attention of policy makers, investors and other stakeholders. Considering the steep decline in share prices when earnings manipulation is unravelled, one can safely argue that investors do consider the extent of earnings management when making investment decisions (Spohr, 2005).

The 1934 Securities and Exchange Act defines insiders as Officers, Directors, corporation's Vice Presidents and owners of more than 10 percent of the corporation's stock³. There has been no shortage of evidence that top-level executives have the ability to influence reported earnings as they are directly involved in the day-to-day management of the company and its earnings (Ke *et al.*, 2003). Recent empirical research (Ke *et al.*, 2003 and Beneish and Vargus, 2004) has investigated ways in which corporate insiders (salaried by the firm), trade with information that is price sensitive and has not yet been put into the public domain (Insider trading) and their strategic Earnings Management behaviour. This is especially so since the introduction of Regulation FD ("Fair Disclosure") in the United

³ Though the 1934 Securities and Exchange Act defined a top level executive as officers, directors, corporation's vice presidents and owners of more than 10 percent of the corporation's stock, extant research on insider trading and earnings management eliminates the 10 percent owners as they are not directly involved in the day to day management of the company.

States enacted in October 2000. Although researchers have often attributed trading profits to insiders' informational advantage through their ability to understand market mispricing as well as their superior knowledge of future earnings outcomes (See for example: Jaffe (1974), Givoly and Palmon (1985), Seyhun (1986), Lakonishok, Schleifer and Vishney (1994) and Rozeff and Zaman, (1998) Ke *et al.*, (2003)), the predominance of insider trading informational advantage has been linked to their ability to influence reported earnings (e.g., Bolton *et al.*, 2002, Beneish *et al.*, 2004, Weber, 2005).

In the popular market based accounting and finance literature, the evidence indicates that insiders' purchases (sales) on current (future) bad (good) news is habitually linked to upward (downward) earnings management (Beneish and Vargus, 2004). These suggest that insiders are not passive traders in that they often appear to use their informational advantage to influence market prices (through real and accruals accounting techniques). In recent times, there has been increased attention on the extent to which firms employ a combination of real and accrual-based earning management strategies (e.g., Gunny 2006 and Roychowdhury 2006). Accruals earnings management is accomplished through the choice of accounting methods used while real earnings management is customarily accomplished through changes in the firm's underlying operations (Gunny, 2006). Total accruals (which is the difference between net income and cash flow from operations) are observable like non-discretionary accruals and usually, are not exposed to earnings management techniques. The discretionary accruals, which are not observable, are employed as an instrument to manage or manipulate earnings (Beneish, 1998)⁴. Recent techniques in selecting earnings based on survey evidence suggest that managers habitually employ but the use real earnings management techniques that seem costly, especially with regards to its effect on the financial operations of the firm in the long run (Graham *et al.*, 2004, Cohen et al., 2007). While investigating the impact of real earnings management techniques, Roychowdhury (2006) suggested that managers provide price discounts to temporarily boost sales, reduce discretionary expenditures in order to improve profit margins and overproduce to lower the cost of goods sold.

⁴ In this thesis, earnings management is defined as the management of earnings possibly within GAAP and fall within the white and gray classification according to Ronen and Yaari (2007, p. 25), while earnings manipulation is aspects of financial management fraud involving cases like the Enron and WorldCom scandals and fall within the black classification according to Ronen and Yaari (2007, p. 25). This is clearly differentiated in section 2.4.

The impact of financial reporting regulations to improve earnings quality has also been investigated in the academic literature. After the accounting scandals at Enron and WorldCom and the certification requirements imposed by the Sarbanes–Oxley Act, managers’ preferences for the mix between accruals accounting versus real actions to manage earnings may have changed (Graham *et al.*, 2005). The basis for the Act was fuelled by concerns relating to the integrity of financial statements, which caught the attention of investors and policy makers charged with protecting the investment community (Jenkins *et al.*, 2006). Since real earnings management activities are often difficult to interpret, when managers are faced with stricter financial reporting regulations like the SOX of 2002, they are more likely to substitute accruals with real earnings management. Quite recently, a host of research papers have provided evidence that is consistent with the expectation that SOX has made accrual-based earnings management more costly, with managers substituting from accrual to real earnings management (Cohen *et al.*, (2007), Cohen and Zarowin (2008)). The arguments above suggest that, under stricter regulations and with managers exposed to different techniques that can be substituted under competing circumstances, the ability of investors to unravel earnings management is questionable. To provide additional evidence, this study also looks at the different techniques used to manage earnings.

In the US, the SEC has the mandate to regulate information motivated trading by insiders (not necessarily illegal trades) and aspects of earnings management. Specifically, the 1934 Securities and Exchange Act and their subsequent amendments have consistently imposed different restrictions on insider trading and earnings management relationship. After several consultative meetings, the Sarbanes-Oxley Act was enacted in October 2002, aimed at improving the integrity of financial statements and to suppress insider trading based upon foreknowledge of price sensitive information. Section 302 of the Sarbanes-Oxley Act of 2002 requires insiders to accept responsibility for the integrity of financial statements and they are obliged to certify that financial statements are not misleading and fairly represent the company’s operations. Additionally, section 16b of the Securities and Exchange Act requires all insiders to return to their corporation any capital gains made from a purchase or sale of their company’s stock if both transactions occur within a six-month period (habitually termed short swings profits). The short swing rule was implemented to prevent insiders, who have greater access to material non-public

information, from taking advantage of such information for the purpose of making short-term profits. Apart from institutional regulations by the SEC, a significant number of US firms do impose extra legal (company policy) trading restrictions on insiders (Bettis *et al.*, 2000). In general, the restrictions on the US system on insider trading surrounds the fact that, insiders must either abstain from trading on undisclosed information or release this information to the public before they execute their trades (Hu and Noe, 1997).

As discussed above, firms subject to regulatory scrutiny might employ measures that cannot be easily interpreted by regulators. In contrast to accrual earnings management, earnings manipulation through real operating decisions, such as reductions in discretionary expenses (primarily R&D, advertisement, selling, general and administrative expenses), asset sales, price discounts to improve sales, mostly occur during the course of the year (Roychowdhury, (2006)). Such strategic choices regarding allocation of corporate cash-flows are not easily challenged in the Court's since the "Business Judgement Rule"⁵ means a regulator or Judge cannot just assume control of the company's competitive strategy themselves. Moreover, accruals customarily mean-revert and overstatements in the current period must be matched by an understatement in the future.

The often easily detectable nature of accruals subject firms that report high accruals more likely to SEC enforcement actions (e.g. Dechow *et al.*, 1996, Bradshaw *et al.*, 2001) than those that directly employ real earnings management. SEC enforcements and prior year accruals might thus limit a firm's ability to manage earnings. Since regulators habitually focus on the easy to detect discretionary accruals technique, not real earning management, accrual based earnings management is expected to reduce as a result of the passage of regulations aimed at improving earnings quality. Moreover, the business judgement rule (discussed in the paragraph above) makes it very hard for legislators/investigators to say they know better than the manager who make real investment decisions. In light of this, it might be difficult to evaluate insider trading that are linked to future earnings disclosure, especially when real earnings management have been used to boost earnings. As

⁵ The business judgement rule (An American case law) is a judicial acknowledgement that directors manage the company. It's a presumption that in making a business decision the directors normally act on an informed basis, in good faith, and in the honest belief their action is for the best interest of the company. The rule acknowledges that the daily operation of a business can be risky and controversial. The directors should therefore be allowed to make decisions without fear of being prosecuted. The business judgment rule further assumes that it is unfair to expect those managing a company to make perfect decisions all the time.

highlighted above, the use of accruals to temporarily boost or reduce income is one mechanism for earnings management. Accruals are components of earnings that are customarily not reflected in current cash flows, making it susceptible to managerial discretion in its construction (Bergstresser and Philippon, 2004)

The theoretical implications that have originated from the discussions above suggests that with strict regulations on earnings management and under different circumstances, managers might even switch and mix and match techniques to make it harder for investors and regulators to be able to differentiate manipulated from non-manipulated earnings. This even makes the relationship between insider trading and earnings management using these different techniques even harder to assess.

This research includes studies of stock market performance and financial markets regulations and therefore has potential relevance on the field of financial economics and financial markets regulations. Broadly, finance theories are used in this research in three ways 1) the statistical studies investigating price performance after private information (proxy by insider trades), 2) the theoretical framework that evaluates how private information motivates earnings management and how in light of the recent regulatory intervention, this relationship can be assessed and 3) the attempt to develop models for investigating the different empirical anomalies in light of the regulation of financial markets. Unlike in Ball and Brown (1968), the research does not imply that investors can earn abnormal returns from exploiting financial markets anomalies. Rather it concludes that while some stakeholders can exploit public and private information to generate profits at the expense of other stakeholders as documented in prior research, in light of recent regulatory intervention, the circumstances under which this is possible need to be evaluated differently.

1.2: Research Questions.

In this section, the research questions are discussed and the gaps in the theory that motivates this research are pointed out. However, since this is motivated in relation to previous research and their implications for the regulation of financial markets as required by Sarbanes Oxley Act of 2002, they are outlined only briefly here. A more comprehensive

summary of the essays, their scope, aims and contributions are provided at the end of the thesis in the summary of findings, conclusions and recommendations chapter.

1.2.1: Sarbanes-Oxley Act, Insider Trading and Earnings Management.

A commonly held belief postulates that directors, who are more familiar with the day-to-day operation of the company they manage trade on valuable information that is not incorporated into security prices at the time of their trade (Fidrmuc *et al.*, 2006). In summary, their trade is frequently based on forecasts of earnings reflecting the private information that they have a fiduciary duty not to exploit for private gain. Such changes in earnings might be influenced by a specific event⁶ that is reflected later in security prices. Though investors often focus upon changes in earnings in predicting future share price movements (Ball and Brown 1968), firms customarily release other types of information that relate to future earnings outcomes like changes in sales, research and development expenditures, inventories, capital expenditures, etc. The commonly held believe is that insider trading signals future price changes and their trades might act as an incentive for managers to manipulate earnings to either benefit themselves at the expense of outside investors or alternatively, distance themselves from prior insider trading (Beneish and Vargus, 2004). Nonetheless, there is conflicting evidence on the relationship between insider trading and company earnings. The evidence we have can be summarised as follows:

A: The earliest reported evidence suggest that, there is no clear relationship between insider trading and future earnings (Elliot *et al.*, (1994)) or there is no correlation between insider trading with foreknowledge of any price-relevant information (see Penman (1992), Givoly and Palmon (1985), Sivakumar and Waymire (1994), Noe (1999))

B: The second group of studies argue that earnings news and stock price changes are positively correlated (Ball and Brown, 1968). Insiders buying (selling) frequently follow stock price increases (decreases) (Seyhun (1988), Rozeff and Zaman (1988), Ke *et al.*, (2003), managers who sell shares following the announcement of an earnings surprise are able to earn abnormal profits (Markarian, 2005); insiders sell shares after managing earnings (pump and dump), implying a negative correlation between insider trading and this year's

⁶ Significant price-relevant events that insiders frequently use may include, Takeover bids, Seasoned Equity Offerings, Dividend, Stock Repurchase, Bankruptcy, Mergers and Acquisitions, Initial Public Offerings, etc. This relate to what is frequently viewed for litigation purposes directly as a major corporate event that have a direct effect on prices (Seyhun, 1992).

earnings surprise (Beneish (1999), Hamill *et al.*, (2002), Bolton *et al.*, (2003)), or trade with information pertaining to a break in a string of consecutive earnings increases (Ke *et al.*, (2003)). Of course the profitability of insider trading, based on foreknowledge of earnings may depend on whether earnings are “selected” as the term is used by Daniel *et al* (1998). When earnings are “selected” as a fore-shadow of the difference between price and value, then and only then will we expect some price response according to this view.

C: A third group of studies reject some of the suggestions above and suggest an apparently different hypothesis that is contrary to standard economic theory. Their argument originates from the fact that, since securities law forbids trades whose incentive might be based on private information, an insider trade that follows potentially value-relevant earnings disclosures gives the impression that the trade is based on foreknowledge of soon-to-be disclosed earnings information (Weber, 2005). Following this, Beneish and Vargus (2004) suggested the litigation avoidance hypothesis, where insiders sell shares and manage earnings to distance themselves from the trade. Additionally, Weber (2005) suggested that, insiders manage earnings in order to distance their trades from negative earnings news, consistent with the avoidance of the appearance of illegal insider trades.

Following the three sets of conflicting findings above, certain conclusions pertaining to the relationship between insider trading and company earnings might be misleading and should be re-evaluated. Changes in securities laws and earnings management regulations may have an impact on the way insiders disguise their trading history. Quite recently, SOX legislation was enacted to improve investor’s confidence in the market.

As earnings news and stock prices are positively related (Ball and Brown, 1968), insiders ought in the absence of regulatory or institutional constraints; buy (sell) more shares in periods where they expect to influence reported earnings through the use of positive (negative) discretionary accruals. However, strict insider trading rules may have an impact on the way managers exercise their knowledge of private information about future prospects. The fact that they might employ discretionary accounting techniques to influence reported earnings after prior insider trading may raise serious concerns about their firm’s earnings quality. A string of recent articles have examined the impact of the

Sarbanes-Oxley Act of 2002 on earnings management⁷, but to the best of my knowledge, none of these articles have linked earnings management to open market insider trading⁸.

To accommodate the influence of strict regulatory regimes as a result of recent corporate insider trading scandals on the earnings management process, managers might change the timing of their trades relative to the use of discretionary accrual techniques. This can be investigated empirically by examining the relationship between discretionary accruals (a discretionary decision by management) and net insider trades, to regulatory changes (a public event that is not discretionary by management).

The main research question posed in part 1 of the thesis is: *how can we explain the relationship between insider trading and earnings management in light of the recent regulatory intervention as prescribed by the SOX of 2002? How has the relationship changed since SOX was introduced?* In other words, the thesis aims to investigate if: *The regulatory intervention (Sarbanes-Oxley Act) has provided the desired effect;* which is:

1-To suppress earnings manipulation thereby improving the quality of earnings.

2-To suppress earnings manipulation conditional on prior insider trades.

Suppression here means reducing overall earnings management. Owing to substantial evidence, the incentive to either buy or sell shares may be remote and not necessarily related to earnings management incentives. Apart from liquidity concerns that are often regarded as incentives behind sell trades (Lakonishok and Lee, 2001), the signalling literature occasionally addresses the valuation implication of insider trading. Such authors (e.g. Givoly & Palmon, 1985, Rozeff & Zaman, 1988, Seyhun, 1998) argue that if an insider believes that their shares have been overvalued, they would sell them. If they believe that their shares have been undervalued and are risk averse, they will choose not to

⁷ Cohen et al. (2004) find evidence that there is a decrease of earnings management after the Sarbanes-Oxley Act of 2002.

⁸ Indeed, insiders can trade either stock options or in the open market and manage earnings too. For example, executives at firms like Xerox, Tyco, Enron appear to have manipulated reported income during the 1990s, while trading in the open market or exercising large amounts of stock options. In April 2002 the SEC sued Xerox for manipulating reported earnings and revenues, and as part of the settlement with the SEC Xerox was forced to restate reported revenues for the period 1997 to 2001. The forced restatement reduced reported revenue by \$2.1 billion and reducing reported net income by \$1.4 billion (Bergstressera and Philippon, 2004).

sell their shares and instead acquire more shares, since they may expect the share price to rise in the future.

If trading by corporate insiders is informative about future earnings (e.g. on firms growth and future prospects), there should be no association between discretionary accruals and insider trading (Park and Park, 2004). Insiders might have superior knowledge relative to other market participants; and their buying (selling) will be based on the expectations of a positive (negative) earnings outcome without usage of discretionary accruals. This has been supported by recent research by Ke et al. (2003), who reported that insider trading is associated with post transaction stock returns. The thesis examine if insider transactions influence post transactions performance as measured by the firm's stock returns. The thesis therefore tests the third research question of Essay 1 that links insider trading to future earnings performance as follows:

3-Are managerial dealings informative about future earnings performance?

1.2.2: Earnings Quality and Firm Performance: Examining the Changes in the Post Sarbanes- Oxley Era.

Some events like regulatory changes that are not determined by the discretion of management might influence the relationship between earnings management and future firm performance. Since investors and other stakeholders normally fixate on earnings management through discretionary accruals and discount their impact in the valuation of companies (Rajgopal *et al.*, 2007), managers might still be cutting the corners using other less detectable techniques. Some techniques like real earnings management⁹ that is not easily detected by auditors and regulators might become more popular, especially after the recent corporate scandals. As predicted by Zhang (2003), when firms manage earnings to an egregious level in the prior periods, they are more likely to engage in real earnings management relative to accruals in the future. Under normal circumstances, stakeholders might fixate on some forms of earnings management than others.

The self-reversing nature of accruals makes it impossible to sometimes manage its shortfall and if they have to rely on discretionary techniques alone, they might sometimes be forced to

⁹ Real Earnings management techniques involving asset sales, changes research and development expenditures, sales pulls forward, price discounts, etc is introduced and defined in section 2.3.1.2 and the methodology used to estimate it is discussed in section 3.3.2.6 and 3.3.2.7.

miss earnings target. Thus it is possible that managers might focus attention on real earnings management to cover the residual shortfall in cases where they are limited by their inability to utilize accruals techniques. Legislative actions might thus have an influence on the techniques they apply. Cohen *et al.* (2006) find support for these arguments by documenting that after the passage of the SOX, accruals earnings management has been reduced and replaced by an increase in earnings management via real operating decisions.

Current literature is replete with articles that suggest that investors normally fixate on reported accounting earnings to evaluate future performance. Recent arguments have suggested that a majority of investors can unravel earnings management especially earnings managed to an egregious level leaving potential damages to shareholder value through share price declines (Rajgopal *et al.*, 2007). Operating performance has been associated with aspects of real earnings management like discretionary changes in R&D, selling, general and administrative expense, overproduction to improve sales through improved credit terms, selling of fixed assets and firms with high accruals in the current period customarily experiences future earnings problems (Gunny, 2006). Investors are however not customarily fooled by earnings management practices (Rajgopal *et al.*, 2007). They look for warning signs from the financial statements and discount the stocks of firms that manage earnings. If more firms manage earnings, there might be market-wide effects through a decline in the value of many companies. Regulatory control leading to higher earnings quality would therefore be a rational response to investor's demands for favourable financial reporting. One reason for examining the benefit of legislative control on firm performance is to investigate stock price responses following the SOX. If the Act actually improves earnings quality, the information might be more certain and investors can respond to it by trading on the stocks of those companies with greater confidence regarding the value relevance of information contained in their set of financial accounts.

Although the above arguments have suggested that the capital market can unravel the extent of earnings management, the predictive ability of the different techniques on firm's performance has not been thoroughly investigated. The various components of accruals (notably accounts receivables, accounts payable and changes in inventory) have different

predictive powers¹⁰ and investors might discount their impact on future returns differently (Chan *et al.*, 2006). These components of accruals are the most popular tools that can be improperly used to fraudulently improve the company's revenues and earnings. Many restatements arise from misinterpretation of rules on recognition since revenue are such a huge number in financial statements and accounts to start with. Most forced restatements and enforcement actions have been directed against impropriety connected to revenue recognition (Healy and Wahlen, 1999).

Accounts receivable is one component of accruals that is customarily employed to overstate the earnings of most corporations. But firms might genuinely offer sales discounts leading to sales growth in a bid to avoid product obsolescence in periods where they might have mistakenly overproduced. Customers can also be genuinely experiencing financial distress leading to rising accounts receivables. Increases in accounts payable too can be associated with managerial intent to lower current accruals, thereby shifting current earnings to the future. Investors can either interpret it as current shock in earnings (bad news) or recognize its impact on future earnings. In this case, despite a reduction in earnings through accounts payable increases, future stock price performance can still be better. Another accounting component whose predictive power is uncertain is changes in inventory. Managers might manage earnings through the reporting of inventory changes by not writing off obsolete items completely or they might be allocating more overhead expenses to inventory than to cost of goods sold. Overproduction can also reflect an intention to improve sales through the provision of favourable credit terms and/or to reduce cost of goods sold. When companies overproduce, they might technically spread fixed overhead cost leading to an overall reduction in per unit production costs as long as inventory holding costs are not increased over the period (Gunny, 2006; Thomas and Zhang 2002).

As supported by Chan *et al.* (2006), some items might be more susceptible to earnings manipulation than others and their changes might influence future returns in diverse ways. This is because investors would have competing interpretations of their effect. Stock return evidence also suggests that investors discount "abnormal" accruals relative to "normal" accruals, which suggests that they view abnormal accruals as more likely to reflect earnings

¹⁰ The presumed differences in predictive powers are because some techniques can easily be used than the others. Abnormal receivables for example, that influences sales income is a technique that is customarily used to manage revenues and is very popular in the earnings management literature (e.g Dechow et al. 1995).

management (Healy and Whalen, 1999). There is further evidence of significant negative stock market responses to allegations of earnings management by the financial press or the SEC, which is an indication that investors do not always investigate financial reporting impropriety. According to Dechow *et al.* (1996), firms subject to SEC investigation for earnings management showed an average stock price decline of 9% at the day of the announcement of the earnings management. Assuming there was a large decline in earnings quality before the enactment of the SOX, one significant question might relate to how SOX can constrain earnings management practices and how investors can avoid huge losses if earnings management is discovered and must be unravelled.

In light of the discussions above, the research question to be addressed in the second part of the thesis relates to how we can explain the relationship between earnings quality and firm performance in light of the recent regulatory intervention. Specifically, the research model categorises firms into suspect versus non-suspect firms (See 5.4.7) and investigates if: *After the Sarbanes Oxley legislation, stocks of suspect firms (firms with low earnings quality as measured by the Probability of manipulation, abnormal changes in the various accruals and real earnings management items) exhibit negative stock price performance while those of non-suspect firms (firms with high earnings quality) exhibit positive stock price performance.*

1.3: Basic Structure of The Thesis And Research Objectives.

Overall, the thesis consists of two parts. One part encompasses the introduction, literature review and the methodology. The other consists of the core of the thesis: the two independent but related empirical chapters. Both relate to the relationship between insider trading and earnings management and earnings quality and firm performance in light of SOX regulations. Each empirical chapter provides an overview of the thesis around several characteristics that includes 1) aim 2) dependent and independent variables 3) control variables 4) statistical method employed 4) sample of firms in the study and time period covered by study and 5) main empirical findings and finally 6) conclusion. Both are summarised below. The summary and conclusions chapter summarises the two independent empirical chapters, it discusses the results, presents their contribution and limitations, highlights main implications and notes suggestions for future research.

Summarising the empirical findings and the overall thesis in this way helps structure the overall thesis and provides an overview of its contribution.

This first empirical chapter of this thesis evaluates the changes of the insider trading relationship to earnings management post the Sarbanes Oxley Act of 2002. Specifically, the chapter tests if the regulatory intervention (Sarbanes Oxley Act of 2002) provided the desired effect? The stated aim of the regulation was to suppress earnings manipulation thereby improving the quality of earnings, and to suppress earnings manipulation conditional on prior insider trading. To further test the informativeness of earnings following prior insider trading and the impact of discretionary accruals on earnings changes, the chapter additionally tests if insider trades are informative regarding future earnings (regardless of earnings manipulation) and finally, if analyst's earnings forecast errors are associated with earnings management. That is, I ask if earnings expectations can be adjusted to control for earnings management or simply magnify the initial distortion.

The second empirical chapter of this thesis looks at the relationship between firm performance and earnings management practices in light of SOX regulations. Given that SOX was designed to improve the quality of financial reporting, investors and analysts need to be more vigilant and recognise material weaknesses in financial reports. SOX need to provide more credibility to financial reporting and provide investors with more confidence. If companies still manage their earnings, analysts and investors need to be more cautious and should be able to factor out their perceived cost of remediation through adjustment of the stock prices of suspect firms. The market response (stock returns) and managerial earnings management should be a measure of how analysts and managers respond to disclosure practices. The purpose of the chapter is to empirically assess the relationship between a comprehensive set of earnings management signals and future firm performance. Its prime purpose is to verify whether there have been substantial benefits to investors from recent legislation enacted as a response to the corporate scandals through (i) improvements in earnings quality as a result of the SOX (ii) if investors are able to discount the level of earnings management in the financial statements.

1.4: Scope of the Analysis.

Following the formulation and specifications of research issues and aims, this section covers the scope of the analysis. The scope of the thesis can be explained around the theoretical constructs underlying the research objectives and gaps in current research and the research design choices adopted to provide answers to the research questions. Firstly, with respect to the main objective of the research, the study builds the theory on existing literature in the area. In evaluating the various theoretical constructs, the researcher found that there was an absence of consistency in the findings of prior research, though the sample is of different time periods. This in itself alerts us to the presence of a shallow theorisation of the topic being discussed.

From the standpoint of the policy implications, the researcher therefore employs the approach of implementing a “truth race” in evaluating different relationships. This performs best with my dataset of S&P 500 firms in the last decade or so. From the testing approach, the thesis tested several existing theories to reconcile gaps in the literature. The study further uses gaps in the existing literature review to identify relevant factors that cause variations in research results in the area. Secondly, the analyses are limited to S&P 500 firms listed in the US stock exchange. Though in most cases a cross sectional time series analysis is done, reported results are aggregated for the overall S&P 500 companies and the unique characteristics of individual firms and industry classification are not evaluated. Quantitative methods using regression and descriptive statistics are employed to analyse the panel data set. From the arguments presented in the theory, the relationship between insider trading and earnings management are assumed to be jointly determined, with insider trading influencing earnings management and vice versa. This suggests a simultaneous equation problem. The Hausman specification error test is therefore employed to test for this problem. Based on results confirming the joint determination between insider trading and earnings management, a two-stage least square estimation method is employed to confirm the robust nature of the primary results.

The choices above set the scope for the thesis and the empirical analysis and results that can be drawn. Collectively, the results provide an overall approach to different market based relationships for US listed firms. Nonetheless, the results can only be attributed to the S&P 500 firms and not more widely across smaller firms in the US or other (EU or G7 countries).

It can therefore not be applicable to unlisted firms and firms in other countries without similar regulatory restrictions.

1.5: Contribution of the Thesis.

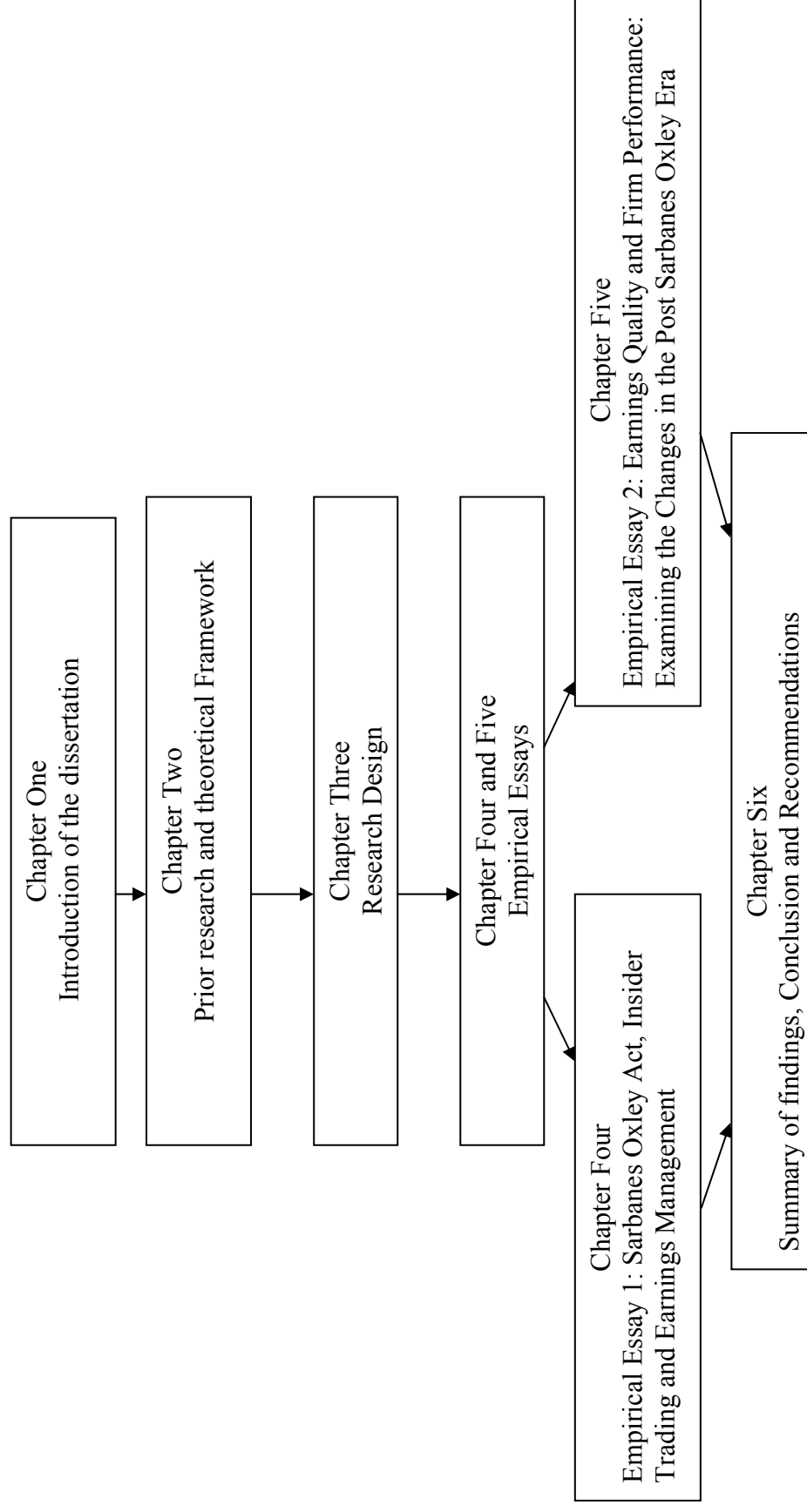
The Thesis makes several contributions to the literature. First, it investigates whether firm's trade-off accrual-based against real earnings management around insider transactions. Second, consistent with the expectation that the SOX has made accrual-based earnings management more costly, the thesis investigates whether managers substitute techniques in their bid to mislead regulators and other users of firm information after the enactment of SOX of 2002. Third, the research investigates the tendency for firms to trade-off real versus accrual-based earnings management activities and whether investors discount high levels of earnings management (using both real and accruals based earnings management) post SOX. Finally, the research employs the 2 stage least squares approach to evaluate the joint determination between insider trading and earnings management in the light of the regulatory intervention¹¹. Prior research has failed to clearly address this causality issue. Details of the contributions of this research are discussed in section 6.3.1 as a sub-section of the summary of findings, conclusion and recommendation chapter.

1.6: Outline of the Thesis.

In this section, an outline of the remainder of the dissertation is provided. Overall, the thesis is organised as follows: Chapter Two provides some of the theories of insider trading and earnings management; Chapter Three presents the research design and develops the hypotheses. Chapter Four and Five present the key empirical findings of the research. Specifically, Chapter Four presents the first main empirical analysis, relating insider trading to earnings management. Its approach involves an explanation of the impact of regulatory dynamics as prescribed by SOX on insider trading earnings management relationship. Chapter 5 presents the second main empirical analysis. The Chapter looks at the relationship between a comprehensive set of earnings management techniques and future stock returns. In Chapter 6 the two main empirical findings are tied together as a summary of findings, conclusions, recommendations and limitations of the study.

¹¹ Due to stricter regulations, managers might be adopting a passive and opportunistic strategy that cannot be easily detected by regulators, investors and other stakeholders.

Figure 1: Structured Overview of the Dissertation by Chapter.



2.0: Prior Research and Theoretical Framework.

The purpose of this Chapter is to critically review the recent theoretical advances in the area and evaluate the contribution of this particular study to the existing literature in these areas. It is important to clarify that this section discusses the literatures that are general to the overall thesis and is not restricted to the context of the independent empirical essays. The review here is given to show the present state of knowledge about this topic that is addressed in the two empirical essays and to clarify the broad contribution of this thesis to the general state of knowledge in this area. It is important to note that, there is a vast array of literatures on insider trading, earnings management and related constructs like financial markets regulation and firm performance. Out of this vast array of literatures, this chapter delimits what is actually important for the current thesis.

2.1: Theoretical Framework.

This study has two main aims: First, it examines the relationship between insider trading and earnings management. Secondly the study investigates earnings quality and firm performance within US S&P 500 firms. The study builds upon three streams of research ideas that are: 1) opportunistic insider trading, 2) techniques used to manage earnings and 3) the policy implications of the Sarbanes Oxley Act of 2002¹².

This chapter reviews prior literature in the area. The first section of chapter 2 introduces the broad objective of this particular chapter. This is followed by an attempt to provide a legal definition of insider trading. It is important to note that several factors have influenced the trading behaviour of several stakeholders over the past decades, affecting the received wisdom regarding who is an insider. One way that the Securities and Exchange Commission has responded to this is to establish a clear definition of insider trading. In Section 2.2, the definition is presented and the dynamics that influenced this definition over the years outlined. Following that a discussion of insider trading, which the proceeding section has defined, broad issues relating to earnings management are introduced. In the final section, broad issues relating to the regulation of insider trading and

¹² The implication here was that whether the market really required regulations like SOX to boost investor confidence and promote the market's integrity.

earnings management are discussed. This material sets the regulatory and policymaking context in which my results, presented in the two empirical essays, should be discussed.

2.2: Trading By Corporate Insiders/Directors of a Company.

“Our markets are a success precisely because Americans enjoy the world’s highest level of confidence. (...) Investors trust that the marketplace is honest. They know that our securities laws require free, fair and open transactions.”

A. Levitt, Chairman of the SEC, Address to the “SEC Speaks” Conference, February 1998.

Trading by corporate insiders otherwise termed insider trading¹³ (company directors, officers, and employees) refers to the buying and selling of shares of one’s own company or that of one’s employing corporation. The Securities and Exchange Commission (SEC), which regulates such trading in the United States under the powers granted to it by the 1934 Securities and Exchange Act define an insider as:

- Any officer with the authority to influence the entire company, in other words, makes policies for the company,
- A director,
- An owner of more than 10 percent of any equity class of stock (This includes not only executives working for a corporation, but also other entities such as mutual funds, hedge funds or institutions who hold an amount equal to or greater than 10% of issued and outstanding shares).

Academic research in this area has focussed on evaluating the sources and consequences of an insider’s informational advantage. Therefore, the various strands of research have investigated whether insiders earn abnormal profits from their trades at the expense of outside investors. Prior studies have examined the types of information that insiders are privy to, the sources of the informational advantages that they enjoy and the extent of the advantages and disadvantages to the market of any regulation of their privileged position. Frequently, insiders sell (buy) after an increase (decrease) in prices and their trades are

¹³ For the purpose of my research, I will limit my interpretation of an insider to employees of a company with the exception of the 10 % owners, as they do not possess executive powers to influence several managerial decisions and company earnings.

frequently followed by a partial price reversal (Ke et al., 2003). It is a generally held belief in security markets that when insiders are buying their own stock, they do so because they believe the stock is set to rise in value. However, when they sell, they could be doing so for a number of reasons and not simply because they believe the value of the firm's share price may drop. This suggests that insider buying may be a good signal regarding corporate prospects, but insider-selling motive may be a more difficult portent to interpret. Insider trading has been a term that most investors associate with illegal conduct as it may involve short-term market timing. Researchers and regulators have often differentiated aspects of the trade that may be considered illegal. The SEC defines illegal insider trading as being the buying and selling of securities involving a breach of fiduciary duty, or some other relationship of trust and confidence. Such breach involves trading while in possession of material non-public information about a security.

Generally, possession of information might not be a crime as mandated by the SEC, especially when the information is not a factor in the decision of the trade. If the information is material, then it is the fiduciary responsibility of Insiders to report to other investors rather than engage in trading based on such knowledge. In most class litigation actions, the type of insider trading frequently discussed is the illegal insider trading that involves material non-public information. It relates to trading in securities that takes place when insiders are privileged to confidential information about important events affecting the firm and use the information to reap profits, or to avoid losses, on the stock market. This is done to the detriment of other investors who buy or sell their stock without the advantage of knowing the information the insider possesses.

Legal prohibition of UK insider trading was recently adopted in securities regulation, as it did not become a criminal offence to trade while in possession of firm specific information until sometime in the 1980's. This was followed by the Criminal Justice Act (1993) and the Financial Services and Market Act of 2001 that prohibits insider trading in the UK. The Act stipulates that it is a criminal offence to deal or encourage another person to trade or disclose inside information. Though insider trading was not specifically forbidden by the Securities and Exchange Act of 1934, amendments of US security laws dating back to the 1960's have identified aspects of insider trades that can be considered a criminal offence.

The type of Insider dealings that this study investigates is the legal aspect of insider trading (especially at the time of the trade). This involves publicly disclosed filings with the SEC. The results of this research may shed light on the behaviour of different stakeholders after the recent enactment of securities laws as prescribed by SOX 2002. There will be no classification of any trade as illegal or immoral at this point. What is relevant here is the argument that in certain transactions there should be strict rules (adopted either for moral, or less plausibly, for efficiency reasons) which determines who has the right to trade, what information is to be available and who has the right to the profits that arise from success in such deals (Barry, 1996).

It has been very difficult to provide any evidence linking insider trades to particular types of private information as some Insiders trade approximately 2 years prior to the disclosure of economically significant and price sensitive information (Ke *et al.*, 2002). This, presumably, may be to avoid class action litigation that might be brought forward by investors, or regulators, for breach of fiduciary duties by management. It might also just be that Insiders have a pretty good idea about the medium term prospects of the firm which is not traceable to any specific piece of news, but may rather reflect a general feeling of corporate well-being. In their litigation avoidance hypothesis, Beneish and Vargus (2004) presented evidence of how insiders can avoid litigation while trading on non-public information. This has been a potential weakness of previous research as it has been very difficult to accuse insiders of trading while in possession of significant price-relevant information if their trades are investigated over a very short window. Intensive insider trading activities (purchases or sales) may be of interest as they are likely to be information-motivated (Lin and Howe, 1990). When some “Outsiders” (investors) mimic insider trades, they may also earn abnormal profits like insiders (Gelband, 2005).

Other researchers have presented arguments contradicting the idea that an Insider trade can be based on knowledge of subsequent earnings disclosure. Elliot *et al.* (1994) found no relationship between insider trading and foreknowledge of future earnings in their trading decisions, as they were able to see less selling by insiders before periods of good and bad earnings announcements. Others have documented insider-trading activities before earnings announcements but find no correlation with foreknowledge of any price-relevant information. (See; Penman, 1982, Givoly and Palmon, 1985, Sivakumar and Waymire

1994, Noe,¹⁴ 1999). One potential weakness of most of this research is that it has looked at trading by corporate insiders over a relatively short window. Insider trading decisions are presumably based on forecasts of earnings a year or more into the future rather than the underlying earnings to be announced in the next quarter (Ke *et al.*, 2003). These authors hypothesised that to identify the relationship between insider trading and foreknowledge of price-sensitive information, it is necessary to study trading over a long window. It is very important to understand here that, often Insiders are wise enough to get their wives, cousins and friends to trade on price sensitive information but this is a very rare situation. Strictly speaking, most research published and litigation cases have investigated whether insider trades are correlated with unanticipated movements in share prices or earnings news leading to high forecast errors.

2.2.1: Regulation and Restriction of Insider Trading.

The first and most important US regulation on insider trading was the Securities Act of 1933. The law of insider trading has evolved through a series of judicial opinions in a process that closely resembles common law adjudication rather than the statutory interpretation of the law (Bainbridge, 2005). This was swiftly followed and amended by the Securities and Exchange Act of 1934. Both acts were enacted after the collapse of the stock market in 1929. This regulation (like successive regulations) was intended to promote market integrity and level the playing field among market participants, company officers and institutional investors, and more especially the small investors who had largely been wiped out by the 1929 Crash (Markarian, 2005).

After the 1987 stock market crash in the US, the SEC responded to the violation of its existing insider trading regulation by imposing the Insider Trading and Securities Fraud Enforcement Act (ITSFEA) of 1988 that raised the penalty of illegal insider trading to 1 Million dollars and 10 years imprisonment (Fidrmuc *et al.*, 2006). This act re-codified the Insider Trading Sanctions Act of 1984 as Section 21A of the Exchange Act. The Act amended the language of the 1984 Act by providing that a penalty can be imposed against

¹⁴ Noe (1999) for example found out that increases in insider trading in the 20 days prior to disclosure are not specifically correlated to management earnings forecast errors or other corporate events. But after a management earnings forecast, Noe realised that there happens to be a significant positive association between net insider purchases made within 20 days and a significant growth in earnings expanding over a period of between 3-5 years. Noe's, (1999) result relates to the type of insider trading that we frequently consider illegal and can easily be linked to significant price sensitive information due to the direct price movement after the transaction.

a person not only for trading in a security while in possession of material non-public information, but also that a person can be thought of having violated this Act by communicating such information. The most recent regulation is the Sarbanes Oxley Act of 2002 enacted after the Enron, WorldCom, and other high profile corporate scandals. This Act mostly involves an amendment and the strengthening of previous insider trading laws.

The most important requirements to these successive regulations can be summarised as follows:

- 1) *Filing requirement*: they are now required to file the amount of shares they own in their corporation.
- 2) *Online reporting requirement*: To report their trades to the SEC online within two business days¹⁵.
- 3) *Profit recovery requirement*: Required all insiders to return to their corporation any capital gains made from the purchase or sale of their company's stock if both transactions occur within a six-month period (habitually termed short swings profits).

The regulations also provided clear-cut definitions of several contextual issues that have been subject to ambiguity and hence regulatory arbitrage. The most important definitions to these regulations can be summarised as follows:

- **Definition of an insider**: The Securities and Exchange Act of 1934 defined an insider as either officers, directors, corporation's vice presidents and owners of more than 10 percent of the corporations stock,
- **Insider Trading Liability**: Rule 10b5-1 addresses the issue of when an insider trading liability arises in connection with a trader's "use" or "knowledge" of material non-public information. The rule posits that a trader trades on material non-public information when they purchase or sell securities while aware of such information. The rule further sets certain affirmative defences that protect individuals and entities in situations where material non-public information was not a factor in the trading decision

¹⁵ The requirement before the SOX of 2002 was that they report the sales and purchases of such stock to the SEC by the 10th of the following month. This requirement gave them up to 40 business days for some trades.

since the trade was presumably carried out pursuant of a pre-existing contract, situation or a plan.

- **Misappropriation Theory¹⁶:** Rule 10b5-2 addresses the issue of when a breach of a family or other non-business relationship may give rise to a liability under the misappropriation theory of insider trading.

2.2.2: Arguments for and Against Insider Trading.

Quotable Quotes:

"Stock Exchange persons who are Inside traders would make the rules against insider trading and this would be a sham".

"It would be foolish to place too much faith in mechanical or procedural devices, where these are not backed up by a strong ethical culture within the organisations and within the profession itself" Tomasic, R., (1992), *"Self-regulation, Business Ethics and Insider Trading"* Published in: *Casino capitalism? Insider trading in Australia* /Canberra:Australian Institute of Criminology.

Differences exist in relation to the arguments for and against insider trading regulations. The strand of argument that favours strict regulations argues that insider trading is unfair and the failure to penalize violators of securities regulations can seriously undermine public confidence in capital markets (Wisniewski, 2004). However, such policies are often flawed because they tend to outlaw some forms of insider trading that are beneficial to the economy and are in reality not at all unethical in nature. Tomasic (1992) argued that although the failure of the regulatory authorities to enforce insider trading regulations is serious enough, the persistence of insider trading as a phenomenon is also influenced by the fact that it is tolerated within the securities industry at large. A number of economists and researchers have pointed out some beneficial effects of insider trading and legal theorists have written dissertations discussing when insider trading is illegal and when it is not (McGee, 2008).

Recent empirical evidence suggests that the prohibitory nature of insider trading laws only serves to make provision of this crime very monopolistic in nature. Making insider trading

¹⁶ The misappropriation theory states that anyone who misappropriates (steals) information from their employer and trades on that information in any stock (not just the employer's stock) is guilty of insider trading. An individual might be the private secretary of company A, though not directly employed by company A, company A might be planning a takeover of company B and whilst working as the private secretary, might acquire information that company A wishes to takeover company B and trade on the shares of company B. even though by implication the secretary have not violated the fiduciary duty of company A shareholders, they have violated those of company B shareholders.

more risky rather than preventing it may just pass huge profits to those with the know-how and audacity to undertake it (see Bris 2005). When alcohol was outlawed in the US it did not stop Americans drinking it simply forced the provision of alcohol underground into Mob controlled speakeasies. In a similar way Bris (2005) argues that tightening Insider trading laws simply sharpens the peak of the distribution of profits paid to effective insider traders.

Those in favour of deregulation contend that the exploitation of non-public information by insiders could be an efficient way to compensate managers for their innovations (See Manne, 1966, and Carlton and Fischel, 1983) and that insider trading could potentially benefit society through promoting a more accurate pricing of a firm's asset (Udpa, 1996 and Roulstone, 2003). Deregulatory arguments are premised on the claims that trading by corporate insiders do promote market efficiency and do assign property rights on inside information to managers which seems like an efficient compensation scheme (Bainbridge, 2002). Additionally, Leland (1992) argues that when insider trading is allowed, stock prices incorporate more information and are higher, as opposed to when it is not allowed. This argument suggests that insider trading incorporates superior information to that provided by external shareholders. The implication here is that stock markets are to some degree informationally efficient (in the strong form sense) and that share prices do rapidly adjust to insider trades (Fidrmuc *et al.*, 2006). Moreover, laws that prosecute insider trading fail to eliminate or completely recoup the profits made by insiders, and make acquisitions more expensive. This suggests that, by increasing the market reaction to an acquisition, insider trading laws make it profitable to violate the regulations (Bris, 2000).

At first glance, insider trading is a difficult issue to understand as perfectly legitimate transactions takes place in the market where information is asymmetric and not equally available to all market participants (Barry, 1996). Different models discussing insider trading based on material non-public information assumes that an Insider is informed in every period and thus trades with the desire to profit from this information about the firm's future prospects. Nonetheless, research has discovered that their trades are habitually infrequent, meaning they might not possess any informational advantage most of the time and might be exposed to regulatory frictions that discourage trading at all (Huddart and Ke, 2006). Kelly *et al.*, (1987) argued that the \$100 million fine levied by the Securities and

Exchange Commission (SEC) against Wall Street trader Ivan Boesky was the earliest most spectacular development in the crackdown on insider trading and provided a new era in insider trading regulatory enforcement. This and other penalties signal the determination of the SEC to significantly curtail illegal insider trading.

It is important to note that, though many market participants would not trade on insider information due to its illegality or immorality, many would still want to buy a stock if the tip from the insider is judged to be reliable (Kelly *et al.*, 1987). Those who support deregulation of insider trading argue that it contributes to market efficiency by encouraging the flow of information unto the market thereby facilitating the price formation process (Manne 1966). Moreover, few firms do restrict insider trading beyond habitual SEC regulations (Easterbrook, 1981). However, Bettis *et al.* (2000) argued that recently, over 90 % of S&P firms do impose trading restrictions on insiders. These facts make the argument that shareholders of firms are harmed by the trading of executives difficult to reconcile due to the absence of widespread private restrictions on insider trading actions. As Manne (1966) documented, allowing insider trading might be an effective way of compensating entrepreneurs. On grounds of market efficiency, since insider trading moves stock market prices in the direction of true/fundamental values, there is no need for regulation (Kelly *et al.*, (1987)). As Barry (1996) suggested, the fewer restrictions relating to insider trading, the faster the information will flow into the market and profits of such dealings will be lower as the information about such dealings is transmitted to the market. Unless the practice is considered unfair, there would apparently be no justification for regulation. Even when investors want to justify the unfairness of insider trading, the application of the rules might be a problem. This is because; insiders with potential access to inside information on certain stocks might adjust their portfolios so as to be in position to gain at the expense of other investors.

Several arguments have also been presented in favour of insider trading regulations. Laws enacted by regulatory bodies in financial markets have deterred insiders from trading with foreknowledge of next earnings announcement especially when future news is expected to be bad (e.g. Weber, 2005). Since the SEC for example enacted the Insider Trading Securities Fraud Enforcement Act of 1988 (ITSFEA) there has been limited insider trading prior to an earnings announcement as this law specifically holds top management

responsible for employees illegal trading (Fidrmuc *et al.*, 2006). The argument that insider trading should be regulated has emerged largely from its reliance upon private information that customarily leads to an expropriation of uninformed investors (Bainbridge, 2002). This is regarded as a form of self-dealing by senior management in breach of their fiduciary duties to their shareholders, who may stand at the other end of the trades they make while being less well informed than they are. On the grounds of fairness, arguments can be made that inefficiencies may arise due to the withholding of information leading to moral hazard. Moreover, those who possess insider information have an unfair advantage over other market participants. If other investors think that Insiders of specific corporations do have an unfair advantage over other market participants, they might not be interested in investing in that corporation (Kelly *et al.*, 1987). This then results in deadweight losses because gains from trade in financial markets are eroded because investors hold back for fear of being fleeced by senior executives in the company whose stock they aim to deal in.

Gains from insider trading can originate from different kinds of information. These range from ordinary insider information about a company and its operations to more complex information like those relating to rumoured mergers and acquisitions. Customarily, the type of insider trading information that habitually leads to a lot of public attention involves information of the “bombshell” variety that includes mergers and acquisitions, mineral discoveries, IPO, high assets sales or purchases and so on (Carlton and Fischel; 1983). Despite the fact that most discussions have focused on trading gains, an insider might trade on inside information by just holding shares they had once wished to sell. For example, a corporate executive who might have wanted to sell shares in a trading period might act on inside information maybe relating to a takeover and hold on to the shares. When the share price rises, he might reap significant profits at the expense of other investors (Kelly *et al.*, 1987). Non-trading based on insider information is seemingly an abuse similar to active insider trading based on inside information. But it is difficult to attach criminal sanctions to acts of omission. In accordance with the arguments above, visible insider trading that habitually attracts widespread criticism are just tips of the iceberg. There are millions of trades based on inside information that may not be known by other market participants. It is important to note that, all trading is based on different valuations that ultimately imply either different information or different interpretations of the same information.

In an effort to limit non-trading, recent rules like the SOX have introduced guidance on pre-planned trading regulated through rule 10b5-1. While SOX does not change the primary definition of who an insider is, the Act reduces the filing dates of SEC forms 4 from approximately 40 to two business days. Insiders are required to report their trades from the 10th of the month following the trade to two business days after the reported transactions. SOX also give the SEC new executive powers to seek any equitable relief that might be appropriate for the benefit of investors and all stakeholders (Huddart and Ke, 2007).

The SEC has previously regulated insider trading based on different rules. Regime changes have created different opportunities for new regulations. Although in theory different regulations have been based on the violation of insider trading legislation relating to material non-public information, in practice enforcement has been limited to “bombshell” information cases. Corporate mergers and acquisitions and large earnings manipulations like the Enron and WorldCom cases have caused significant concerns and have been the principal area of investigation and enforcement by SEC regulators. Regulation of insider trading must therefore not be regarded as an attempt to eliminate all or even most of the gains made by insiders with material non-public information. It should nonetheless be regarded as aiming to reduce or perhaps eliminate one particular type of insider trading presumably relating to the use of “bombshell” information that may cause widespread public outcry (Kelly *et al.*, 1987). As most insider income from equities is arguably legal, the issue involved in the regulation of insider trading is not whether to allow insiders to profit from their information. It relates specifically to whether regulatory authorities should seek to outlaw gains from particular types of information, especially those that relate to advanced knowledge that should have been disclosed to other investors to create a level playing field.

In an effort to understand how to effectively regulate insider trading, researchers have sought different pieces of evidence on circumstances where profitable insider trading might be possible. Additionally, they have looked at the association between different types of insider trades (purchases or sale) and subsequent abnormal returns. To my knowledge, insiders of small firms are found to be on average net purchasers while insiders at large firms are on average net sellers (Seyhun, 1986); insider trades of small firms

predict future returns better than trades at large firms and when insiders buy stocks with poor past performance (Lakonishok and Lee, 2001), and R&D expenditures; they do thereby increase the informational asymmetry between Insiders and other investors. These allow Insiders at firms with high R&D expenditures to reap higher profits from their trades than insiders at other firms. These characteristics relating to the cross sectional differences in insider trading and of firms where Insider trades might be most profitable may prove useful to regulators and other stakeholders who might be interested in limiting an Insider's unfair advantage over other investors (Huddart and Ke, 2006).

Trade quantity and value can be other characteristics that should be watched closely in an effort to regulate insider trading. This is because previous research has provided inconsistent results on how market assumptions about these are related to expected price adjustments. As in Grossman and Stiglitz's (1976) price-taking models, individuals believe that they can trade any amount without necessarily altering the market price, rendering them "price-takers" in trading the asset. On the other hand, models relating to imperfect competition assume that insiders choose the quantities they trade with the assumption that these might have an impact on future price adjustments (Kyle, 1985). As in Park and Park (2004), in an effort to regulate insider trading, authorities should monitor trading amounts as this might influence future stock returns especially when "bombshell" information items are concerned. Several business media reported that Enron Corp. had a high volume of insider sales transactions in 2001. There were a total of 9.5 million shares sold at a value of \$131 million compared to only 10,000 purchases at a value of \$0.37 million.

Despite these arguments, it is important to recognise that, in the vast majority of countries, insider trading has been difficult to regulate because of the complications in defining an Insider and price sensitive information. Insider trading is a "victimless crime" in that the outsider counterparty to the trade enters the transaction willingly, although he may regret having done so later. Also, separating trading based on private information and trading based on portfolio rebalancing, or liquidity needs has been very difficult (Korczak and Lasfer, 2008). Enron is a classic example of the difficulty of discerning a state of mind, where for example Ken Lay claimed that as CEO, he believed everything was fine. Could someone with a PhD in Economics really be that naive? Perhaps only the accused really

knows their state of mind and until they disclose what they know, it is difficult to really understand what was going on.

2.2:3: US, UK and EU Regulation of Insider Trading.

The insider trading laws in the United States are rooted in the common law tradition of England, on which the US legal system is based (Newkirk and Robertson, 1998). As suggested by Fidrmuc *et al.*, (2006), like most EU countries, there are major differences between regulation of insider trading in the US and UK in relation to (1), the primary definition of (illegal) insider trading, (2) the essence of the regulation and (3) the length of time before which insiders must report their trades and (4) the level of the enforcement of the regulations. These differences of regulation explain how informative a director's trades are likely to be.

The table below summarises some of the basic differences in the two sets of regulations.

Table 1: US and UK Regulation of Insider Trading.		
Characteristics.	US	UK
Regulatory authority	Security and Exchange Commission.	The main regulator in the UK is the Financial Services Authority.
Regulatory origin	Securities and Exchange Act of 1934	1985 Companies Act. This was followed by the 1993 Criminal Justice Act (notably section 5), 1997 model code of the London Stock Exchange.
Definition of an insider	In the US, the 1934 Securities and Exchange Act defined a top level executive as either officers, directors, corporation's vice presidents and owners of more than 10 percent of the corporation's stock of any equity class.	The Criminal Justice Act of 1993 defines an insider as a director, employee or shareholder of issuers of securities or someone who has access to inside information by virtue of their employment, office or profession. ¹⁷
Reporting obligations.	All insiders listed above.	All insiders listed above.

¹⁷ In the UK, not all shareholders are considered insiders regardless of the size of their holdings. For example, commercial bankers, brokers, insurance companies, investment banks, investment advisers, employee benefit plans, pension funds, and mutual funds are not viewed as insiders (Fidrmuc *et al.*, 2006).

Insider trading offence.	An individual is guilty of insider trading when he 1) trades on confidential information about important events affecting the firm, thereby reaping profits or avoiding losses as a result 1) encourages another person who is not in a position to acquire this information to trade and 3) discloses this information to a third party.	An individual is guilty of insider dealing according to the Criminal Justice Act of 1993 when: 1) he deals in securities that are price affected in relation to the information 2) he encourages another person to deal in securities due to information that are price affected and 3) he discloses this information to another person.
Relevant Laws.	The Securities Act of 1933 (Section 17 contained prohibitions of fraud in the sale of securities). The Securities and Exchange Act of 1934. Section 16 (b) addresses short swing sales. Rule 10b (5) addresses trading on non-public information. Prohibits fraud related to securities trading. Rule 10b 5-1 addresses the disclosure or abstention rule. Rule 10b5-2 addresses the misappropriation theory. The Insider Trading Sanctions Act of 1984. Insider Trading and Securities Fraud Enforcement Act of 1988	The 1977 model code of the London Stock Exchange. The Companies Act of 1985. The UK Misuse of information Act. The listing rules of the London Stock Exchange source book of August 2002, chapter 16. Financial Services Act 1986 Financial Services and Markets Act 2000. Criminal Justice Act of 1993 (Notably section 5).

Objective of the rules	In the US, the essence of insider trading rules is that they should abstain from trading or undisclosed information or release this information to the entire public (Hu and Noe, 1997).	Insiders cannot trade within a two month window adjacent to disclosures of interim or finally announcements of earnings or 1 Month prior to a quarterly earnings announcement. Many companies impose a restriction on the Board members that they must <i>only</i> trade in a ten month window following an earnings announcement (see Hillier and Marshall, 2002)
Disclosure time frame	Previously, the SEC allowed until the 10 th day of the month following on from the month in which insiders traded to report their transactions. The Sarbanes Oxley Act of 2002 changed the laws in two ways: firstly, insiders were required to report all trades electronically and they should be reported within two business days after they have been executed.	UK disclosure requirements specify that directors must inform their companies without delay about any transaction no later than the fifth business day following the trading date. Subsequently the company must inform the Stock Exchange by the end of the following business day and also enter this transaction in the Company Register. Insider trading information is disseminated immediately to the London stock exchange via the online Regulatory News Service (RNS) who further disseminates it to data vendors (Hillier and Marshall, 2002).

Primary disclosure site.	Edgar database compiled and hosted by the Securities and Exchange Commission. Insider trading data are on SEC forms 3, 4 and 5 And disclosed.	London stock Exchange online regulatory news services.
Potential penalties and sanctions	One million dollar fine and up to 10 years jail term, a civil fine and up to three times the profit gained or losses that has been avoided (Korczak and Lasfer, 2006).	Up to seven years jail term and unlimited fine.

2.3: Earnings Management-Introduction and Definitions:

There have been various ways in which the concept of “Earnings Management” has been defined. This section summarises the different definitions that best describe earnings management and that have been used in the popular accounting and finance literature. One of the most prominent definitions has been Healy and Wahlen, (1999, p. 368) who defined earnings management as:

“Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers.”

The definition above identifies the impact of judgement in the construction of earnings. As discussed by Healy and Wahlen (1999), judgement can be exercised through numerous future economic events like the expected lives and salvage values of long-term assets, employer’s obligations for pension benefits and other post-employment benefits, deferred taxes, and losses from bad debts and asset impairments. Managers also have the choice to decide upon suitable accounting methods within GAAP that are recommended by standard setters to report the same economic transactions, such as the straight-line method, accelerated depreciation methods, or LIFO, FIFO, or weighted average inventory valuation methods. Rules on revenue recognition or the straightforward manufacture of false revenue are an easier way to forge accounts as they give more room for judgement in financial reporting. They can also exercise judgment in the management of working capital, for example the management of inventory levels, the timing of inventory shipments or purchases, and receivable policies. They can also exercise discretion over different issues relating to company expenditures like research and development (R&D), advertising and reported cost of good sold customarily referred to as real earnings management. Apart from the transactions cited above, there are many hundreds of standards that provide managers with the opportunity to exercise judgement in financial reporting.

In another definition, Schipper (1989, p. 92), limiting her discussion to the external financial reporting function, defines earnings management as:

“A purposeful intervention in the external financial reporting process, with the intent of obtaining some private gains.”

This definition, though slightly different from the frequently cited Healy and Wahlen’s (1999) definition, is interesting as it specifically suggest that accounting numbers are frequently a source of information about a firm’s value. It is important to note that the Schipper (1989) definition is the first to include real earnings management as the definition discusses the timing of financing decisions to alter the reported earnings of the corporation.

Beneish (1999, p. 3) defined earnings manipulation as opposed to legitimate earnings management as:

“An instance where management violates GAAP in order to beneficially represent the firm’s financial performance.”

The third definition by Beneish primarily presents a distinction between what might be termed earnings manipulation (GAAP violation) and earnings management (within GAAP).

One of the starkest observations from the definitions above is the suggestion that financial reports habitually reflect the desires of management rather than the underlying economic performance of the company. The underlying motivations and influences of earnings management have not been clearly identified in the literature. Accounting standards are thought to add value and to enable financial statements to effectively portray differences in firms’ economic positions and performance over time and in a credible manner. Standards will be exposed to contrasting opinions of the degree of relevance and reliability of accounting information. For example, standards that emphasise the credibility of financial reports usually provide room for less judgement and definitely provide less accounting information. On the other hand, standards that stress relevance at the expense of reliability may provide accounting information that is viewed by users as containing more unconvincing information (Healy and Wahlen, 1999). Nonetheless, fraudulent accounting and accruals management are not accomplished through changes in the underlying economic activities of the firm but through the choice of the accounting methods that has been used to represent those underlying economic activities. On the other hand, real earnings management involves changes in the firm’s underlying operations like changing

R&D expenditures, acceleration of sales through potential price reductions, assets sales to influence gains or losses, etc (Gunny, 2005).

Judging by the evidence presented by different researchers, earnings management is difficult to define. In an attempt to discuss this issue, many authors have distinguished between earnings management, earnings manipulation and outright financial fraud. They have ventured that, managing earnings is possibly permissible within GAAP. They use opportunities offered by the accounting system (for example accounting discretion or judgement) and selection of income increasing (decreasing) accruals to report a favourable earnings figure. The manager chooses discretionary accruals from an opportunity set of generally accepted procedures defined by accounting standard setting bodies (Healy; 1984). When managers manage earnings to an egregious level as in the Enron and WorldCom cases, it is frequently viewed as earnings manipulation¹⁸. These are cases where managers were thought of as having committed fraud on a very large scale. The SEC normally takes enforcement actions against firms that have violated the financial reporting process as defined by the 1934 Securities and Exchange Act. Since April 1982, the Security and Exchange Commission has been publishing details of its enforcement actions in a series of accounting, auditing and enforcement releases (Dechow *et al.*, 1996).

The former SEC chairman, Steve Levitt (1998) differentiated earnings management from earnings manipulation (probably earnings managed to an egregious level) by arguing that in recent times, managing earnings is giving way to manipulation. His objection was that, financial markets in the 1990's were witnessing an erosion of the quality of earnings because of a reduction of financial reporting quality. In this regard, earnings manipulation can be viewed as an "extreme management" of earnings almost in a mockery of GAAP despite maintaining some vestigial accord with standards. This may be the case where a firm has publicly restated their earnings; been found guilty following litigation, or is undergoing a regulatory body's (for example the SEC) anti-fraud enforcement actions. For example; the cases brought against Enron, WorldCom, Arhold, Parmalat etc., are beyond doubt situations where management are subject to a high degree of culpability and hence can be thought of as representing earnings manipulation. Studies of earnings management based on stock returns also suggests that investors discount "abnormal" accruals relative to

¹⁸ Beneish (1997, 1999) differentiated earnings management from earnings manipulation and described high level earnings management like the Enron and WorldCom case as earnings manipulation.

“normal” accruals, indicating that they view abnormal accruals as more likely to reflect earnings management (Healy and Whalen, 1999).

Financial regulators and standard setters have been concerned about how much discretion to allow management to exercise in financial reporting. GAAP provides managers with substantial discretion in managing aggregate, or specific, accruals and management employ such discretion to manage earnings around certain earnings targets. Accounting earnings generally involves cash flows from operations, non-discretionary accruals and discretionary accruals. Within the bounds of GAAP, management have considerable flexibility in the choice of inventory methods, allowance for bad debt, expensing of research and development, recognition of sales not yet shipped, estimation of pension liabilities, capitalisation of leases and marketing expenses, delays in maintenance expenditures, and so on (Degeorge *et al*, 1999). In summary, those managing earnings usually accelerate revenues, or delay expenses, in order to aggressively generate income.

A basic prediction of previous research has been that management should try to exploit the specific behaviour of discretionary accruals to engage in earnings management (McNichols, 2000). This line of thinking has become even more important after the Enron scandal as researchers argued that the company was able to exploit the unobservable features of specific accrual. In this regard, the US SEC and other regulatory authorities have been committed to a vigorous investigation of earnings manipulation and director's dealings during the 1990's. This is because recent corporate scandals have been related to both insider trading relationships and earnings manipulation. This was echoed by the famous speech in 1998, by the then SEC chairman Arthur Levitt where he expressed concern over the level of earnings management and its effect on resource allocation. Schipper (1989) argues that excess management of earnings may lead to earnings un-informativeness. As in the Daniel *et al.*, (1998) model, positive (negative) discretionary accounting might be employed to signal the undervaluation (overvaluation) of a company relative to its true/fundamental value.

Changes in the use of accounting discretion can influence the informativeness of accounting earnings. Therefore the higher the precision of managerial information relating to the undervaluation (overvaluation) of their company relative to economic fundamentals,

the higher the certainty of the degree of accounting discretion to be employed. The primary focus of most earnings management research has mostly been on detecting whether and when earnings management takes place. Though this might be difficult to achieve, as a starting point, researchers have been looking at the incentives that influence earnings management and how patterns of unexpected accruals are aligned to incentives (Healy and Wahlen, 1999). If we knew the objective of earnings management it might be simpler to detect the pattern it follows.

In a survey on earnings management definitions, Ronen and Yaari (2007, p. 25) differentiated the various forms of earnings management as:

- 1) Beneficial (White) when earnings management enhances the transparency of reports by taking advantage of the flexibility on the choice of accounting treatment to signal the managers private information on future cash flows.
- 2) Opportunistic or efficiency enhancing (Gray) that involves the manipulation of reports within the boundaries of compliance with bright line standards. In such circumstances, earnings management involves choosing an accounting treatment that is either opportunistic or economically efficient.
- 3) The pernicious (Black) involves outright misrepresentation and fraud. In this case, earnings management is the practice of using tricks to misrepresent or reduce transparency of financial reports.

The following quotation from the SEC litigation releases relating to the Accounting and Auditing Enforcement Releases may explain how the SEC views earnings management (or manipulation) and further carries out its enforcement actions.

Litigation release No. 18514/December 18, 2003, Accounting and Auditing Enforcement Release No. 1928/December 18, 2003 states;

“ On December 18, 2003, the Securities and Exchange Commission filed a complaint in the United States District Court for the Southern District of Texas against Charles D. Erwin, the former Chief Operating Officer of Hanover Compressor Company (“Hanover”) and against Michael J. McGhan, It’s former chief Executive officer, alleging that they orchestrated a managed earnings scheme to inflate the company’s reported pre-tax Income and meet Hanover’s earnings goals and estimates during 2000 and 2001.....” Further, the releases writes, “As a result, according to the SEC, Hanover recognised revenues for this deals in contravention of Generally Accepted Accounting Principles...”

This case involves earnings overstatement to meet the company's earnings goals.

In some cases, earnings management may have a different incentive for example, to "meet or beat" analyst's expectations, benefit from previous trades, or understate earnings to avoid tax or other regulatory concerns, and so on and there may be a breach of fiduciary duties by management involved.

This quotation from the SEC AAER's No. 1912 may also open up some understanding:

"The Securities and Exchange Commission announces today the filing of fraud charges against the former chief executive officer, Chief Financial Officer, and Controller of the San Diego-Based Gateway, Inc., for engaging in a fraudulent earnings manipulation scheme to meet Wall Street analyst's expectations and for making false statements and concealing from the investing public important information about the success of..."

The defence here seeks to prove that manager did not manipulate/manage earnings, in breach of their duty to other stakeholders through concealing material information¹⁹.

2.3.1: Classification of Earnings Management.

Earnings management is habitually classified into three categories: fraudulent accounting that involves the violation of GAAP through accounting discretion, accruals management involving earnings management within the bounds of GAAP, and real earnings management where managers try to influence reported earnings through actions that substantially changes the underlying cash flows thereby influencing reported earnings. One specific difference between real earnings management and other forms of earnings management is that fraudulent accounting and accruals management are not accomplished by changing the underlying economic activities of the firm but through changes in the accounting method that has been employed to report the underlying activities (Gunny, 2005). It is usually difficult to evaluate real earnings management as being in violation of common law because of the business judgement rule. The business judgement rule is an American case law acknowledging that directors manage the company. It's a presumption that in making a business decision the directors normally act on an informed basis, in good

¹⁹ For details, you can look through the SEC website for other ways the SEC litigates individuals who have violated securities laws. Note that, it may not only be company management involved in the litigation process, the auditors either external or internal, management, creditors, debtors and so on may decide to assist in managing earnings for different motives.

faith, and in the honest belief their action is for the best interest of the company. The rule recognises that the daily operation of a business involves managing several risky and controversial decisions. The directors should therefore be allowed to make decisions without fear of being prosecuted. The business judgment rule further assumes that it is unfair to expect those managing a company to make perfect decisions all the time.

In extant earnings management research, much of the discussions have been focused on the management of abnormal accruals using models that fail to distinguish the pure accruals manipulation from manipulation of real activities. Contributions that focus on earnings management through real activities have been concentrated on investment performance (Roychowdhury, 2003). In the spirit of Graham *et al.* (2005), real operating decisions customarily involve the timing of investments, cash flows and financing decisions like changing R&D (Bushee, 1988), capital expenditures or sometimes unexpected asset sales or purchases by the corporation (Bartov, 1993).

2.3.1.1: Accrual-Based Earnings Management.

Accrual Accounting is the preparation of accounts such that expenses and revenues are recognised at the time that they are incurred and earned respectively, irrespective of when the firm paid out or received the money. Accrual earnings is regarded as a superior measure of firm performance than cash flows because it mitigates timing and mismatching problems inherent in measuring cash flows over short intervals (Dechow, 1994). Accounting principles (IAS and IFRS) customarily provide for the use of accrual accounting in financial reporting, providing flexibility in the preparation of financial reports. This flexibility is subject to managerial discretion, which could enhance the informativeness of earnings by allowing communication of private information (Holthausen, 1990) or induce managers to manage income opportunistically thereby creating distortions in reported earnings (Watts and Zimmerman, 1986).

One of the most prominent ways managers may manage earnings is by the managing of accruals with no direct cash flow consequence. Examples include unjustifiable bad debts provisions, delaying of assets write-offs, and opportunistic selection of accounting methods (Roychowdhury, 2003). Several researchers have attempted to decompose total accruals into two components, which include the discretionary and non-discretionary accrual

components. These accrual components affect earnings differently as the non-discretionary accrual component are adjustments to cash flows customarily authorised by accounting standards while discretionary accruals are adjustments to cash flows selected by managers to report a favourable earnings figure. This discretionary component of accruals creates a loophole for managers to manipulate the accrual component of earnings. Due to the flexibility accorded by Generally Accepted Accounting Principles (GAAP), accrual earnings management is subject to managerial discretion (Subramanyam, 1996). The managerial discretion could be informative; in which case, managers present the financial statements such that they are more informative to users. In the torrent of research papers discussing earnings management, the choice of the so-called discretionary component of accruals as a proxy for earnings management has been extensively justified. Earnings management is a routine business that has been subject to a great deal of managerial discretion and consequently earnings manipulation (Kang *et al.*, 2006). Arguably, managers tend to adjust up (down) earnings by inflating (deflating) current-period accruals.

In linking the accruals anomaly to other firm based expectations relating to future performances like stock returns, researchers have employed either the behavioural approach or the risk based approach. The behavioural approach suggests that higher accruals lead to lower future stock returns and lower accruals are followed by higher future stock returns argue that investors do recognize the low persistence of accruals and tend to overprice it (See Sloan, 1996; Collins and Hribar, 2000; and Xie, 2001). The argument here is that investors over-extrapolate current earnings, seemingly ignoring the transitory nature of earnings boosted by a comparatively high proportion of accruals. The risk-based argument suggests that the accruals-return relationship is a manifestation of the presumed growth-value anomaly, which Fama and French argued has a liquidation risk explanation (Zhang, 2006). One of the weaknesses of accruals based models is their heavy reliance on the chosen metric for accruals. In the extant literature, the assumptions invoked have been rather piecemeal in nature; for example in the Jones models, revenue is not discretionary while the modified Jones model assumes that it might be discretionary (Chen *et al.*, 2005). Moreover, it does not capture earnings management through cash flows and discretionary changes in different items like R&D, selling, general and administrative expenses, capital expenditures, etc (Healy and Wahlen, 1999). As in Dechow *et al.*, (2005), these models generate tests of low power.

2.3.1.2: Real Earnings Management.

Discussing earnings management based on accruals alone, they customarily understate earnings management. Recent research has provided evidence that earnings might be managed through changing real activities. Managers might take real actions to meet earnings target that influences shareholder value in both the short and long run. They are less likely to be challenged by regulators on purely business decisions when they for example sell a plant or reduce R&D expenditures. For example, companies that want to sell their assets to influence reported earnings might have found a buyer by the end of the year. They have the choice to either report the transaction close to the end of the year or delay the finalisation of the transaction to the next year (Bartov, 1993). However, this might depend on whether the acquiring management team is also interested in using the purchase or sale of this item to influence reported earnings in the current year. Apart from timing decisions that influence reported earnings, managers might take variables that are free from the effects of pure accrual manipulation to an abnormally high level. In extant research it is found that managers usually report abnormally low cash flow from operations, abnormally high production cost, and reduce discretionary expenses to influence reported earnings (see Dechow *et al.*, 1998, Roychowdhury, 2003).

2.3.1.3: Cost and Benefit of Real and Accruals Earnings Management.

Several reasons might motivate managers to employ real earnings management at the expense of accruals manipulation. Firstly, real earnings management has a far lower likelihood of auditor or regulatory (SEC) enquiry compared accrual manipulations. Secondly, the decisions to manipulate earnings through accruals are limited to year-end periods when companies prepare their annual reports (though companies might still manage earnings through quarterly reported earnings). On the other hand, real earnings management can still take place during the whole accounting period. Real earnings management on the other hand can generate its own problems. Firstly, the techniques employed customarily involve some cost to future cash flows. For example, a company might institute price discounts at the current accounting period to boost reported earnings, but this might be a short term objective to meet a current earnings target that might have a longer term repercussion especially on future cash flows. Customers in the long term might expect future price discounts that might also lead to lower cash flows from sales in the future (Roychowdhury, 2003). Real earnings management might negate the value of

companies. Jensen (1993) presents evidence that excessive R&D and capital investment during the 1980s destroyed at least \$10 billion each at such companies as General Motors, Ford, British Petroleum, Chevron, and DuPont.

2.3.1.4: GAAP Earnings Management.

It is generally thought that GAAP defines earnings and when managers follow GAAP, earnings are not being misrepresented. However, research shows that this is not true as earnings can still be managed within GAAP. GAAP earnings management involves managing GAAP to influence reported earnings. Roychowdhury (2003) argued that managers, for example, might take advantage of the absorption-costing system requirement of GAAP to report lower cost of goods sold (COGS). To be able to do this, they might produce more than the quantity required to meet sales and normal target inventory levels. This over production might give them the opportunity to allocate fixed cost to higher than normal end of period inventories and this will nonetheless reduce the resulting cost of goods sold. GAAP rules generally permit many accounting choices that facilitate creative reporting that lead to earnings management.

2.4: Earnings Manipulation or Management?

As in Beneish (1999) earnings manipulation refers to instances in which a company's managers may violate Generally Accepted Accounting Principles (GAAP) to favourably represent the company's financial performance. In this case, firms subject to SEC enforcement through the Accounting and Auditing Enforcement Releases might be regarded as likely practitioners of earnings manipulation. According to Dye, (1988), and Evans and Sridhar, (1996), opportunities for such manipulations of earnings arise because of the flexibility permitted by GAAP, and also because it may be costly to require and enforce less flexible financial reporting rules.

In terms of the discussions presented here, managing earnings is possibly within GAAP, while earnings manipulation is in complete violation of GAAP. The degree of un-informativeness of earnings is higher in manipulated than on managed earnings leading to outsiders repudiating manipulated earnings, which may not be the case when earnings are managed within GAAP. This does not preclude companies with earnings managed within

GAAP becoming subject to action class litigation. Table 2 below presents some points of distinction between earnings management and earnings manipulation.

Table 2: Comparison of Earnings Management and Earnings Manipulation.

	<u>Earnings Management.</u>	<u>Earnings Manipulation.</u>
GAAP	Within GAAP	Violate GAAP.
<u>Informativeness.</u>	Fairly misleading.	Totally Misleading (Uninformative)
<u>Regulatory/Outsiders View.</u>	May repudiate	Repudiate.

2.5: Insider Trading Relationship to Earnings Management.

This section discusses briefly the relationship between insider trading and earnings management. However, since this forms the core of my main empirical investigations, this is discussed in more detail and conclusions drawn in Chapter 4.

There is much evidence in academic literature and in the popular press that managers use their discretion over accounting numbers to achieve some private gain. One method through which researchers have investigated this private gain has been through managerial self-dealing in their corporations stock while managing earnings. In some circumstances managers have still been able to manage earnings and prolong consecutive earnings increases while coordinating personal stock trades (Ke et al., 2003). Beneish and Vargus (2002) documented that tradable strategies that jointly exploit earnings management and insider trading signals earn economically significant one-year ahead returns and that these returns dominate strategies based on either accruals or insider trading individually. They concluded that signals contained in insiders' trading behaviour are useful in distinguishing opportunistic from informative earnings management, and in making refined assessments of earnings quality. Insiders are thought to manage earnings upwards before selling their shares at inflated prices (Bolton *et al.*, 2002, Bar-Gill and Bebchuk 2003, Park and Park, 2004) thereby acquiring significant profits from such trades.

These studies provide a theoretical framework on how a firm's accounting decision is associated with insider trading and offer empirically testable propositions for earnings

management (Park and Park, 2004). The pump and dump hypothesis have been explained in different ways and documented in different markets. In the Bar-Gill and Bebchuk (2003) model that addressed the causes and consequences of mis-representing a firms' performance, the authors argue that when managers intend to sell some of their holdings in the short-term, the incentive to misreport and the occurrence of misreporting (e.g., engaging in earnings management) increases. Trueman (1990) suggests that managers would have an incentive to manipulate their firms' current-period earnings in order to influence the post-announcement stock prices, especially when they intend to sell their ownership in the subsequent accounting period. In Hong Kong, Bikki and Judy (2007) documented a positive association between earnings management and insider selling after the fiscal year-end. This positive association is especially evident before the 1997 Asian Financial Crisis where managers sold shares after managing earnings upwards prior to the crises.

Another group of study argue that insiders trade with information pertaining to future earnings changes. While not testing the abnormal accruals surrounding insider trading specifically, Noe (1999) reported that managers tend to sell their shares primarily after their firms report good earnings performance, and that they also tend to purchase their firms' common shares after their firms report bad earnings performance. This is in line with recent work by Ke *et al.*, (2003) who argued that insiders sometimes trade with information pertaining to a break in a string of consecutive earnings increases, without necessarily using discretionary accruals. Their buying (selling) frequently preceeds stock price increases (decreases) (Seyhun, 1986, Rozeff and Zaman, 1998, Ke et al., 2003). The finding in this paragraph is in line with Seyhun (1986) who reported that insiders are more knowledgeable about their firm's future prospects and thus can predict future stock price changes.

Beneish et al., (2004) investigated two hypotheses about the relation between insider selling and earnings management in periods preceding poor corporate performance in their litigation avoidance hypothesis. This was through a sample of 462 firms that experience technical default in 1983-1997. They documented that managers manage earnings upwards after they have engaged in abnormally high levels of insider selling. According to the

authors, the findings indicate insider trading provides managers with incentives to subsequently manage earnings upward, to distance their selling from the revelation of bad news and reduce the likelihood of reputation, employment, and litigation losses. The implications are that investors and those with oversight authority (e.g., boards of directors, auditors, and regulators) should consider monitoring prior rather than contemporaneous insider-trading activity as a part of their corporate governance practices. This has been supported by recent evidence (e.g. Weber, 2005) who suggested that insiders manage earnings in order to distance their sales from negative earnings news hence avoiding the appearance of undertaking an illegal insider trade. Also, most well known financial market fraud and litigation cases associated with earnings management have frequently had close links to prior Insider dealings²⁰.

2.6: Motivations for Earnings Management.

The objective of this section is to identify the various theories/motives for managing earnings that have been tested by prior research. This will help the reader understand the theoretical advances in the area and the specific research issues to be tested. Research on earnings management has proposed different theories of why companies manage earnings. The decision to manage earnings emanates from specific economic, financial, political or social interest. Such interest may be important to the corporation or the managers in a precise period. For example, using income decreasing earnings management techniques, management of a corporation may benefit from tax reductions, price control reductions and increases, and while using income increasing techniques for example, management may get increased bonuses and fulfil their stewardship responsibilities.

In some circumstances, management may be faced with circumstances where the influence of regulatory bodies may force them to report an unmanaged earnings figure without the use of uninformative discretionary management techniques. The various papers listed below discuss some of the motivations of managing earnings on the part of stakeholders in a corporation. However not all earnings management is opportunistic. As reported by

²⁰ To view details of this relationship, see some of the cases involving earnings manipulation in the Accounting and Auditing Enforcement Releases in the SEC website. In most of these cases, managers are being sued for guiding accounting earnings while conducting personal stock trade.

Holthausen (1990), Aria et al (1998), earnings management can remarkably not be tied to any incentive to manage earnings²¹.

Before we proceed with some of the constructs that may have a significant relationship to the level of earnings management, it will be interesting to cite a speech by the former SEC chairman to the American Institute of Certified Public Accountants on the 24th of October 2000

"Like never before, companies are under increasing pressure to "make their numbers" or risk losing millions of dollars in their stock value, simply because they are a penny or two shy of Wall Street earnings expectations. Auditors are sometimes encouraged to "go easy" on a judgment call, or "look the other way" when it comes to accounting sleight of hand, all in the name of boosting revenues. In this environment of conflicting interests, the investing public relies on the accountant to stay true to his or her fiduciary duty, to never lose sight of the precious franchise that is theirs to guard so vigilantly".

2.6.1: Income Increasing Earnings Motivations.

This section discusses the various alternative motivations for income increasing earnings management and the pattern that would be consistent with that motivation.

2.6.1.1: Earnings Based Compensation And Bonus Schemes (Implications for Corporate Governance).

Prior studies present evidence of a relation between managers' contractual agreements and earnings patterns. These patterns are often consistent with earnings being reported to benefit managers through increased bonuses (Healy (1985), Gaver, *et al.*, (1995) and Hothausen, *et al.*, (1995)). Managers are occasionally remunerated with bonuses and other kinds of compensation if certain company earnings targets are met. Some of the compensation schemes depend explicitly on accounting earnings especially bonus schemes and performance plans (Watts and Zimmerman, 1986). Performance plans, for example, award managers the value of performance units or shares in cash or stock if a certain long-term (3-5 years) earnings target is met. Bonus plans are similar except that they stipulate annual rather than long-term earnings goals (Healy, 1985). Compensation schemes and others (particularly performance plans) have been viewed as creating an incentive for

²¹ There is the valuation implication where managers might manage earnings when they think the stock price of their company have been undervalued (or overvalued) and they want to portray the true value of the company.

managers to select accounting and accruals to maximize the value of their bonus awards (Watts and Zimmerman, 1978). The schemes appear to be an effective way of influencing managerial accrual and accounting procedure decisions. Other popular forms of compensation that may entice management to manage earnings may include, stock options, insurance plans, stock appreciation, and restricted stock grants, etc. In most corporations, compensation plans may depend on such policies like a fixed bonus for attaining a reported earnings target, a linear variable bonus for exceeding the target and a linear variable penalty for reporting income below the target (Koch and Wall, 2000). Koch and Wall (2000) studying the circumstances surrounding the use of accruals in two companies Sumbeam (1996-1997) and Citicorp (1987) found the respective firms management of earnings was motivated by compensation policies adopted for CEO'S. Managers might therefore manipulate earnings upwards either in order to avoid adverse contractual consequences to their bonus schemes and employment situations or to conceal a firm's actual performance to other stakeholders.

Financial reporting in general and earnings management in particular is a key subject for corporate governance because; it conveys information regarding firm value and thus the quality of the management. However the way corporate governance relates to earnings management is not always obvious since investors and researchers find it tricky to unambiguously determine the actual motive for earnings management. Recall that, Holthausen (1990) and Aria *et al.* (1998) remarked that earnings management might not necessarily be opportunistic. There is no doubt that, incentives can be devised so as to encourage managers to attain- or at least report- a high degree of target accomplishment, but the means used are not always those intended or desired. Such schemes may perhaps encourage competition among managers where co-operation would have been preferable from the shareholders perspective, and may encourage the manipulation of actions and reports so that senior managers become increasingly misinformed about what is in reality happening whilst being lulled into a false sense of security that all is well. In Japanese management style for example, members assist and encourage each other in achieving corporate objectives and there is a link from substantial monetary rewards to overall target achievements. But in the United States, target achievement and related rewards are most prevalent and assessed at senior management level and are customarily linked to incentives like bonus schemes, pension bonuses, stock options, etc. Within Enron brutal

“Performance Review Committees” allowed colleagues to rank each other with those getting the lowest ranking being fired. This effectively set colleagues in direct open competition for survival.

The case of WorldCom is a typical example. Managers had bonuses that were based on revenue growth. Their salaries, bonuses and options were also tied to the stock price of the company. For example, top-level managers like Ebbers and Sullivan were receiving about \$10m of retention bonuses and several loans from the company that were repayable on termination (Ball, 2007). This made the incentive to engage in higher earnings management.

2.6.1.2: Stewardship Value of Accounting.

Several studies have shown that reported accounting information is used to value companies and earnings management influences stock prices (see Sloan (1996), Xie (1999)). Despite the theoretical popularity of cash flow valuation models, accounting earnings is still widely used in share valuation and to measure performance in management and debt contracts (Dechow et al., 1998). As a means of fulfilling their contractual obligations to other stakeholders, managers or shareholders might be interested in influencing earnings management (Dye, 1988). Graham et al. (2005) surveyed CFO's and they indicated that they manage earnings to maintain or increase the stock prices of the firms they are managing. Nor is it normal to find analysts forecasting dividends, as opposed to earnings. Several empirical work have also argued that a firm's propensity to increase abnormal accruals depends on the relative stock price premiums that can be achieved from reporting positive or negative earnings surprises (Rajgopal *et al.*, 2007).

Shareholders, for example, may wish to satisfy prospective investors or lenders especially when the firm requires additional support to survive and may sometimes think that the only way to do this is for management to manage (manipulate) their earnings figure. The stewardship value of accounting information itself may drive management to manage earnings (manipulate) frequently. The stewardship view documented by Dye (1988) is also linked to the compensation contract in place for the senior management team. As long as compensation contracts are linked to accounting data, managers can always manage earnings to benefit from such contracts.

Recent issues for earnings management research have been the impact of agency relationships between owners and managers (Shackleford and Shevlin, 2003). Dhaliwal *et al.* (1982) studying the association between the ownership control status of the firm and the accounting methods they adopt, found out that, in large companies (for example multinationals), where there is a strong separation of ownership and control, there is a tendency for management to adopt accounting methods that boost reported earnings. They believe managers always have an incentive to control information thereby releasing favourable results that may satisfy current shareholders. They are therefore obliged to choose accounting methods that may result in higher reported earnings leading to higher equity. Management may favour favourable earnings for fear of a backlash from investors calling for their replacement or to avoid various kinds of litigation. This may lead to the adoption of accounting policies that inflate earning figures. Historically too, few investors will accept some kind of explanation for a persistent fall in profits influencing shareholders to push for positive discretionary accruals which may frequently be uncritically welcomed by investors.

2.6.1.3: Debt Covenants and Related Liquidity Implications²².

DeFond and Jiambalvo (1991) found out that firms that violate debt covenants could incur re-contracting costs and in order to avoid this cost, they frequently overstate reported earnings. When investors are not bound by debt covenant obligations, if they want to borrow money, they must report earnings with covenant related variables that may be favourable to creditors. In conclusion, liquidity needs and credit engagements act as an incentive for management to manage earnings along specific earnings target.

2.6.2: Income Decreasing Earnings Motivations.

This section discusses the various alternative motivations for income decreasing earnings management and the pattern that would be consistent with that motivation.

²² The level of compensation and Bonus schemes, stewardship value of accounting and debt covenants and liquidity implications generally influences management to rather overstate earnings.

2.6.2.1: Price Control/Tax Implications²³

Bowman and Navissi (2001) examining the relationship between price controls and income-decreasing discretionary accruals found out that firms will be more aggressive in decreasing income using various income-decreasing earnings management techniques to lower profits to increase the probability that their price increase application should be approved. Also if a firm reduces its earnings figure, they pay less tax than when earnings are increased. Private firms in developing or transition economies have the incentive to underreport sales and profits to avoid taxes, predatory behaviour by government officials, or escape extortion by criminal gangs (see Johnson *et al* 2001).

Addressing the tax implications on earnings management from the perspective of Jensen and Meckling's (1976) agency theory, recent research has suggested that the relationship between ownership and control may have an implication for how companies try to avoid taxes. When firms, for example, want to provide high quality financial information to external stakeholders, they are constrained into managing earnings. Public companies are furthermore found to be less interested in earnings management than private companies (Goncharov and Zimmerman, 2005).

2.6.2.2: Import Relief and Other Subsidies.

Management is sometimes motivated to report a loss to benefit from import relieve and other state subsidies. Provisions of an import relieve and other state subsidies will provide managers with an opportunity to increase the generosity of state subsidies for supposed harm done to national producers. (Jones, 1991). Local and national governments usually give subsidies to some important loss making companies to improve their performance so as to meet some capital market requirements. Many small companies also have incentives to reclassify selling, promotional, advertisement and other expenses to lower their tax expense (Noronha et al., 2008). The implications are that some firms might manage earnings downwards to give the impression that they are not doing well.

²³ Most of the studies relating to earnings management emphasize mostly situations where earnings are overstated using positive discretionary accruals. In other circumstances, management may be motivated to understate earnings to benefit from import relieve and other state subsidies, pay low taxes, etc using negative discretionary accruals.

2.6.2.3: Audit Firm/Quality²⁴.

The level of audit quality and listing requirements may influence management's decision to manage, or manipulate earnings, and affects their opportunities to do so. It has been observed that an effective²⁵ audit acts as an incentive for company management to report meaningful earnings figures short of accruals and other manipulations. Despite the auditing profession, managers are often judges in their own case regarding their performance in serving shareholders. Historically, companies in countries with a strict audit quality regime have tended to engage less in earnings management (manipulation) than those in countries with less audit quality compliance procedures (e.g. Francis *et al.* 1999). Previous studies have documented the influence of a high quality audit on earnings management (Becker *et al.*, 1998; Francis *et al.* 1999) and that a quality auditor (i.e.: a big 4 auditor, DeAngelo, 1981) tends to reduce the level of discretionary accruals employed to manage earnings. De fond and Jambalvo (1991) further found out that the audit quality is frequently influenced by the audit firm in question as firms audited by the big 4 audit firms are less likely to have errors or irregularities which can be considered to be proxy for earnings management than firms audited by the Non Big 5. The specific irony here is that, the big 4 managed Enron and WorldCom.

In Germany and the Netherlands for example, due to their flexible audit quality regimes, companies there report more discretionary accruals management than companies in France and UK with stricter audit quality regimes. As noted in several studies of about earnings management, what is frequently managed is a subset of the manager's financial report that requires some discretion. GAAP, auditors, audit committees and legal rules constrain reporting especially in areas that are specifically discretionary (Schipper, 1989) and if properly interpreted, there would be less earnings management.

2.6.2.4: Listing Requirements and Stock Market Pressures.

Also, if a company is listed in a foreign stock market, thereby relying on international capital markets with a different audit and accounting procedures, there may be some variations in its reporting and compliance procedures that may constrain manipulation or

²⁴ The quality of audit and the listing requirements by the major exchanges influences management to report proper accounting earnings figure short of accrual manipulation and management techniques.

²⁵ Effectiveness is defined here as an audit that is not influenced by conflicts of interest.

management of earnings even when opportunities exist to do so. It is generally believed that managers may be constrained by the reporting requirements despite other incentives that may be available for them. Furthermore, regulator and other stakeholders are always of the presumption that companies audited by the big 4 and listed in a foreign stock exchange, are less likely to manage earnings than companies not audited by the big 4 and listed on national market. However, since foreign listings are usually motivated by the liquidity needs of a corporation, this may instead act as an incentive to manage earnings using income-increasing techniques. The quality of information is of interest to the capital market when they are listed on the stock market, as different stakeholders may be interested in the accounting information. When firms are listed in the stock market, they are required to provide high quality financial information to the investing public. In this regard, accounting regulations normally limit their ability to pursue blatant forms of earnings manipulation (Goncharov and Zimmerman, 2005).

When a firm is missing an earnings target by a mere cent, they may see their stock price decline precipitously. On the contrary, when a firm beats a target by a few cents, there may be a boost to its stock price. These are surely the reason why it is more popular for firms to miss their targets by a cent and less likely to see that firms exactly making or exceeding their target by a cent (see DeGeorge, Patel and Zeckhauser (1999), Burgstahler and Dichev (1997), Mohanram, 2003) When firms are extremely close to a target, the incentives to take earnings just over the target becomes exceedingly strong. In these cases, the firms will try and use some form of upwards earnings management to “bump up” earnings over the target. Additionally, when firms are way below their targets, they have an incentive to make things look even worse. These are for two reasons: Firstly, it is highly unlikely that any amount of earnings management will get them over the target or meet analyst’s expectations. Secondly, if the firm is way below the target, the costs of being even worse are typically minimal (Mohanram, 2003). This point was supported by Arthur Levitt (1998, p. 1), former head of the SEC. In a speech describing the big-bath restructuring in his famous the “*numbers game*” speech, he argued that:

“Companies remain competitive by regularly assessing the efficiency and profitability of their operations. Problems arise, however, when we see large charges associated with companies restructuring. These charges help companies “clean up” their balance sheet - - giving them a so-called “big bath. Why are companies tempted to overstate these charges?

When earnings take a major hit, the theory goes Wall Street will look beyond a one-time loss and focus only on future earnings. And if these charges are conservatively estimated with a little extra cushioning, that so-called conservative estimate is miraculously reborn as income when estimates change or future earnings fall short.”

2.6.2.5: Trading by Corporate Insiders.

Insider trading relationship to earnings management is mostly discussed from the opportunism hypothesis, where insider trading is partly due to the willingness to benefit from private information and from other equity related incentives. The most direct evidence of insider trades acting as an incentive to manage future earnings have been raised by Beneish (1999), although other research has concluded that insider trading can be informative about future earnings changes or management due to a specific event that may be price sensitive. From prior theoretical findings, insider trading motivates Executives to take actions to increase firm earnings (See for example Jaffe (1974), Givoly and Palmon (1985), Seyhun (1986), Lakonishok, Schleifer and Vishney (1994) and Rozeff and Zaman, (1998) Ke *et al*, (2003)). Secondly, earnings management influences future firm performance (see Sloan (1996), Xie (2001), Penman and Zhang (2002), Richardson *et al*. (2002), Chan *et al.*, (2006). These researchers suggest that insider's trades are informative with buying and selling being followed by future price increases (decreases). I therefore suggest that, insiders will buy (sell) shares and manage earnings to report an increase (decrease) in the profit of the corporation. The details of this are captured within the results of my research as this is part of my hypothesis but it is in line with the suggestion of Beneish (1999, 2002), and Beneish and Vargus (2002), though this was not the principal objective of the those researchers. This motive together with the regulatory motivations for earnings management discussed in section 2.6.8 are the most important motives for this research as the objective of this thesis is to investigate insider traders motivations for earnings management. It is important to note that under this hypothesis, managerial accruals are focused on misleading outside investors and other stakeholders of the true nature of a company's earnings.

2.6.2.6: Legal rights of outside investors.

Leuz *et al* (2003) examining the extent to which Insiders overstate performance to outside investors found out that, when legal protection is low for outside investors, this may act as an incentive for insiders in publicly-traded firms to overstate performance to outside investors. The legal rights accorded to outside investors and the qualities of their enforcement are both associated with the properties of firms' accounting earnings. In Ball *et al.* (2000), the argument put forward is that an improvement in the legal rights of all stakeholders, politicization of accounting standard setting and enforcement actions weakens the demand for timely and conservative accounting income, and conversely increases the demand for an income variable with low volatility. In these countries whose legal system originates from code-law, the comparatively strong political influence on accounting occurs at national and firm levels. Governments establish and enforce national accounting standards, typically with representation from major political groups and external stakeholders such as labour unions, banks and business associations. Such a setting makes sure the rights of every stakeholder are respected.

2.6.2.7: Regulatory Motivations for Earnings Management.

Several regulatory policies both at the industry and national level have previously motivated corporate managers to report either earnings decreases or increases. As Watts and Zimmerman, (1978) hypothesised, managers of firms that are vulnerable to adverse political investigations or anti-trust investigation have incentives to manage earnings to present a less profitable situation. Research by Cahan (1992), provided evidences supposing that, where firms are under investigation for anti-trust violations they report income-decreasing abnormal accruals in investigation years. Jones (1991) found that when companies apply for import relief, they reduce their income in the years in which they submit their applications. At the industry level, financial institutions face considerable regulatory and other pressures that are habitually linked to future accounting information. For example, banks are expected to satisfy certain capital adequacy requirements that are written in terms of accounting numbers. Such regulations generate incentives for firms to manage the income statement and balance sheet variables of interest to regulators (Healy and Wahlen, 1999).

2.6.2.8: Other Motivations for Earnings Management²⁶

Earnings management can be motivated by peer pressure and ego, where the need of those in control of the company influences the decision by managers to influence reported earnings. Managers also manage earnings to hide accounting fraud like when they have stolen cash from the company and other assets. Managers sometimes have excessively strong belief in themselves and the company they manage and might want to influence reported earnings to portray the company as profitable. The temptation to deceive others is a universal human weakness that influences the way earnings and other performance metrics are reported. Even in the absence of any economic motive to defraud it may be that a poor performance reduces the senior management team sense of self-worth.

2.7: Penalties for Insider Trading and Earnings Management Offences.

This section explains ways in which managers can be penalised for managing earnings. Penalties range from financial penalties imposed by the regulatory authorities to personal penalties that are usually incurred by the individual after committing insider trading and earnings management offences.

2.7.1: Financial Penalties.

Financial penalties range from restitutions, recoveries, fines and seizures of the assets of the individuals and institutions involved in the insider trading and earnings management offences. At the level of the corporation, they are sometimes charged with civil penalties that sometimes run to millions of dollars. Xerox is an example of a company whose executives appeared to have manipulated earnings during the 1990s while concurrently exercising large amounts of stock options and selling large numbers of shares in the open market. In April 2002 the SEC sued Xerox for manipulating reported earnings, and as part of the settlement with the SEC, Xerox was forced to restate reported revenues for the period between 1997 and 2001. Due to the restatement, reported revenues were reduced by \$2.1 billion and net income by \$1.4 billion. The SEC's lawsuit accused Xerox of using a variety of tricks to inflate net income, including inappropriately allocating the revenue stream on their equipment leases. Other firms whose executives were accused of inflating

²⁶ This section was compiled from information in presentation slides and informal communication with Professor Ray Ball during his visit to the University of Edinburgh as part of the Citigroup Lecture, University of Edinburgh, 2007.

earnings and exercising stock options or trading in their shares on the open market include Waste Management, Tyco, and Enron (Bergstressera and Philippon, 2004).

Individuals charged with insider trading and other offences that led to corporate failures always suffer much wealth loss in the form of lost income, bonuses, shares and options and salaries. They are customarily requested to return any profits earned. Auditors and their firms involved in audit failures are habitually sanctioned with civil penalties. Andersen was fined \$7 M as settlement for the audit failures of Enron. Financial institutions accused of aiding Enron's financial manipulation were also sanctioned. Citigroup was sued for \$2 billion, J.P Morgan Chase for \$2.2 billion, Canadian Imperial Bank of Commerce for \$2.4 billions, and so on (see table 4 and 5 below).

2.7.2: Criminal Penalties²⁷

Federal legislations legally indict and convict suspects who are found guilty of criminal offences relating to insider trading, earnings management and other corporate frauds. Following the SEC investigations, up to 30 executives were convicted of insider trading and earnings management offences. Skilling received 24 years, Andy Fastow, the company Chief Financial Officer was convicted for 6 years imprisonment, after agreeing to supply evidence about other managers, Richard Causey, the company's chief accounting officer was sent to prison for 5 and half years. Worldcom executives convicted include Ebbers, the company's Chief Executive Officer that received life imprisonment, Scott Sullivan who was the company's Chief Financial Officer who received 5 years, Myers, the company's financial controller received a year, and others like Yates, Vinson and Norman received minor sentences. Other executives that have been convicted in recent times include John Rigas (15 years) of Adelphia communications, his son Timothy (20 years), and Michael (10 months)²⁸. In Rite Aid, Bergonzi (the CFO), Grass (CEO), and others were convicted. Computer associates Chief Executive Sanjay Kumar was convicted to 12 years and Tyco's Chief Executive Kozlowski's and Mark Swartz received long sentences also (see table 5).

²⁷ Information in this section has been collected from reading through the SEC website including information on the accounting and auditing enforcement releases over many years. I also had the chance to attend a presentation by Ray Ball at Edinburgh University where several aspects relating to these criminal and other penalties were discussed.

²⁸ In 2006 The Riga's family, which founded the now-bankrupt Adelphia Communication through a settlement with the U.S. Attorney's office for the Southern District of New York and the SEC decided to forfeit 95 percent of its assets totalling more than \$1.5 billion. Those assets including cable systems that were valued at \$700 million to \$900 million and bonds valued at around \$567 million.

2.7.3: Market Penalties.

Investor's forecasts earnings for companies and these earnings are customarily utilised to value companies. When the reported earnings do exceed the forecast, the firm's stock price normally increases, though it might be at a slower rate. When earnings are lower than the forecast, the stock prices may drop. Though this encourages earnings management, the stock market sometimes discounts the effect of a firm's earnings management on the reported earnings and thus undervalues companies. Banks²⁹ involved in aiding the various firms in their deceptive practices were faced with lawsuits and settlements that tarnished their credibility. Table 3 below presents the type of shareholder wealth losses that often follows high accounting fraud.

Table 3: Scary Numbers: Destruction of Shareholder Wealth.

Company	Estimated Amount (\$ US)
Enron	\$60,000,000,000.
Cisco	\$450,000,000,000.
WorldCom	\$175,000,000,000.

Source: <http://www.sox-online.com/shocking.html> as retrieved on 28 Apr 2008 18:24:10 GMT.

2.7.4: Reputational Penalties.

Trust and integrity are essential for the functioning of most capitalist markets and without trust; most markets would be unable to exist as they do (Glassman, 2003). Corporate scandals such as Enron and WorldCom habitually plunge the profile of previously high profile executives. This normally leads to a loss of reputation, prestige, peer respect and friends. This is because most businesses are conducted primarily on a personal level and companies don't like to do business with executives whose words cannot be trusted. There are also implicit penalties in the managerial labour market for insider trading and earnings management offences. Firms that are subject to the SEC enforcement actions or have had their earnings restated often have a high managerial turnover and such managers often found it difficult to acquire a new job (Desai et al., 2004). So the failing is not the manipulation so much as getting caught in the process of doing it.

²⁹ Citigroup was sued for \$2 billion, J.P Morgan Chase for \$2.2 billion, Canadian Imperial Bank of Commerce for \$2.4 billions, and so on.

2.7.5: Personal Penalties.

Physical and mental stress that often follows indictments and convictions for corporate fraud is enormous³⁰. This sometimes affects the family and other close relatives. Also, there is always a loss of one's liberty when there is a conviction for corporate fraud. Some top executives of firms under investigation sometimes end up committing suicide (for example Cliff Baxter at Enron) for several reasons that might range from their inability to cope with stress and losses generated from the investigations. Robert Lay was convicted and his conviction was annulled as a result of his death.

³⁰ This often leads to suicide. Clifford Baxter, a former senior executive of the bankrupt US energy giant Enron, committed suicide apparently because of stress generated from the severe losses and public interest in the case.

Table 4: Summary of Recent US Earnings Management Scandals.

Company name	Time period
Adelphia communications corporation	1999-2001
Bausch and Lomb inc.	1997-2000
Bristol-Myers Squibb	1999-2001
Cendant	1997-1998
CMS Energy	2000-2001
Computer Associates	1999-2000
Conseco Inc,	1999-2000
Dynegy Inc.	2001-2002
Enron Corporation	1997-2001
HealthSouth Corporation	1999-2002
K Mart corporation	2001
Merck & Co.	2002
Microstrategy Inc.	1998-2000
Qwest Communications	2000-2001
Rite Aid Corporation	1998-2000
Sunbeam Corporation	1997-1998
Symbol technologies	1998-2002
Texlon Corporation	1999
Tyco international	1997-2002
Waste Management Inc.	1992-1997
Worldcom Inc	1999-2002
Xerox Corporation	1997-2001

Source: Compiled by author. The list is not exhaustive as it was developed on a random search on the SEC website. It includes only firms alleged to have committed accounting fraud by the Accounting Auditing and Enforcement Releases (AAER's).

The following companies have so far been charged with financial impropriety: Adelphia, Arthur Andersen, Critical Path, CSFB, Enron, HealthSouth, Homestore.com, ImClone Systems, Kmart, Martha Stewart Living, Merrill Lynch, Qwest, Salomon Smith Barney,

Tyco, U.S. Technologies, WorldCom. The following companies are under investigation as at 22 March 2009 Arthur Andersen, Enron, Global Crossing and Kmart. The following cases have been settled Citigroup, Credit Suisse First Boston, Gemstar/TV Guide, Merrill Lynch, Piper Jaffray and Xerox.

Table 5: Sarbanes-Oxley Hall of Shame: Executives Charged.

Executive(s) Charged	Company name
Philip Anschutz	Qwest (Founder)
Joseph Nacchio	Qwest (former CEO)
Jonathan Beck	AA (former RVP)
Kevin Clark	AA (former RVP)
Timothy Ganley	AA (former VP)
David Thatcher	AA (former CFO)
David Duncan	Arthur Andersen (former Sr. Audit Partner).
Timothy Belden	Enron
Andrew Fastow	Enron (former CFO)
Lea Fastow	Enron (former Asst. Treasurer)
Kevin Howard	Enron Broadband Services (former CEO)
Kenneth Lay	Enron (former Chairman/CEO)
Jeffrey Skilling	Enron (former CEO)
Franklin C. Brown	Rite Aid (former general counsel and vice chairman)
Irvin Brown	Allou Healthcare, Inc.
Jacob Fekete	Allou Healthcare, Inc.
Aaron Jacobowitz	Allou Healthcare, Inc.
Herman Jacobowitz	Allou Healthcare, Inc.
Jacob Jacobowitz	Allou Healthcare, Inc.
Victor Jacobowitz	Allou Healthcare, Inc.
Sholem Klein	Allou Healthcare, Inc.
Nachman Lichter	Allou Healthcare, Inc.
James Brown	Adelphia Communications (former VP Finance)
John Rigas	Adelphia Communications (founder and former CEO)
Michael Rigas	Adelphia Communications (former EVP)

Continued from above: Executive(s) Charged	Company name
Tim Rigas	Adelphia Communications (former CFO)
Bernard Ebbers	WorldCom (former CEO)
Scott Sullivan	Worldcom (former CFO)
Stephen Garofalo	Metromedia Fiber Networks (chairman)
Clark McLeod	McLeod USA (former CEO)
Dennis Kozlowski	Tyco (former CEO)
Frank Quattrone	Credit Suisse First Boston (former technology investment banker)
Richard Scrushy	HealthSouth (former CEO)
Martha Stewart	Martha Stewart Living Omnimedia (founder and former CEO)
A. Alfred Taubman	Sotheby's (former Chairman)
Sam Waksal	ImClone Systems (former CEO)
7 former senior executives	Symbol Technologies
27 directors and officers	Royal Dutch / Shell Group

Source: Constructed by author from data from
http://www.sox-online.com/hall_of_shame.htm

2.9: Regulation of Earnings Management.

Earnings management is customarily regulated at the national level. In the United States, the Security and Exchange Commission has been regulating earnings management through its securities laws that seek to influence the integrity of its capital markets. Specifically, the provisions of Section 13(a) of the Securities and Exchange Act of 1934 are focused on earnings management practices. It requires that firms whose securities are registered with the Security and Exchange Commission to file quarterly (form 10Q) and annual financial statements (forms 10K) in conformity with US GAAP. Changes in accounting standards and their regulations are usually intended to mitigate earnings management, provide information for stakeholders, and improve decision-making for different stakeholders (Healy and Wahlen, 1999). The objective of this section is to explain issues relating to the sources and consequences of security market regulations. Specifically, the researcher presents the different theories that have motivated security market regulations.

In its effort to regulate earnings management, the authorities have been concerned about the different issues that motivate earnings management. These include auditor independence, open market insider trading, executive bonus schemes and stock based compensation, etc. In the literatures; such regulations have been found to improve earnings quality. In an effort to defend the need for earnings management regulations, Lang *et al.* (2007) argued that firms from countries with weaker investor protection show more evidence of earnings management than US firms who have strong securities market regulations. In 1999, the SEC chairman Arthur Levitt spoke publicly against widespread earnings management and its impact on the integrity of the US financial market. This was followed by many high profile corporate scandals and regulatory changes to improve financial reporting. After a series of consultative meetings and broader discourse, the SOX were enacted in July 2002.

2.9.1: The Influence of Public Policy on Financial Markets and The Sarbanes Oxley Act of 2002.

The Sarbanes-Oxley Act of 2002 (officially titled the Public Company Accounting Reform and Investor Protection Act) was enacted in July 2002 by the US Congress to restore investor's confidence after a series of corporate scandals such as Enron and WorldCom. These scandals impaired the trust and confidence of stakeholders in accounting information. The Act brought CEO'S, CFO's and auditors under intense scrutiny. The Act was named after its main architect's Senator Paul Sarbanes and Representative Michael Oxley. The Act applies to certain US and foreign companies that are registered with the Securities and Exchange Commission. After the scandals, one of the key concerns of the Securities and Exchange Commission and other institutional regulators was to implement reforms that were designed to produce more reliable financial reports. It was designed to reduce fraud and conflicts of interests, while increasing financial transparency and improving confidence and trust in financial markets. The Act related to a number of diverse issues ranging from wide corporate governance responsibilities by public institutions to enhanced criminal and civil penalties for the violation of securities laws. It included the threat of fines and imprisonment for senior executives from organisations that do not comply with specific provisions.

2.9.1.1: SOX Regulations Relating to Insider Trading.

Section 403 of the SOX of 2002 provided two important changes that require earlier public notification of Insiders' transactions in their company's securities and the wider public availability of information relating to those transactions.

The two main new provisions are:

- a- the first relates to the requirement that all trades must be reported within two business days following the date the transactions were executed.
- b- Section 403 (a) of the SOX of 2002 requires that Insider's file electronically all their transactions and provide online accessibility of such reports. To facilitate the implementation of this requirement, the Commission created a new on-line filing system for these forms and insiders were required to report their trades on SEC forms 3, 4 and 5.

Section 306 of SOX prohibits any director or executive officer of a company from purchasing or selling any equity security during a pension plan blackout period. This prevents plan participants and beneficiaries from engaging in transactions involving those securities for the specific period when their access price-sensitive information offers them an informational advantage.

2.9.1.2: SOX Requirements Relating to the Containment of Earnings Management Practices.

SOX Section 201 focuses on the services outside the scope of practice of auditors.

Activities prohibited include amendments made to Section 10A of the Securities Exchange Act of 1934 on the following issues:

- 1: Prohibited Activities: except with pre-approval, it shall be unlawful for a registered public accounting firm to provide an audit client with any non-audit service, including:
 - (a) Bookkeeping or other services related to the accounting records or financial statements of the audit client;
 - (b) Financial information systems design and implementation;
 - (c) Appraisal or valuation services, fairness opinions, or contribution-in-kind reports;
 - (d) Actuarial services;
 - (e) Internal audit outsourcing services;
 - (f) Management functions or human resources;

- (g) Broker or dealer, investment adviser, or investment banking services;
- (h) Legal services and expert services unrelated to the audit; and
- (i) Any other service that the Board determines, by regulation, is impermissible.

2: Pre-approval for Non-Audit Services- A registered public accounting firm may not engage in any non-audit service, including tax services, that is specified as a prohibited activity above for an audit client, unless the activity is approved in advance by the audit committee of the issuer firm.

SOX Section 302 focuses on corporate responsibility for financial reports.

The section requires that, for each company filing periodic reports under section 13(a) or 15(d) of the Securities Exchange Act of 1934. As in Section 302, the Chief Executive Officer(s) and the Principal Financial Officer(s), or persons performing similar functions need to certify in each quarterly, or annual, report filed with the Securities and Exchange Commission (SEC) that:

- 1-they have reviewed the reports.
- 2-the report does not contain any untrue statements of material facts, omissions, etc, under which such financial statements can be considered misleading.
- 3- the financial statements fairly present the financial condition and results of operations for the reported periods, financial reports do not contain material misrepresentations and are fairly represented the CEO and CFO are responsible for internal control problems, the CEO and CFO must report any deficiencies in internal accounting controls, or any fraud involving the management of the Audit Committee; and finally, they must indicate any material changes in internal accounting controls.

SOX Section 401 focuses on the disclosures in periodic reports. Section 401(a) of the SOX requires that each annual and quarterly financial report filed with the Commission should disclose all material off-balance sheet transactions, arrangements and obligations. Section 401(b) of the SOX relates to Non-GAAP Financial Measures. It requires that public disclosures of any non-GAAP financial measure by a public company (that are customarily referred to as "pro forma financial information") must be presented in a manner that:

A-Does not contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the non-GAAP financial measure, in light of the circumstances under which it is presented, not misleading; and

B- Reconciles the Non-GAAP financial measure with Generally Accepted Accounting Principles (GAAP).

SOX Section 404 focuses on the management's assessments of internal control over financial reporting. The section requires that annual reports of public companies to file an annual internal control report as part of their annual report. It holds management directly responsible for internal control structures and must report any problems with this structure as quickly as possible.

Section 409 of the SOX Authorises a "Real Time" Disclosure System. The Section obliges companies to disclose "on a rapid and current basis" information concerning material changes in its financial condition or operations.

SOX 902 focus on frauds and Conspiracies to Commit Fraud Offences. The sections affirm that it is a crime for any person to alter, destroy or conceal any document that might hinder fraud investigations or other official proceedings.

2.10: What Are the Government's Objectives for Creating Security Market Regulations?

The accounting and finance research can be classified into several categories as discussed in prior literature (See Jonsson, 1998 for an overview). In this research, accounting and finance is viewed as a tool for measurement and/or the regulation of social and security markets regulations. In viewing accounting as a measurement tool, its goal is to convey information about constructs that are exogenous to the accounting system (Marton, 1998). Example of these constructs include when accounting is used to value companies through their stock market performance in a particular point in time (Jonsson, (1998), Beaver, (1989) p.104).

In the second dimension where accounting is viewed as an instrument for regulation of social relations³¹ and the overall financial markets, it becomes a tool for the regulators to control the behaviour of different stakeholders of accounting information. This is seemingly the case when some stakeholders can abuse the production and use of accounting information. This dissertation assumes accounting can be used both as a measurement tool and for social relations. The behavioural pattern of senders and receivers of accounting information is studied. An overview of the various choices in influencing earnings information made by producers of accounting information is carried out, followed by its impact on external users and other stakeholders.

Like prior security market regulations, the SOX of 2002 was conceived amidst stock market failures that influenced the need for an evaluation of responsive regulatory policies (Romano, 2005). Most sections of the SOX can be traced from the 1934 Security and Exchange Act that was enacted after the 1929 stock market crash. This Act and its future amendments has been the basis of market regulation in the US. In the US, insider trading and earnings management are regulated by the Security and Exchange Commission (SEC). Besides government restrictions, a large number of US firms do impose significant control mechanism to mitigate insider trading and earnings management practices. Institutions and managers with the duty to regulate public policy have been concerned about market abuse and ways in which this can be controlled. According to lecture notes acquired from Professor William Forbes (2008), several decades ago, William George Bryan in his infamous “*Cross of Gold*” speech to the Democratic convention in Chicago in 1896 condemning the proposed return to the gold standard stated:

“On the one side stand the....moneyed interests, aggregated wealth and capital, imperious arrogant, compassionless. On the other side stand an unnumbered throng.”

This theme was picked up by President Woodrow Wilson during the industrial conflicts of the 1920 where he stated that:

“The great monopoly of this country is the money monopoly”

³¹ Prior research has investigated this in relation to the politicisation of accounting. In these studies, the primary interest has been to investigate the extent to which politics influence accounting practices. Most of these studies (e.g. Ball et al. 2000) classified countries according to their legal systems (whether code law with high political influence or common law where accounting is determined by the private sector) to ascertain if the political system influences accounting practices.

An early expression of alarm regarding the threat to the democratic process from monopoly finance was the Pujo Committee of the US Senate meeting in 1912. Here Ferdinand Pujo Counsel to the Senate Banking Committee concluded

“The terrific concentration of power in banker’s hands from many sources was threatening.... The bankers were neither just a national asset nor [just] a national danger – they were both.”

Arthur Levitt (1998, p1), then Chairman of the Securities and Exchange Commission stated in his famous “*Numbers Game*” speech that:

“Trading based on privileged access to information can demoralize investors and destabilize investment. It has utterly no place in any fair minded, law abiding economy. It’s a chronic danger. It’s all too evident in today’s marketplace. And it’s a crime. The American people see it, bluntly, as a form of cheating. They – along with the SEC - have zero tolerance for the crime of insider trading. Let’s state clearly, and in the unambiguous terms it deserves. Insider dealing is legally forbidden. It’s morally wrong. And it’s economically dangerous”

The current Head of Enforcement at the UK’s Financial Services Authority, as if not to be outdone, stated this in a speech to the American Bar Association in October 2007³²

“We do see market abuse –of which insider dealing is the highest profile aspect – as posing a risk to our statutory objectives. It is a financial crime – it may not attract the immediate moral outrage of a violent crime against a person, but it is, in our view, and in the view of the UK government a serious white-collar crime with potential sentences of up to seven years imprisonment.”

(http://www.fsa.gov.uk/pages/Library/Communication/Speeches/2007/1004_mc.shtml)

Institutions have been concerned about the degree of conflict of interest in the management of public corporations. Several individuals and institutional investors usually acquire price sensitive information that is not available to other investors. They normally trade on this information, thereby making profits at the expense of those without this information. In a

³² This quotation is taken from Bris (2005, p 268) and is from a speech given by Levitt in Washington on 27th of February 1998 when the bull run in the US economy was in full swing.

bid to constrain the conflict of interest, significant amendments are usually being made to responsive new regulations. A case in point is the recent prescription of Section 16(a) of the Securities and Exchange Act, that requires a timely disclosure of all trades via an SEC Form 4, currently made available on the SEC's Edgar public filings database.

As discussed in Roe, (1994, p 112), at the inception of securities regulation and the regulatory authority in the United States, the Securities and Exchange Commission and its founding Chairman William O. Douglas crystallized the hawkish view of interventionist financial capital.

Douglas argued that:

“When Finance moves into the zone of exploitation whenever it becomes the master rather than the loyal servant of investors and business. To make finance the servant rather than the master becomes the central plank of any public policy reform.”

He further argued that:

“People who dominate financial markets have tremendous power. Such people become virtual governments in the power at their disposal. Sometimes it is the duty of government to police them, at times to break them up, to deter further growth.”

Investors and other stakeholders are generally sensitive to stock price movements. The stock market forecast earnings for companies and these earnings are customarily utilized to value companies. When the reported earnings do exceed the forecast, the firms stock price increases. When the said earnings are lower than the forecast, the stock prices might drop. This encourages earnings management.

Accounting regulations are usually intended to mitigate earnings management, provide information for stakeholders, and improve decision-making for different stakeholders (Healy and Wahlen, 1999). This has been supported by Lang et al. (2007), who argued that firms from countries with weaker investor protection show more evidence of earnings management than US firms who have strong securities market regulations. In 1999, the SEC chairman Arthur Levitt spoke publicly against widespread earnings management and its impact on the integrity of the US financial market. Trust and integrity are essential for the functioning of most capitalist markets and without trust; most markets would be unable

to exist as they do (Glassman, 2003). Corporate scandals such as Enron and WorldCom habitually plunge the profile of previously high profile executives.

2.10.1: What Gave Rise to the Sarbanes Oxley Act of 2002?

The origin of the SOX can be traced from the high profile scandals in the US involving many public corporations like Enron, WorldCom, Global Crossing, and so on. These scandals brought enormous wealth loss to the public leading to a lack of trust and confidence in the US regulatory and financial system. Those who recommended or completely embraced the swift enactment of the SOX were appeared to be swayed by the fact that neither the contracting devices that were supposed to control managers, nor efficient securities markets, worked to prevent or spot the problem before the failures of those corporations (Ribstein, 2002). However, before this act, regulators have been concerned about the level of investor protection. Several of them were of the opinion that US investors and firms need to be assured that there are strong security market regulations. In 1999 for example, the SEC chairman Arthur Levitt spoke publicly against widespread insider trading and earnings management practices and their impact on the trust and integrity of the US financial system.

One major concern that follows for the SEC was how to implement reforms that could effectively produce more reliable financial reports. After the failures of these major corporations, the overriding concern was to look for ways of reducing fraud and conflicts of interests, thereby increasing financial transparency and improving the confidence and trusts of investors in financial markets. This led to the enactment of the SOX. All companies trading in the US, including their subsidiaries and private companies initiating initial public offerings were required to comply with its provisions.

2.10.2: How Are the Regulation (SOX) Going to Affect Insider Trading and Earnings Management?

Research on insider trading's relationship to earnings management and firm performance has been enormous in volume. Additionally, the recent corporate scandals have spurred regulators to re-examine the strength and implications of recent regulations. Prior policy discussions have sought to defend the suitability of financial market regulation (Fishman and Haggerty, 1992). This has led to the strengthening of regulations for insider trading

and earnings management as prescribed by the SOX of 2002 (See Section 2.9.1 for the new SOX regulations).

One major line of argument that has not been discussed in different empirical findings is the impact of the disciplining effects on the insider trading and earnings management relationship. This has originated from the impact and influence of the threat of litigation as a result of potential wealth losses by those not privy to certain information that insiders might be entitled to. These suggest that the public/management choice for stricter regulation is becoming increasingly a focus to regulators and all other stakeholders. In the “*pump and dump*” hypothesis, Bolton et al. (2002) provided evidence to suggest that the disciplining effects are not effective as managers are able to inflate stock prices through earnings management before selling shares. The “*pump and dump*” hypothesis is similar to the findings of Beneish (1999), who, in his study of 64 cases of fraudulent financial reporting, reports a mechanism where managers overstate earnings before engaging in massive insider selling. In another study by Park and Park (2004), the empirical evidence supported the assertion that insiders increase current discretionary accruals for firms whose managers sell their ownership stake out in the subsequent period than for other firms, indicating that managers who sell out deliberately increased current-period earnings through the use of positive discretionary accrual techniques. Furthermore, insiders buying (selling) are thought of as frequently following stock price increases (decreases) (See Seyhun, 1987; Rozeff and Zaman 1988; Ke et al., 2003). These arguments suggest that the theory of financial services regulation has not been effective over the past periods.

In contrast, Beneish et al. (2004) provided evidence that is contrary to this hypothesis in their litigation avoidance hypothesis. Prior to this, Beneish and Vargus (2002) have provided evidence that managers engage in insider selling, before managing their shares upwards. Their findings indicate that trading by corporate insiders provides incentives to subsequently manage earnings to distance their trades from subsequent revelation of bad news, thereby reducing the potential likelihood for litigation and reputation concerns. The litigation avoidance hypothesis has been supported by a recent study by Piotroski and Roulstone (2008), who argued that due to legal risks, insiders avoid trading on extreme earnings changes. The authors argue that it is more difficult to sell before bad news than to buy before good news, and insiders would be particularly reluctant to keep selling their

shares and exercising stock options if future earnings news contains exceptionally negative information.

The impact of regulation has also been discussed from the information hierarchy hypothesis. According to Seyhun (1986) and Lin and Howe (1990), the information content of a director's trade does depend on the type of director that executed the trade. Specifically, Seyhun (1986) documented that the average abnormal returns for trades by officers are significantly higher than those of other non-executive directors, while Lin and Howe (1990) documented that trades of Directors, Chairmen and other company officers contain more information than those of institutional shareholders that are not involved in the day-to-day management of the firm. Other researchers have not found evidence to support the information hierarchy hypothesis and even argue that insiders cannot exclusively benefit from any informational advantage, except if they are subject to less scrutiny. They argue that, the Chief Executive might have better information than other insiders, but because he or she is heavily scrutinized by regulators and market participants, they may be more reluctant to trade on any information that might be price sensitive (Jeng *et al.*, 1999, P 32).

These theories suggests that strict regulatory regimes might influence the way insiders trade and employ discretionary accounting techniques to disguise information motivated trading. Quite recently, Graham *et al.* (2005) provided evidence that managers still manage earnings to influence future stock prices, and investors do extrapolate past trends from accounting information and make decisions on the future. However, they employ real earnings management techniques as well as accruals management techniques to manage earnings. The effects of these two techniques upon earnings are discounted differently by investors in their valuation of companies (Chan *et al.*, 2006). These suggest that regulators have to be concerned about the relationship between these two techniques on insider trading and future firm performance. In a recent study, Beneish, *et al.* (2001) stated that there is a negative relationship between capital expenditures and future stock returns for their sample of "extreme winners and loser" portfolio's.

The impact of the recent regulatory intervention (SOX) has been discussed in the literature. In a recent article by Cohen *et al.* (2007), the researchers found evidence suggesting that

firms switched from accrual-based to real earnings management methods after the passage of SOX. Specifically, they documented that there has been a steady increase of accrual-based earnings management from 1987 until the passage of SOX; this was followed by a significant decline after the passage of SOX. On the other hand, the level of real earnings management declined prior to the introduction of the SOX of 2002 and increased significantly after the passage of the Act. In the light of the recent regulatory intervention as prescribed by SOX, managers might be willing to trade off the benefits of inflated stock prices (through accruals and real earnings management techniques) with the costs of earnings management. Nonetheless, they might decide to employ techniques that are less susceptible to regulatory detection. This might involve trading off the more detectable accruals earnings management for real earning management. As suggested by Beneish and Nichols, (2007) the high costs associated with fraudulent financial reporting, makes it necessary for investors to effectively exploit all information useful in assessing fraud, due to its influence on accounting earnings and subsequent stock returns. The recent thrust of US earnings management regulations has been to encourage companies to constantly provide relevant and timely informative disclosures. This has been supported by the recent SOX regulations, that 1) limits the timeframe which insiders have to disclose their trades to the public (see Section 403 of the SOX) and 2) provides for a more comprehensive and timely disclosure of annual report information (See Section 409 of the SOX). Despite the strict regulatory regimes to suppress earnings management, some investors are capable of unravelling manipulated financial statements and making investment decisions on the basis of these documents. As in Shivakumar (2000) investors are not misled by earnings manipulation. This is in contrast to Rangan (1998) who claimed that managers succeeded in fooling investors due to their inability to effectively discount manipulated earnings reports. Managers too have the ability to switch techniques as a result of difficulties in managing earnings through discretionary accruals alone. It is therefore important to verify whether the stock market responds differently to the financial information of companies that have or have not managed earnings through either method.

The evidence above does not suggest that insider trading and earnings management can be completely suppressed from the regulatory intervention. This is because prior disciplining effects have never completely achieved their desired objectives. While they can be suppressed, they cannot be completely eliminated. This study therefore looks at the impact

of the current regulatory intervention (SOX of 2002). The study wishes to investigate if SOX regulations have really brought any substantial benefits to the US stock market, especially major corporations in the S & P 500 Index of companies?

2.10.3: What has Changed After the Sarbanes Oxley Act?

Firstly, the act has imposed significant financial and other penalties on those who violate security laws. Insider trading bans has also been imposed during pension fund blackouts. Furthermore, Insiders are also required to return to their corporation any capital gains made from the purchase or sale of their company's stock if both transactions occur within a six-month period (habitually termed short swings profits). The speed of reporting has also changed and this is likely to have major implications on the ability of insiders to earn abnormal returns at the expense of outside investors. Before the recommendation from the recent SOX legislation, the SEC granted until the 10th day of the month following the month in which the trade has been executed for insiders to report their transactions. This suggests that they had effectively up to 40 days to report their trades after the earnings announcement. After the Act, insiders were required to electronically report their trades after its execution within two business days.

2.11: Conclusion.

This chapter provides a summary of the written accumulation of knowledge on the areas of insider trading and earnings management. It is important to note that this section broadly discusses the literatures that are general to the overall thesis. A more subtle discussion of the literature that is specifically focused to the two independent essays is discussed in chapter 4 and 5.

The section has been organised as follows: section 2.2 has discussed the literature on insider trading; section 2.3 has discussed earnings management. This has been followed by a section on the classifications and motivations for earnings management. A final section discusses the penalties for earnings management, the regulation of earnings management and finally reasons for the enactment of SOX are addressed. Splitting the existing theories in this way assist in modelling the actual relationship between insider trading on the one hand and earnings management and firm performance on the other hand in light of the recent intervention as prescribed by SOX of 2002.

The chapter does show that in the theory on insider trading and earnings management, the findings so far has been inconclusive. Moreover, despite the literatures and the financial press being replete with articles on financial market regulation, no study has investigated the influence of financial market regulation on insider trading and earnings management. After splitting the theories, this thesis wishes to investigate how the SOX of 2002 has influenced the relationship between insider trading and earnings management on the one hand and earnings management and firm performance on the other hand. These issues are addressed in chapter 4 and 5 which are the main empirical essays.

3.0: Research Design.

This section of my research looks at the general sources of data employed in the thesis and also presents the details of the samples used. Some basic descriptions and explanations necessary to understand the nature of the data common to both empirical essays are given.

3.1: Introduction.

The original sample is drawn from companies in the S&P 500 in March 2007 and includes the period 1997-2006³³. All of the firm's in the S&P 500 index are large publicly held companies and their stocks trade on the New York Stock Exchange. The S&P 500 is the most widely watched index of large-cap US stocks. These firms and their subsidiaries are obliged to comply with the Sarbanes Oxley Act of 2002. However, there have been different data requirements to construct the sample for the two main essays of the research.

The data that have been used for this research are:

- Insider trading data
- Accounting line items data, including various accruals information and total assets from the balance sheet, etc.
- Earnings per share (both forecasts and actual).
- Share Prices.

Most of the required data are made available to the public as part of institutional and individual company's corporate governance policies.

3.1.1: Sample Construction.

The empirical investigation for testing the relationship between insider trading and earnings management uses two separate samples. This has been developed in relation to the constructs in the hypothesis and the issues to be tested in the two essays. The first essay investigates insider trading relationship to earnings management in the light of the recent regulatory intervention as prescribed by the SOX legislation. The second essay investigates the relationship between earnings quality and firm performance in light of the recent regulatory

³³ Though the actual estimation period is 1997-2006, data has been collected from 1996 to be able to estimate changes for different items and until 2007 to be able to estimate one year ahead stock returns for the final sample year.

intervention as prescribed by the Sarbanes Oxley Act. Though the different empirical essays of the thesis approach the issues from different constructs, both parts use the S&P 500 firms with a common underlying set of accounting, stock price and insider trading data as required. The original sample is the S&P 500 firms as at March 2007 for the period 1997-2006. This makes 10 consecutive years, giving a total of 5000 firm years. As discussed below, the metric employed to test similar issues like earnings surprises, discretionary accruals and net shares traded are the same for the two tests. However, the basic test has been conducted differently. Recall that, the first section of the thesis looks at the relationship between insider trading and earnings management post Sarbanes Oxley. Nonetheless, the two samples use different constructs to either include or eliminate a firm in a specific year as discussed in the empirical sections. There is an induced survivorship biased discussed in detail in section 6.4.5 as part of the limitation of the study. The two empirical essays employ an unbalanced panel and have different final sample sizes specified in the different test.

3.1.2: Data Sources.

Insider trading data: This data has been collected from the National Archives of Electronic Records and from the Edgar filings compiled by the Securities and Exchange Commission (SEC). The file summarises insider trading transactions in all publicly held firms and is a summary of the ORS (ownership reporting system file) form 3, 4 and 5 compiled by the SEC. Both databases report details of the insider transactions including:

- Insider's names.
- Title of the insider.
- The type of transaction (whether acquisition or dispositions).
- The specific transaction and reported dates.
- The amount of shares traded.
- The market values of these shares.
- The insider's holdings.

It is important to recognise that SEC forms 3, 4 and 5 summarise the original insider transactions. Accounting Data: this data have been collected from DATASTREAM, which has been made available by the University of Glasgow. Earnings Per Share: Forecasts and actual earnings per share data have been collected from the IBES.

3.2: Description of the Various Databases.

This section describes the various databases that have been used to collect the data.

3.2.1: National Archives and Records Administration (NARA).

National Archives and Records Administration (NARA) was created in 1934. Before this period, individual government agencies were in charge of maintaining their own records and the records were not available in all circumstances for public consumption. Some took great care of the materials, but many did not. The online database carries insider-trading data. These data can be assessed from the securities database of the Access to Archival Databases (AAD). Specifically, it contains data on two categories of private sector securities: Records About the Proposed Sale of Unregistered Securities by Individuals, created, 1/4/1972 - 9/29/2000, documenting the period 1/4/1972 - 9/29/2000 containing about 809,220 and Records on Trading of Securities by Corporate Insiders, created, 7/11/1978 - 3/12/2001, documenting the period 7/11/1978 - 3/12/2001 containing about 5,502,888. Details relating to this database can be assessed publicly at <http://www.archives.gov/>.

3.2.2: Edgar.

EDGAR, the Electronic Data Gathering, Analysis, and Retrieval system, performs automated collection, validation, indexing, acceptance, and forwarding of submissions by companies and others for companies that are required by law to file forms with the U.S. Securities and Exchange Commission (SEC). The filings by companies can be searched through the database and it allows you to retrieve real-time filings for a specific company and to find key company information, including the company's name, address, telephone number, state of incorporation, Central Index Key (CIK) number, Standard Industrial Classification (SIC) code, and fiscal year end. You simply need to type in the name of the company or its CIK number. A CIK is the unique number that the SEC's computer system assigns to individuals and corporations who file disclosure documents with the SEC. You do not need to know the number to be able to conduct your search but searching by that number narrows your search³⁴. I have used this database to collect most of the insider trading data. It is SEC forms 3, 4 and 5 that contains insider trading data. It gives you a summary of the data for the companies, individuals and time period selected. Insider trading collected from the Edgar

³⁴ This information has been summarised from the details of the SEC website that can be assessed at <http://www.sec.gov/edgar/quickedgar.htm> and from other pages of the SEC website that describes the Edgar Database at www.sec.gov

database and from the national archives for electronic records has been used in chapter four as motivations for earnings management.

3.2.3: Datastream.

Thomson DataStream³⁵ is an online software system that provides data for over 175 countries and 60 markets worldwide. It is an encyclopaedic database that covers over 25 million time-series and 400,000 global companies. The coverage varies over time depending on the series. Most market data has been made available on a daily basis and most economic data has been available monthly or quarterly. Most of the data available are historical and some of the data has been made available over a period of close to three decades. To use *DataStream*, the software is normally loaded on most University's accounting researcher's offices, workstations and libraries, or in the computers in the accounting and finance departmental libraries for use by its students.

3.3: Measurement of Variables.

This section explains how the various variables employed in the research have been measured, including the caveats employed and their technical advantages. This has been used in the main empirical chapters (4 and 5). The net insider trading estimates have been used to evaluate if insiders are net buyers (sellers) of their corporations stock in chapter 4. Estimates of real, discretionary and Beneish M-Score have been used in chapter 4 to proxy for earnings management and for other robustness test. In chapter 5, they have been used to as a proxy for the quality of earnings.

3.3.1: Estimation of Net Insider Trading.

Following previous research net insider transactions (whether they are net buyers or sellers) are estimated in a predefined period. It is identified based on the following rules: Only transactions by the senior executives of firms are selected, this includes the top five executives (Chief Executive Officers (CEO), Chief Financial Officers (CFO), Chief Operating Officer (COO), The President and the Chairman of the board). This is because;

³⁵ This information has been assessed from:
http://www.thomson.com/content/financial/brand_overviews/Datastream_Advance

top-level insiders possess more valuable information and earn abnormal returns from their trades (e.g. Seyhun (1986), (1998) Lin and Howe (1990), Beneish and Vargus, (2002).

Many studies report that not all insider trades are equal in their predictive ability as some may be more valuable than others (Gelband, 2005); thus the researcher eliminated transactions of less than 100 shares. This is because previous research has questioned their predictive abilities (example Penman (1982), (1985), Givoly and Palmon, (1985) and Beneish and Vargus, (2002), Beneish et al. (2004)). Since the primary focus of this study is on open market transactions³⁶, it excludes derivatives transactions (stock bonuses, options exercised, transactions by trustees, etc) that are customarily not linked to the open market³⁷. Moreover, since insider sales after the exercise of options are likely to be related to the director's remuneration packages and whether the options are likely to be in the money, their information content are likely expected to be low (Fidrmuc *et al.* 2006). Following Beneish *et al.* (2004), net insider trading is computed as follows for firm *i* in period *t*.

$$NST_{it} = \Sigma(S_{P_{it}} / O_{S_{it}}) - \Sigma(S_{S_{it}} / O_{S_{it}}) \text{-----}(3.1)$$

Where;

NST_{it} = Net shares traded for firm *i* in period *t*.

$S_{P_{it}}$ = Shares purchased for firm *i* in period *t*.

$S_{S_{it}}$ = Shares sold for firm *i* in period *t*.

$O_{S_{it}}$ = Outstanding shares for firm *i* in period *t*.

³⁶ It is important to note that more than 99 percent of these trades of less than 100 were sale transactions. Insiders sell for many reasons – to purchase assets, to fund their children education, estate planning, etc. Liquidity needs might be reflected in the less than 100 shares. Open market insider trades are used because; they are made voluntarily by the insider and are not subject to any set of rules. They can thus be used to identify the investor's sentiments.

³⁷ Insiders customarily exercise stock options at a significant discount to the market price of the company's stock. They often exercise these options, because they expect it to expire very soon and not necessarily because this is a particular good time to buy their company stock. On the contrary, open market purchases represent a much higher risk to the insiders and are usually a bullish sign. Often, an insider buying on the open market is because they do not have exercisable options available, and yet they still want to buy the stock at that particular time due to their bullish expectation. These are some of the reasons why only open market transactions have been used. Additionally, as discussed by Bergstresser and Phillipon (2004), some empirical research investigating the influence of executive compensation on firm performance takes executive exposure to the stock price as exogenous. The implications are that it does not have any direct influence on firm value.

As in Fidrmuc *et al.*, (2006), the number of shares outstanding helps to estimate the relative size of each transaction. The values for the net shares traded are summed up over the firm for each particular day, and they are further accumulated for all days in the years 1997-2006. The net selling firms have been defined as firms with their net shares traded less than 0 (NST < 0). On the other hand, the net buying firms have been evaluated as firms with their net shares traded greater than 0 (NST > 0). They are finally associated with fiscal years based on the transaction date reported at the SEC.

3.3.2: Estimation of Earnings Management.

Since the seminal article by Healy (1985) earnings management has been measured by discretionary accruals. Current research habitually employs two methods in estimating earnings management. These are an earnings management proxy constructed by separating out the discretionary element in accruals, and changes in real operating items. Nonetheless, discretionary accruals have been suggested as capturing a larger portion of the earnings management (Dechow *et al.* 1995). The accrual benchmark definition applied in this research is based on the discretionary accruals model developed by Dechow *et al.* (1995) to estimate earnings management. The Dechow *et al.* (1995) model show that the modified Jones (1991) model tends to outperform other known models that have been developed to detect earnings manipulation. Precedence is given to the Dechow *et al.* (1995) model which is a cross sectional version of the Jones (1991) model that implies that receivable changes are discretionary and company managers are able to exercise some discretion over revenue recognition and sales.

Following prior research (Jones, 1991 and Dechow *et al.* 1995), the usual starting point in measuring discretionary accruals is the computation of various elements of the total component of accruals. The non-discretionary accrual component is then subtracted from total accruals to determine the discretionary accrual component.

This is given as:

$$DAP_{it} = TA_{it} - NDAP_{it} \text{-----}(3.2)$$

DAP_{it} = Discretionary accruals proxy for firm i at period t .

TA_{it} = Total accruals proxy for firm i at period t .

$NDAP_{it}$ = Non-discretionary accruals proxy for firm i at period t .

Or more simply discretionary accruals are simply the estimation error retrieved from the accruals benchmark model of Jones (1991), Dechow *et al.* (1995) or whatever the chosen model is.

3.3.2.1: Estimation of Total Accruals.

Following previous studies on earnings management total accruals are computed as follows:

$$TA_{it} = (\Delta CA_{it} - \Delta CL_{it} - \Delta Cash_{it} + \Delta STD_{it} - DEP_{it}) / (A_{it-1}) \text{-----} (3.3)$$

Where:

TA_{it} = Total accruals for firm i at period t .

ΔCA_{it} = Change in current assets (Datastream datatype code wc02201) firm i at period t ;

ΔCL_{it} = change in current liabilities (Datastream datatype code wc03101) firm i at period t ;

$\Delta Cash_{it}$ = Change in cash and cash equivalents (Datastream datatype code wc02001) firm i at period t ;

ΔSTD_{it} = Change in debt included in current liabilities (Datastream datatype code wc03251) firm i at period t ;

DEP_{it} = Depreciation and amortization expense (Datastream datatype code wc01151) firm i at period t and,

A_{it-1} = Total assets (Datastream datatype code wc02999) firm i at period t for the prior year.

Where changes in the various items are the difference between current period values (denoted as period t) less the previous period (denoted as period $t-1$).

3.3.2.2: Estimation of Non-Discretionary Accruals.

The problem with most earnings management research is the difficulty in identifying the (unobservable) discretionary component of accruals. Following Healy (1985), non discretionary accruals are defined as the adjustments to the cash flows mandated by the accounting standard-setting bodies, while discretionary accruals are adjustments to cash

flows that are selected by the auditor under a manager's watchful eyes. Non discretionary accruals estimation follows Dechow *et al.* (1995) and is given as:

$$NDA_t = \alpha_1 (1/A_{t-1}) + \alpha_2 ((\Delta REV_t - \Delta REC_t)/A_{t-1}) + \alpha_3 (PPE_t / A_{t-1}) \text{-----}(3.4)$$

Where NDA_t = Estimated non-discretionary accruals at time t.

Where ΔREV_t = Change in revenue at time t (datastream datatype code wc01001).

ΔREC_t = Change in receivables at time t (datastream datatype code wc02051).

PPE_t = Property, plant and equipment at time t (datastream datatype code wc02501).

A_{t-1} = Total assets in the prior year.

Estimates of the firm specific parameters $\alpha_1, \alpha_2, \alpha_3$, are generated using the following model in the estimation period:

$$TA_t = a_1 (1/A_{t-1}) + a_2 (\Delta REV_t / A_{t-1}) + a_3 (PPE_t / A_{t-1}) + v_t \text{-----}(3.5)$$

Where:

TA_t = total accruals scaled by lagged total assets. a_1, a_2 , and a_3 denote the OLS estimates of $\alpha_1, \alpha_2, \alpha_3$.

The only adjustment relative to the Jones (1991) is the change in revenues, which is adjusted for the change in receivables in the estimation period. The original Jones (1991) model implicitly assumes that discretion is not exercised over revenue in either the estimation period or the event period. The modified version of the Jones (1991) model by Dechow et al. (1995) implicitly assumes that all changes in credit sales in the event period result from earnings management. This is based on the reasoning that it is easier to manage earnings by exercising discretion over the recognition of revenue on credit sales than to manage earnings by exercising discretion over the recognition of revenue on cash sales.

The model assumes that the changes in revenues, receivables and gross property, plant and equipment are explanatory variables that control for the portion of accruals relating to less-

discretionary changes in working capital accounts and expenses relating to depreciation. Following the Jones (1991) model, the modified model rests upon the presumption that non-discretionary accruals are constant and it thus attempts to control for the effect of changes in the firms economics circumstances on non-discretionary accruals (Dechow et al. 1995). As in prior studies, a two digit SIC industry cross-sectional model is used to estimate discretionary accruals in our study. The use of the two digits SIC codes across industry helps to relate time and industry-specific commonalities. The importance of the cross-sectional model is that it can extract common industry factors applied to discretionary accruals. The implications are that the discretionary accruals in the model reflect management's choice rather than an adjustment to industry factor. Also, since the model is estimated year-by-year, changes in industry condition are also factored in the model.

3.3.2.3: The Jones 1991 Model.

The Jones (1991) model is habitually used in studies of aggregate accruals. It is based on the postulation that non-discretionary accruals are constant (Dechow et al. 1995). The model controls for the effect of changes in the firm's economic characteristics on non-discretionary accruals. The model for non-discretionary accruals in the event year is:

$$NDA_{\tau} = \alpha_1 (I/A_{t-1}) + \alpha_2 (\Delta REV_{\tau})/A_{t-1} + \alpha_3 (PPE_{\tau})/A_{t-1}, \dots \dots \dots (3.6)$$

Where NDA_{τ} = Estimated non-discretionary accruals at time τ .

ΔREV_{τ} = Revenues in year τ less revenues in year $\tau-1$ scaled by total assets at $\tau-1$;

PPE_{τ} = Gross property, plant and equipment in year τ scaled by total assets at $\tau-1$;

A_{t-1} = Total assets at $\tau-1$.

$\alpha_1, \alpha_2, \alpha_3$ = Firm-specific parameters.

Estimates of the firm specific parameters $\alpha_1, \alpha_2, \alpha_3$, are generated using the following model in the estimation period:

$$TA_t/A_{t-1} = a_1 (I/A_{t-1}) + a_2 (\Delta REV_t)/A_{t-1} + a_3 (PPE_t)/A_{t-1} + v_t \dots \dots \dots (3.7)$$

Where:

TA_t = total accruals scaled by lagged total assets. a_1 , a_2 , and a_3 denote the OLS estimates of α_1 , α_2 , α_3 . As above, total accruals are regressed on the inverse of total assets, revenue scaled by lagged total assets and property plant and equipment scaled by lagged total assets to generate the firm specific parameters because the researcher assumes their normal level depends on them. v_t is the residual or error term of the regression.

3.3.2.4: The Dechow et al. (1995) Modified Jones (1991) Model.

An alternative version of the Jones (1991) model has been the Dechow et al. (1995) model that is frequently referred to as the modified Jones (1991) model. The model was developed as a result of researchers working to improve on its weaknesses. In the modified Jones 1991 model by Dechow *et al.* (1995), non-discretionary accruals are estimated as:

$$NDA_{\tau} = \alpha_1 (1/A_{t-1}) + \alpha_2 (\Delta REV_{\tau} - \Delta REC_{\tau}) / A_{t-1} + \alpha_3 (PPE_{\tau}) / A_{t-1}, \text{-----}(3.8)$$

Where

ΔREC_{τ} = net receivables in year τ less net receivables in year $\tau-1$ scaled by total assets at $\tau-1$.

The estimates α_1 , α_2 , α_3 are non discretionary accruals during the estimation period (in which no systematic earnings management is hypothesized) are those obtained from the original Jones 1991 model. The only adjustment relative to the Jones 1991 is that the change in revenues is adjusted for the change in receivables in the period. As suggested in the modified Jones model, the regression coefficients are estimated on a cross sectional time series period over the sample period. The original Jones 1991 model implicitly assumes that discretion is not exercised over revenue in either the estimation period or the event period. The model implicitly assumes that all changes in credit sales in the event period result from earnings management. This is based on the reasoning that it is easier to manage earnings by exercising discretion over the recognition of revenue on credit sales than it is to manage earnings by exercising discretion over the recognition of revenue on cash sales. The thesis gives precedence to the modified Jones (1991) model by Dechow et al., (1995) which has become popular in recent academic studies.

3.3.2.5: A Critique of the Use of Discretionary Accruals.

The Jones model was the first to evaluate how to isolate discretionary accruals from total accruals. In the seminal article by Dechow *et al.* (1995), the researchers evaluated the different models that detect earnings management. Their findings suggest that their modified version of the Jones' model provides the most powerful way to detect earnings management. In Bergstresser and Phillipon (2004), the researcher used both the modified Jones model by Dechow *et al.*, (1995) and the Jones model and found that, the discretionary accruals results were similar. After this model, other models have been developed that attempt to explain better methods for the estimation of discretionary accruals. Though most of the literature has employed the modified Jones model, the working capital accruals models by Peasnell *et al.* (2000) have also received some attention. Researchers using the working capital models have suggested that it is good for companies and industries with high working capital as modeling working capital for these companies increases the accuracy of the estimates. One novelty of the modified Jones model by Dechow *et al.* (1995) is that it provides better estimates of the impact of estimating discretionary accruals using a cross section of industries than time series models.

Accruals are usually estimated with the formula above, or simply as the difference between the cash flow from operations and any estimated net income. A fundamental property of accruals is that over time, they are mean reverting, causing any planned or unplanned earnings management to be ineffective when viewed at an aggregate level over time. In this regard, managers who habitually employ accrual manipulations alone to build-up earnings may expect accruals to unwind over time leading to the suppression of earnings and lower future stock prices (Dharan, 2003). The reversing nature of accruals gives the possibility that firms that employ high accruals in a year may have to reverse it in the coming years.

Despite the large number of studies that have adopted the version of the Jones (1991) and the modified Jones (1991) model as a proxy for earnings management, thereby using discretionary accruals to estimate abnormal accruals in a cross-country setting, recent literature has not relied upon such empirical measures and has instead focused on the limitations of discretionary accruals models.

An important critique has been their failure to identify their benchmark on the underlying economic earnings that is being managed (Leuz *et al.*, 2003). Leuz *et al.* (2003) proposed an alternative model that involves a scaling measure of absolute cash flow from operations while using absolute working capital accruals as a measure of earnings management. The assumption is that the scaling factor controls for differences in firm size and performance, and provides a direct benchmark for the absolute magnitude of economic earnings. Moreover, the scaling variable of total assets used is subject to the effect of cross-country differences in asset recognition rules and choices (Peasnell *et al.* (2000)).

Other critiques have argued that there exists no fundamental rationale in including depreciation in the total accruals proxy. This is because a large body of literature (e.g. Healy and Wahlen) has suggested difficulties in managing depreciation over an extended period of time without the manipulation becoming obvious to investors. Moreover, the differences in depreciation rules across countries are difficult to comprehend and are unrealistically related to earnings management. The various models are usually estimated in time series firm-by-firm or in cross-sectional regression using all firms in a given two-digit (or four digit) industry and year period by different researchers based on different caveats. Yearly estimations are used to make a one-year forecast of expected accruals, which when subtracted from the dependent variable yields unexpected accruals.

3.3.2.6: Measurement of Real Earnings Management.

Real earnings management is measured by employing a simple model that detects abnormal changes in a firm's underlying operational activities as discussed by prior research (e.g., Roychowdhury, 2006, Gunny, 2005, Dechow *et al.*, 1998). The technique assumes the abnormal components reflecting real earnings management are measured as residuals in the corresponding cross sectional regressions as listed below.

Production Costs (PROD) = Cost of Goods Sold + Change in Inventory

Discretionary expenses (DISEXP) = R&D + Advertising + Selling, General and Administrative Expenses.

Accruals = Income Before Extraordinary Items - Cash Flow From Operations.

Net Accounts Receivables are the Net Accounts Receivables.

Abnormal CFO = is the residual from the corresponding industry-year regression given by

$$CFO_t / A_{t-1} = \alpha * (I / A_{t-1}) + \beta_1 * (S_t / A_{t-1}) + \beta_2 * (\Delta S / A_{t-1}) + \varepsilon_t, \text{ ---- (3.9)}$$

Where A_t = assets at end of year t, A_{t-1} is the assets at the end of the prior year, S_t = sales during year t, ΔS_t = change in sales during year t.

CFO_t is the cash flow from operations for firm i at period t.

Abnormal production costs: is the residual from the corresponding industry-year regression:

$$PROD_t / A_{t-1} = \alpha * (I / A_{t-1}) + \beta_1 * (S_t / A_{t-1}) + \beta_2 * (\Delta S_t / A_{t-1}) + \varepsilon_t \text{----- (3.10)}$$

Where A_t = assets at end of year t, A_{t-1} is the assets at the end of the prior year, S_t = sales during year t, ΔS_t = change in sales during year t.

Abnormal discretionary expenses: are the residual from the corresponding industry-year regression

$$ADEXP_t / A_{t-1} = \alpha * (I / A_{t-1}) + \beta_1 * (S_t / A_{t-1}) + \beta_2 * (\Delta S_t / A_{t-1}) + \varepsilon_t, \text{ ---- (3.11)}$$

Where A_t = assets at end of year t, A_{t-1} is the assets at the end of the prior year, S_t = sales during year t, ΔS_t = change in sales during year t.

Abnormal accruals: Abnormal accruals are captured by the deviation from the predicted values of the corresponding industry-year regressions. Accruals relate to the difference between income before extraordinary items and cash flow from operations. It is measured using the following cross sectional firm-year regression:

$$Accruals_t / A_{t-1} = \alpha_1 (I / A_{t-1}) + \alpha_2 (\Delta S_t / A_{t-1}) + \alpha_3 (PPE_t / A_{t-1}) + \varepsilon_t \text{----- (3.12)}$$

Where A_t = total assets at end of year t, A_{t-1} is the assets at the end of the prior year, ΔS_t = change in sales during year t and PPE_t = property, plant and equipment at end of year t.

Abnormal Receivables: is the residual from the corresponding industry-year regression

$$\Delta NR_t / A_{t-1} = \alpha * (I / A_{t-1}) + \beta_1 * (\Delta S_t / A_{t-1}) + \varepsilon_t, \text{----- (3.13)}$$

Where A_t = is the total assets at end of year t, ΔS_t is the change in sales during year t, ΔNR_t is the change in net receivables at the end of period t.

Abnormal Inventory: is the residual retrieved from the corresponding industry-year regression

$$\Delta INVEN_t / A_{t-1} = \alpha * (I / A_{t-1}) + \beta_1 * (\Delta S_t / A_{t-1}) + \beta_2 * (\Delta S_{t-1} / A_{t-1}) + \varepsilon_t \text{-- (3.14)}$$

Where A_t = is the total assets at end of year t, A_{t-1} is the assets at the end of the prior year, ΔS_t is the change in sales during year t, $\Delta INVEN_t$ is the change in inventory at the end of period t.

Real earnings management (RM) according to this research is assumed to be actions that managers undertake that deviate from the best practice to influence reported earnings and its accomplished by changing the firm's underlying operations. Examples of RM include cutting prices towards the end of the year in an effort to accelerate sales from the next fiscal year into the current year, delaying desirable investment, and selling fixed assets to affect gains and losses, changing R&D investments budgets, all in an effort to boost current period earnings (Roychowdhury, 2006, Gunny, 2005). As in Graham et al., (2005), due to the pervasive occurrence of earnings management through real activities and its effect on the recent corporate scandals including large major corporations as Enron and WorldCom, it is likely that the attention of regulators Post SOX and the media would turn to this type of earnings management. It is important to note that, on the contrary the attention of regulators Pre-SOX was on accruals earnings management. In chapter 4, real earnings management has been used for the robustness check on the results on insider trading relationship to earnings management and in chapter 5, the relationship between real earnings management and firm performance have been thoroughly examined.

3.3.2.7: Detecting the Probability of Earnings Manipulation (Beneish M-Score).

The Beneish (1997, 1999) M-Score is a model that detects the probability of financial statements distortion. Though its approach is mathematical, it uses both total accruals and specific accruals to detect earnings management for firms with large discretionary accruals. The model can be estimated with eight or five variables based on data availability. When the 5 or 8 variables are aggregated into what Beneish described as an M-Score, they are used to proxy the degree to which the earnings have been manipulated. Though Beneish used different cut off points in different research, most researchers have employed the cut-off point of -2.22. An M-Score of less than -2.22 suggests that the company will not be a manipulator. On the other hand, an M-Score that is greater than -2.22 signals a higher probability of financial statements manipulation.

In constructing this model, Beneish relied on three sources of explanatory variables based on financial statements data. They include, the presumption that earnings manipulation is likely when a firm's future prospects are poor (Kellogg and Kellogg (1991)), the impact of cash flow on accruals (Healy, (1985) Jones, 1991), contract-based incentives exist on earnings management (1986)). Four of the eight ratios suggest financial statements distortions (Day Sales in receivables Index (DSR), Asset Quality Index (AQI), Depreciation Index (DEPI), Accruals), with the other four indicating a predisposition to engage in the manipulation of financial statements (Gross Margin Index (GMI), Sales Growth Index (SGI), Sales, General and Administrative expenses index (SGAI) and leverage index (LEVI)). All variables are as defined below.

Based on 8 variables the Beneish M-Score is estimated as:

$$M = -4.84 + .920*DSRI + .528*GMI + .404*AQI + .892*SGI + .115*DEPI - .172*SGAI + 4.679*TATA - .327*LEVI \text{ --- (3.15)}$$

In case of data availability becoming a problem, the M-Score can be estimated based on 5 variables as:

$$M = -6.065 + .823*DSRI + .906*GMI + .593*AQI + .717*SGI + .107*DEPI \text{ ----(3.16)}$$

Prior research has also employed the Beneish (1999) model usually described as an M-Score in detecting earnings manipulation. In the academic literature, Fridson (2002) has long recognised the usefulness of the M-Score in detecting earnings manipulation. Investment professional organisations like Merrill Lynch have also employed the M-Score in predicting investments in client portfolios have the most suspect financial reports.

The researcher discusses the various variables below and explains why according to Beneish, it can influence the likelihood of earnings manipulation.

DSRI defined as Days' Sales in Receivable Index is the ratio of sales in receivable in year t to the corresponding year (t-1). It estimates whether receivables, inventories and revenues of a firm have been used to manipulate earnings. A large increase in days in receivable could be as a result of changes in credit policies to increase sales. Unusual accumulation of receivables might also be associated with an increased likelihood that revenues and earnings have been inflated to improve the company's profits. In the original Beneish model, companies that had not manipulated sales had a mean index of 1.031 while those that had manipulated sales had a mean of 1.465, which represents a 43 percent increase.

$$DSRI = \left(\frac{Receivables_t / Sales_t}{Receivables_{t-1} / Sales_{t-1}} \right)$$

GMI defined as Gross Margin Index measures the ratio of gross margin at year t-1 to gross margin at year t. A value greater than 1 indicates that gross margin has deteriorated. A deterioration of gross margin provides a negative signal about the firm's future prospects. The firm would be more likely or willing to engage in financial statement manipulation to either decrease the resulting losses through the drop of sales or create artificial profits for the corporation. According to the original Beneish model, non-manipulators had a mean of 1.014 and manipulators had a mean of 1.193, which represents an increase of 18 percent. It is important to recognise that, this index does not clearly tell whether a company is engaging in earnings manipulation or not. It only serves this purpose in the context of the other indicators

of poor earnings quality entering the Beneish M-score. It however measures the risk that a company when faced with some circumstances might be interested in earnings manipulation. However, when the index is relatively higher, the company can be thought of as already engaging in earnings manipulation.

$$GMI = \left(\frac{sales_{t-1} - Cost\ of\ Goods\ Sold_{t-1}}{Sales_{t-1}} \right) / \left(\frac{Sales_t - Cost\ Of\ Goods\ Sold_t}{Sales_t} \right)$$

AQI defined as Asset Quality Index is the ratio of non-current assets except property, plant and equipment (PPE) to total assets. It measures the proportion of total assets whose future benefits are potentially less certain. More generally it is the ratio of asset quality in year t relative to asset quality in year $t-1$. If asset quality index is greater than 1, it is indicative that the firm has potentially increased its involvement in cost deferral. According to the Beneish model, non manipulators had a mean of 1.039 while manipulators had a mean of 1.254.

$$AQI = \left(1 - \frac{CurrentAssets_t + PPE_t}{Total\ Assets_t} \right) / \left(1 - \frac{Current\ Assets_{t-1} + PPE_{t-1}}{Total\ Assets_{t-1}} \right)$$

SGI defined as Sales Growth Index is the ratio of sales in year t to sales in year $t-1$. The ratio assumes that growth firms have greater incentives to manipulate earnings in order to maintain the confidence of shareholders. It specifically assumes that a reduction in sales might have a negative impact on future share prices. Thus firms with sales decreases might manipulate earnings to influence future stock prices. An increase in the index reflects a rise in sales and a significant increase might be due to earnings manipulation. According to the Beneish model, the mean for non-manipulators was 1.134 while those for manipulators were 1.607 representing an increase of 42 percent.

$$SGI = Sales_t / Sales_{t-1}$$

DEPI defined as a Depreciation Index measures the change in depreciation. It is the ratio of depreciation in year $t-1$ versus the corresponding depreciation in year t . A depreciation index greater than 1 indicates that the rate at which assets are depreciated has slowed down. This suggests that the company might have employed income-increasing methods to boost earnings.

$$DEPI = \left(\frac{\frac{Depreciation_{t-1}}{Depreciation_{t-1} + PPE_{t-1}}}{\frac{Depreciation_t}{Depreciation_t + PPE_t}} \right)$$

SGAI defined as Sales and General and Administrative Expenses Index is the ratio of selling, general and administrative expenses in year t to the ratio at $t-1$. The index assumes that analysts would recognise disproportionate increases in sales as a negative signal of a firm's future prospects and might indicate the likelihood that firms might be tempted to manipulate earnings to either decrease losses or report a profit.

$$SGAI = \left(\frac{\frac{SGA\ expense_t}{Sales_t}}{\frac{SGA\ Expenses_{t-1}}{Sales_{t-1}}} \right)$$

LVGI defined as Leverage Index is the ratio of total debt to total assets in year t relative to the firms corresponding ratio in year $t-1$. It generally measures the change in leverage. A value greater than 1 indicates an increase in leverage. The index captures debt covenant incentives for earnings manipulation.

$$LVGI = \left(\frac{\frac{LTD_t + Current\ Liabilities_t}{Total\ Assets_t}}{\frac{LTD_{t-1} + Current\ Liabilities_{t-1}}{Total\ Assets_{t-1}}} \right)$$

TATA is defined as Total Accruals to Total Assets. Total accruals or its residual has been used previously to assess the extent to which the company makes discretionary accounting decisions to influence reported earnings. This index measures the amount of accounting earnings that has a cash basis. An increase in accruals might reflect the fact that management

is struggling to manipulate earnings through discretionary influences on accruals. Following the Beneish model, the index for non-manipulators was 0.018 and for manipulators it was 0.031 representing an increase of 72 percent.

$$TAT = ((\Delta Current Assets_t - \Delta Cash) - (\Delta Current Liabilities) - (\Delta Current Maturities of LTD_t) - (\Delta Income Tax Payable_t) - (Depreciation and Amortisation_t)) / Total Assets_t \text{ -----} \\ -(3.17)$$

The fraudulent manipulation of a company's earnings can have far reaching repercussions on investors, analysts, regulators, government, the real economy and the company itself. All these stakeholders have used the M-Score to determine which firms have been fudging their numbers. The importance of the M-Score model is that it raises red flags of the potentials for financial statements fraud. It can also help companies take prompt actions before external stakeholders are aware of fraudulent actions. The M-Score have been used in chapter 4 for the robustness test using alternative definitions of earnings management and in chapter 5 to determine the probability of financial statements fraud.

3.3.3: Estimating Forecast Errors.

Following Richardson *et al.* (2004) the researcher proxied for earnings surprises using the degree of analyst's earnings forecast errors defined here as the difference between the actual and the forecast earnings per share (EPS) scaled by the share price of the company. The forecast error of the accounting year-end is used. When a company reports their actual earnings per share, it can be higher than the consensus forecast estimate prior to the announcement of earnings (positive surprise), lower than the consensus forecast (negative surprise) or meet expectations (zero surprise). The research model recognises differences between large and small earnings surprises due to the degree of discretion and changes in economic fundamentals that have affected the value of the company. This has been defined here as management earnings target. However, following Beneish (2004), because of recent accounting scandals and regulatory changes, theoretical papers may suggest large earnings surprises are a function of earnings manipulation.

$$FE_{(i,t)} = \frac{EPS_{(a, i, t)} - EPS_{(f, i, t)}}{P_{(i, t)}} \text{ -----} (3.18)$$

Where FE= Forecast Errors.

EPS = Earnings Per Share.

P = Share Prices.

a= actual

f= forecast.

The absolute surprise needs to be scaled since absolute changes in EPS will depend in an arbitrary way on the absolute size of the EPS (Bulkley and Krassas, 2006). I therefore scale the changes in the EPS by the stock prices in order to obtain a measure of the relative size of the earnings surprise. The forecast error specifies whether analysts' forecast of earnings do exhibit systematic optimism or pessimism and is used as a proxy for future earnings. There are several reasons why forecast error is of interest: Analysts' forecasts influence market expectations and share prices, as reported by Fried and Givoly (1982). They documented that analyst's forecasts are more associated with market returns than time-series based forecasts. Secondly, analysts' forecasts have implications for disclosure policy as discussed in Crichfield et al. (1978). Forecast error is used in the thesis as a proxy for future earnings in chapter 4.

3.3.4: Estimating Stock Returns.

Stock returns are estimated as:

$$Ret_t = \frac{P_t - P_{t-1}}{P_{t-1}} \text{-----} (3.19)$$

Where:

Ret_t is the current period stock returns.

P_t is the firm current stock price.

P_{t-1} is the stock price for the prior period.

i.e. dividend payment contribution to return is ignored. This is because; the theories suggest valuations are not influenced by dividend policy (e.g. Marton, 1998, Krishnamurthy, 2005). In addition, Krishnamurthy (2005) argued that historically dividends have not been important. Even for strategies based on dividend yields, the contribution of dividends to total returns has not been significant.

Absolute prices are scaled because they customarily depend on the absolute sizes of the stock prices. The scaling helps obtain a measure of the relative sizes of the stock return. It is important to note that a significant amount of market based accounting research has commonly used firm returns (both adjusted³⁸ and unadjusted) as a stock market measure of firm performance. Some studies employ the use of trading volumes as a measure of a firm's performance. In most of these studies, depending on the issues to be measured, various windows have been used pre and post earnings announcements, ranging from an hour after earnings announcements to up to 10 years (Marton, 1998). It is important to note that most event studies relate unexpected earnings to firm returns. Unlike the Ball and Brown (1968) study that employed an 18 months investigation window, most employ a shorter window.

This study employs the Easton and Harris (1991) approach that measures returns on a 12 to 15th month window, based on US data. The windows either end on the balance sheet date or three months after this date. The 12-Month windows are normally used to evaluate the valuation perspective those measures and matches periods of accounting returns and stock returns. The 15th month window is consistent with the information perspective, primarily because they encompass the time when accounting earnings have been known to different stakeholders in the stock market and are used to make investment decisions.

This research follows most stock market research (see Watts and Zimmerman (1986), Marton, (1998)), where returns measured on the 12th and 15th month windows are defined as one-year ahead stock return. Prior research has recognised the difficulty in specifying which of the two window lengths is more theoretically correct (see Marton, 1998). The 12-Month return window covers both the period of the accounting return and the stock return. On the other hand, the 15th month return window covers three months after the accounting information has been released. The importance of the 15th month window is that it covers the time period where the information is made public. In this regards, the effect of the information on the stock return is assumed to be included in the model.

³⁸ Stock returns may be adjusted for taxes to give the after-tax rate of return, for inflation to effectively indicate its true purchasing power value, for GAAP to account for differences between international financial reporting, for risk to isolate risk measures relating to each investment.

There are several technical advantages for using raw stock returns, as opposed to abnormal returns, that have become popular in market based accounting studies since the Ball and Brown (1968) seminal paper. The measure of abnormal returns is usually the absolute returns less the movements in the market index. However, the stock market index is customarily dominated by a handful of companies in the US. Additionally, some companies customarily experience volatility in their stock prices and this may have a significant influence on the index thereby influencing the final measure of abnormal returns (Marton, 1998). Raw returns are additive across assets, it is therefore reasonable to use raw returns when going from individual assets to a portfolio of stocks like the S&P 500³⁹. Additionally, simple returns are also better understood by investors. Estimates of forecast errors used as a proxy for firm earnings surprises.

3.4: Summary.

This section provides a detailed specification of what is actually done in the analysis and the various constructs and stipulations that have been employed. First, the section starts by presenting the main issues that have been investigated in the thesis. It is important to recognise that the main research issue has been discussed in two subsidiary sections to reflect the two main empirical essays that have been undertaken in the research. The second section presents an introduction of the sample construction, data sources including a description of the various databases that have been used for data collection. This is followed by a general discussion of the statistical analysis employed, which is largely defined by the models that have been used. Justifications are provided for the main variables employed in the thesis. The statistical analysis involving the determination of net insider trading, earnings management, estimates of forecast errors and stock returns have been inspired by core research traditions of market based accounting and empirical finance.

As this research is focussed on two empirical essays, the models have been applied to suit the research issues to be investigated by the two essays. Net shares traded have been estimated using open market insider buy and sell trades. Open-market stock transactions prior literature assumes managers can either manage earnings using real and discretionary

³⁹ One other method that can be used is log returns. Its advantage is that it permit us to see the relative changes in the variable and compare directly with other variables whose values may have very different base values. However, it is additive over time, with shorter periods the distribution will be long-tailed, but is often not far from symmetric.

accrual techniques. However, academic, practitioner and the media have often given precedence to discretionary accruals as a form of earnings management as opposed to real earnings management. This research investigates earnings management using real (Gunny, 2005, Roychowdhury, 2006) and discretionary accruals (Dechow et al., 1995) techniques. Moreover, it is important to identify firms that are fudging their numbers so that correction actions can be taken. It is in such vein that this model employs the Beneish M-Score that predicts financial statements distortions.

4.0: Sarbanes-Oxley Act, Insider Trading and Earnings Management.

4.1: Abstract.

This Chapter examines the relationship between discretionary accruals and Insider trading and discusses how this relationship may have changed as a result of the introduction of the Sarbanes-Oxley Act (SOX) of 2002. This study investigates whether regulatory intervention through the Sarbanes-Oxley Act has influenced the quality of financial reporting (by reducing real and discretionary earnings management). Apart from examining if there have been changes in the quality of financial reporting pre and post the Sarbanes-Oxley period, the researcher investigates whether incentives to manage earnings are reflected in insider trading and if this incentive changed after Sarbanes-Oxley Act of 2002. The Chapter further addresses the informativeness of insider trading without the use of discretionary accruals. The researcher examines this relationship during the period 1997 to 2006 based on a sample of S&P 500 firms. The findings of this Chapter is important to regulators and other public and private bodies that are interested in evaluating improper conduct by corporate insiders in relation to price sensitive information.

The results suggest that the quality of earnings has improved after the introduction of the SOX. Overall, insider trading predicts future returns and investors employ discretionary accruals to influence reported earnings. However, post SOX, investors discount the value of firms with abnormally high earnings management through negative stock price responses reflecting a sophisticated processing of accounting information. Additionally, even without the use of discretionary accruals, insiders do not trade based on the knowledge of future returns. Overall, the results suggest that market participants detect and react to insider trading and earnings management practices under an invigorated regulatory regime.

4.2:Background.

In the last three decades, there have been numerous articles evaluating the relationship between insider trading by managers in their corporation's stock and company earnings. Most US studies have been focused on trading by top level executives defined by the 1934 Securities and Exchange Act as officers, directors, corporation's vice presidents and owners

of more than 10 percent of the corporations stock⁴⁰. There has been no shortage of evidence that top-level executives have the ability to influence reported earnings via implicit pressure placed on auditors as they are directly involved in the day-to-day management of the company and its earnings. Prohibition against insider trading and earnings management may involve significant potential costs to managers that customarily lead to a negative reputation, criminal charges, or lawsuits from outside investors (Park and Park, 2004). As a response to the financial scandals of the late 1990's and early 2000, current reforms have reflected the responsibility of managers to improve the integrity and credibility of financial reporting.

In the US, the SEC has the mandate to regulate insider trading and earnings management. Specifically, the 1934 Securities and Exchange Act and its amendments have consistently imposed different restrictions on insider trading and earnings management. After a series of consultative meetings, the Sarbanes-Oxley Act was enacted in October 2002, aimed at improving the integrity of financial statements and to weaken insider trading motivated by foreknowledge of price sensitive information. Section 302 of the Sarbanes-Oxley Act of 2002 requires insiders to accept responsibility for the integrity of financial statements and they are obliged to certify that financial statements are not misleading and fairly represent the company's operations. Additionally, Section 16b of the Securities and Exchange Act requires all insiders to return to their corporation any capital gains made from a purchase or sale of their company's stock if both transactions occur within a six-month period (habitually termed short swings profits). The short swing rule⁴¹ was implemented to prevent insiders, who have greater access to material non-public information, from taking advantage of such information for the purpose of making short-term profits. Apart from institutional regulations by the SEC, a significant number of US firms do impose trading restrictions on insiders (Bettis *et al.*, 2000). The increased penalties imposed under successive regulations including the Insider Trading Sanctions Act of 1984 and the Insider Trading and Securities Fraud

⁴⁰ Though the 1934 Securities and Exchange Act defined a top level executive as either officers, directors, corporation's vice presidents and owners of more than 10 percent of the corporations stock, extant research on insider trading and earnings management eliminates the 10 percent owners as they are not directly involved in the day to day management of the company. This is in line with current research in the UK (Fidrmuc *et al.*, 2006) that suggests that, directors who are more familiar with the day-to-day operations of a company trade on more valuable information. In the US, Lin and Howe (1990) demonstrated that trades by chairmen, directors, officers-directors, and officers do contain more information than those of large shareholders.

⁴¹ The short swing rule is the purchase (sale) and a subsequent sale (purchase) of a corporation stock within a six-month period.

Enforcement Act of 1988 justifies the importance of insider trading as a potential source of market manipulation.

4.2.1: Related Literature and Hypothesis.

This section of the research reviews prior literature that is specific to the first empirical chapter of the research. Specifically, it discusses theory relating to insider trading and earnings management in light of the recent regulatory intervention as prescribed by SOX. Since the relationship between insider trading and earnings management is a very complex phenomenon, preliminary investigations have suggested that there are many potential explanations of the relationship between insider trading and earnings management. These suggest the need for competing theories. A series of these competing theories are discussed below. Reading through the various theories will help the researcher to identify theories and variables that may improve the explanatory power of the model that will be developed. However, in choosing variables from the literature in this area, an assumption is made that there is a positive relationship between insider trading and earnings management and that in light of the recent regulatory intervention as prescribed by the Sarbanes Oxley Act of 2002, this relationship has been suppressed. The assertion that insider trading and earnings management are positively related seems to be critical and has been supported by recent empirical investigations (See Park and Park, (2004), Ke *et al.*, (2003), Beneish and Vargus (2002)).

A host of research papers have discussed insider trading's relationship to earnings management. However, none of these papers have examined the policy implications. As earnings news and stock price changes are customarily positively related (Ball and Brown, 1968) insiders with material information habitually act as informed traders. Their buying (selling) frequently preceeds stock price increases (decreases) (Seyhun (1986), Rozeff and Zaman (1998), Ke *et al.* (2003)). Insiders also sell shares after managing earnings (e.g., Bolton *et al.*, 2002), and trade with information pertaining to a break in a string of consecutive earnings increases (Ke *et al.*, 2003).

Since securities law forbids trades whose incentives may be based on private information, an insider trade that is followed closely by potentially value-relevant earnings disclosures might give the appearance that the trade was based on foreknowledge of the soon-to-be disclosed

information (Weber, 2005). It is in this light that Beneish *et al.*, (2004) suggested the litigation avoidance hypothesis where insiders may sell shares and manage earnings to distance themselves from the trade. Additionally, Weber (2005) suggested that insiders manage earnings in order to distance their sales from negative earnings news hence avoiding the appearance of undertaking an illegal insider trade. Though these two hypotheses are different from standard economic theories, they suggest that the agency mechanisms and some insider trading laws restrict insiders from strategic, self-serving trades. It is in this light that recent insider trading laws have been strengthened due to persistent high profile business failures that often appear to demonstrate a relationship between insider trading and earnings management. Since the SEC scrutiny is focused on evidence of active strategies (Elliot et al., 1984), insiders might be adopting a passive strategy, where they may be trading several quarters in advance to distance themselves from disciplinary concerns. As Hope (2003) suggested, strict insider trading laws may prevent managers from manipulating earnings for profit while trading in their corporation's stock.

Policy discussions of insider trading have sought to defend the suitability of regulation (see Fishman and Haggerty, 1992); the various strands of insider trading literatures have not provided clear evidence that such disciplinary actions do in reality deter insiders from trading in advance of reporting a company's financial performance. Additionally, the level of regulatory commitment to enforce the enacted legislation on insider trading and earnings management can profoundly influence the behaviour of the informed agents (Bhattacharya and Daouk, 2002). Thus given the mixed motivations for the relationship between insider trading and earnings management in light of regulatory interventions, we expect the relationship between insider trades and earnings management to be different in stricter regulatory environments than when the regulations are less strict. This study broadly tests if current regulations have suppressed earnings manipulations (thereby improving the quality of earnings) which are motivated by a desire to profit from insider trading. The next section (4.2.2) presents the background of the policy literature, while the following section (4.2.3) presents the hypothesis for this first empirical chapter.

4.2.2: Policy Dynamics and the Sarbanes Oxley Act.

Over the years, the SEC has implemented rules to ensure investor protection. After the 1987 stock market crash in the US, the SEC responded to the violation of its existing insider

trading regulation by imposing the Insider Trading and Securities Fraud Enforcement Act (ITSFEA) of 1988 that raised the penalty of illegal insider trading to 1 Million dollars and 10 years imprisonment (Fidrmuc *et al.*, 2006). Due to the recent string of corporate scandals (Enron, WorldCom, Adelphi, etc), insider trading rules have been strengthened both at the federal and company level. One of the most prominent of such rules has been the Sarbanes-Oxley Act of September 2002. The Act introduced new rules and revised existing legislation to facilitate investor protection. Among the issues legislated against is the controversial insider trading and earnings management relationship that has arguably impaired the integrity and trust of financial markets in financial statements. Since this study emphasises insider trading's relationship to earnings management in the light of the implication of structural changes (specifically new insider trading and earnings management regulations), it is essential to elucidate these regulatory dynamics.

In securities regulation, the legal prohibition of insider trading is somewhat new. Despite the fact that as far back as 1934, the Securities and Exchange Act of 1934 addressed several issues relating to the immoral aspect of insider trading, the regulatory authorities have infrequently penalised insiders in relation to illegal insider trading. Quite recently, the effects of different corporate scandals have influenced regulatory changes with insider trading and earnings management being a prime target for suppression. At the regulatory level, several structural changes have taken place that may have an impact on earnings management's relationship with insider trading. The first structural change in recent times refers to the widely reported speech made on 9/28/1998 by the then SEC chairman, Arthur Levitt, and the second was the enactment of regulation FD on Selective Disclosure and Insider Trading which took effect from October 23, 2000 and finally, SOX of 2002.

In his now familiar speech, *"The Numbers Game"* In 1998, at an address at New York University, Levitt recognised that there is;

"A grey area where the accounting is being perverted; where managers are cutting corners; and, where earnings reports reflect the desires of management rather than the underlying financial performance of the company".

His speech further expressed concern on selective disclosure and insider trading as he said that;

“Seven months ago, I expressed concerns about selective disclosure. Through conference calls or embargoed press releases, analysts and institutional investors often hear about material news before it is made public. In the interval, there is a great deal of unusual trading. The practice had been going on for a long time. And, while everyone was aware of it, and most were extremely uncomfortable with it, few spoke out. As the investor's advocate, the SEC did and we will continue to do so.”

Following concerns raised by the SEC chairman (Arthur Levitt), the SEC issued Staff Accounting Bulletin (SAB) no. 99 in August 1999. Its main function was to provide guidance for preparers and independent auditors on evaluating the materiality of misstatements in the financial reporting and auditing processes. Furthermore, it aims to influence summarize and put certain GAAP and federal securities laws in perspective as they are related to the concept of materiality. In this case, the auditor can be alerted of financial fraud.

Recent high profile business scandals and executive law suits involving companies like Enron, WorldCom, Adelphia, Global Crossing, Xerox, Qwest and so on have been based on the insider trading relationship to earnings management. The global operations of these multinational companies affected different economies and in effect there was the expectations that there will be direct lose not only for US investors but also for other international investors. These scandals involving major US corporations have greatly exposed major weaknesses in the legal and regulatory framework of US and international institutions. In order to ensure that external investors are protected, securities law of not only the SEC but all major financial centres in the world were to ensure that the investing public had access to some agreed levels of disclosure in corporate accounts about financial performance.

The second structural change is when the SEC further adopted new rules to solve problems relating to selective disclosure and insider trading⁴². The new rules were adopted and

⁴² Details of the new rules is available on the SEC's website at <http://www.sec.gov/rules/final/33-7881.htm>

amended principally to address problems relating to the selective disclosure of material non-public information by issuers and to clarify two issues that arise under the law of insider trading. Specifically, the new rules were regulation FD, Rule 10b5-1, and Rule 10b5-2.

Regulation FD (Fair Disclosure) implemented in October 2000 is a new requirement that addresses selective disclosure. Selective disclosure occurs when issuers release material non-public information about a company to a selected group of persons, (such as securities analysts or institutional investors), who may well trade with this information before disclosing the information to the general public.

Paragraph 1 of the regulation proposes that;

“When an issuer, or person acting on its behalf, discloses material non-public information to certain enumerated persons (in general, securities market professionals and holders of the issuer's securities who may well trade on the basis of the information), it must make public disclosure of that information”.

Rule 10b5-1 addresses the issue of when an insider trading liability arises in connection with a trader's "use" or "knowledge" of material non-public information. The rule posits that a trader trades on material non-public information when it purchases or sells securities when aware of that information. The rule further sets certain affirmative defences that protect individuals and entities in situations where material non-public information was not a factor in the trading decision since the trade was presumably carried out pursuant of a pre-existing contract, situation or a plan. Finally, rule 10b5-2 addresses the issue of when a breach of a family or other non-business relationship may give rise to a liability under the misappropriation theory of insider trading. Researchers have suggested a need for significant changes in insider trading laws and the strengthening of rules on earning management. Consequently, the SEC further adopted important affirmative defences from insider trading liability, which established that an insider trading liability may not arise from transactions that were planned before the time when an insider came into possession of material non-public information.

After several consultations, there was the enactment of the Sarbanes-Oxley Act. The Act was signed into law on 30th July 2002, and introduced highly significant legislative changes to financial practice and corporate governance regulation. Based on its stringent new rules, its stated objective as in page 1 was:

"to protect investors by improving the accuracy and reliability of corporate disclosures made pursuant to the securities laws".

Before the enactment of the Sarbanes-Oxley Act that came into effect from August 1st 2002, the Securities and Exchange Commission granted until the 10th of the month following the month in which insiders traded to report their transactions (See Fidrmuc et al., 2006). After the Act, insiders were required to electronically report their trades after their execution within two business days. Researchers who wish to decriminalise insider trading have argued that if the theory of market efficiency is to guide accurate pricing of securities, information about securities must circulate freely. In such a vein, profits from insider trading can be lower if the information about such dealings is quickly transmitted to the stock market. The limit of the time lag gives outsiders the possibility to mimic insider trades and also gain abnormal returns (Gelband, 2005). Section 302, of the Sarbanes Oxley Act further penalises earnings management where Chief Executive Officer(s) and the principal financial officer(s), or persons performing similar functions need to certify in each quarterly or annual report filed with the Securities Exchange Commission (SEC) that, the financial report does not contain any untrue statements of material facts, omissions, etc, under which such statements can be considered misleading and that they do fairly present the financial condition and results of operations for the reported periods; further, that financial reports do not contain material misrepresentations and are fairly represented,

4.2.3: Formulation of Hypotheses.

The empirical findings on the current Chapter will provide some evidence on the implications of SEC regulations and other securities laws for insider trading relationship to earnings management. From the theoretical review, the researcher found that responsive new regulations like the Sarbanes-Oxley Act are geared towards countering deficiencies that have arguably impaired the integrity of financial markets.

As earnings news and stock prices are positively related (Ball and Brown, 1968), insiders ought in the absence of regulatory or institutional constraints buy (sell) more shares in periods where they expect to influence reported earnings through the use of positive (negative) discretionary accruals. Strict insider trading rules may have an impact on the way managers do exercise their knowledge of private information about future prospects. Furthermore, strict insider trading laws may prevent managers from manipulating earnings for profit while trading in their corporation's stock (Hope, 2003). In a recent article by Betzer and Theissen (2004), the authors investigated the market reaction to trades in German firms by executives and non-executive directors. They concluded that the German market needs UK type regulation that prevents insiders from trading prior to earnings announcements. According to the authors, insider trading on inside information in Germany does benefit from informational advantages and so earn improved market returns as compared to trading by outsiders. The fact that insiders might employ discretionary accounting techniques to influence reported earnings after prior insider trading may raise serious concerns about the firm's earnings quality. A string of recent articles have examined the impact of the Sarbanes-Oxley Act of 2002 on earnings management⁴³, but to the best of my knowledge, none of these articles have linked earnings management to insider trading.

To accommodate the influence of strict regulatory regimes and recent corporate scandals on relationship between insider trading and earnings management, insiders may noticeably change the timing of their trades relative to the use of discretionary accrual techniques. This hypothesis can be tested empirically by examining the relationship between discretionary accruals (a discretionary decision by management) and net insider trades, to regulatory changes (a public event that is not discretionary by management).

Following these concerns, I broadly test two main hypothesis:

H1: The regulatory intervention (Sarbanes-Oxley Act) had an effect.

1-To suppress earnings management thereby improving the quality of earnings.

2-To suppress earnings management conditional on prior insider trades.

⁴³ Cohen et al., (2004) find evidence that there is a decrease of earnings management after the Sarbanes-Oxley Act of 2002.

The term suppression in this thesis specifically means reducing earnings management. Testing if the regulatory intervention had an effect would justify why there was a need for the strengthening of financial market regulation after recent corporate scandals. It is important to recall that, most executives of firms that were alleged to have abused the market e.g. Enron, WorldCom, Adelphi, etc were accused of insider trading and earnings management offences. This is because, the regulation was meant to reduce market abuse through insider trading and subsequent earnings manipulation.

The incentive to either buy or sell shares may be remote and not necessarily related to the intention to manage earnings. As a result of changes in expectations about a firm's future cash flows the signalling literature occasionally argues that if an insider believes that his shares have been overvalued (undervalued), he will sell (buy) them, and so signal the overvaluation of others. If trading by corporate insiders is informative about future earnings (e.g. on firms growth and future prospects), there should be no association between discretionary accruals and insider trading (Park and Park, 2004). Insiders might have superior knowledge over other market participants; and their buying (selling) will be based on the expectations of a positive (negative) earnings outcome without the use of discretionary accruals. This has been supported in recent research by Ke *et al.* (2003), who reported that insider trading might be associated with post transaction stock returns without the use of discretionary accruals. I therefore examine if insider transactions influence post transactions performance as measured by the firm's stock returns. I therefore test the additional hypothesis that links insider trading to future earnings performance as follows:

H2: Trading by corporate insiders is informative to future earnings performance.

This section has presented the literature that is specific to insider trading and earnings management in light of the recent regulatory intervention. The main objective is to motivate and position this research, in relation to previous research on insider trading and the earnings management relationship. First, there is the review of the literature on insider trading and earnings management and secondly, there has been a review of the policy literature on insider trading and earnings management regulations which led to the enactment of the Sarbanes Oxley Act of 2002. This has guided the development of the hypothesis for the first empirical essay.

4.3: Sample and Research Design.

This section presents research design issues for the first empirical chapter of the research.

4.3.1: Sample Selection.

The original sample is the S&P 500 firms as at March 2007 for the period 1997-2006. This makes 10 consecutive years, giving a total of 5000 firm years. To estimate earnings management, the researcher collected different accounting and insider trading data for the respective firms from the period 1997-2006.

Insider-Trading data has been collected from two sources. Between the periods 1997-2000, the data has been collected from the US National Archives & Records Administration. From 2001-2006 the data has been collected from the Edgar filings compiled by the Securities and Exchange Commission (SEC). Nonetheless, all the data is a summary of filings in the SEC form 3, 4, and 5 by insiders to the Security and Exchange Commission and there are no differences in the data. The file summarises insider trading transactions in all publicly held firms. Accounting and stock price data have been collected from DATASTREAM to ensure data consistency.

To remain in the sample a firm has to satisfy certain conditions. Firstly, it must have sufficient data to estimate discretionary accruals and data to compute net shares traded. Consistent with prior research (see Jenkins et al., 2006), financial institutions are excluded due to their complex reporting regime, leaving the sample with 411 firms and 4110 firm years. Firms with less than 7 observations in the 2 digit SIC codes are deleted⁴³, this leaves the sample with 364 firms and 3640 firm years. Firms with the necessary accounting data to estimate the discretionary accruals and real earnings management amounted to 3528 firm years and 358 firms. Since the analysis is restricted to open market transactions⁴⁴, firms must have disclosed open market insider trading information during the accounting periods that

⁴³ This is a slight departure from the prior papers (Jenkins et al. 2006) as most researchers do employ at least 10 observations. However, only one group of firm fell under this group and my sample size would have been greatly reduced if I did not limit my selection criteria to at least 7 observations.

⁴⁴ The information content of some transactions are habitually low and are customarily eliminated in research relating to the information content of open market insider trades. Sales after the exercise of options are likely to be related to the remuneration packages of directors rather than any sort of market information (Fidrmuc et al., 2006).

satisfy the definition for determining net insider trading. Insider trades are matched with fiscal years by the transaction date reported to the SEC. For every firm and on every fiscal year, the researcher computed the net number of insider transactions. The researcher further matches these net transactions to discretionary accruals, total accruals and other proxies like firm returns to address different research issues. To eliminate the effects of differences for firms that do not appear consistently over the period, I require a constant sample of firms that exists in the pre and post SOX period⁴⁵. The final sample involves an unbalanced sample of firm years covering the period of analysis.

Several reasons do account for why the researcher aggregated the data for firm years (not firm-quarters). Firstly, the sample would have been greatly reduced given the time series data requirements to estimate earnings management. Secondly, most firms do not disclose all accounting data in specific quarters. Thirdly, the researcher found that there was scarcity of disclosure of insider trading for most firms in most months in different accounting periods, and finally, the research aims to identify the impact of regulatory dynamics (SOX) on insider trading and earnings management.

4.4: Measurement of variables.

The test uses estimates of net shares traded, earnings management using real and discretionary accounting techniques, earnings management based on the probability of financial statements manipulation as measured by the Beneish M-Score, estimates of forecast errors and stock returns. This is covered in detail in Section 3.3.

4.5: Empirical Results.

I commence by reporting the descriptive evidence on each of my hypotheses after which I provide formal statistical tests of my predictions using regression analysis. After the presentation of the descriptive evidence, the main empirical investigation employing regression analysis commences by testing the relationship between discretionary accruals and prior insider trading. To specifically answer the research question, the researcher asks whether incentives to manage earnings are motivated by prior insider trading more in the

⁴⁵ A similar technique was adopted by Jenkins et al., (2006), who argued that, the benefits of eliminating potential volatility of the data caused by the introduction of new firms and the introduction of survivorship bias outweighs the costs.

overall sample period or in the post SOX period, using interactive variables. The researcher then tests the relationship between insider trading and future stock returns. This is because the timing behaviour argues that managers might strategically choose when they trade to either benefit from prior insider trades or distance themselves from their trades. In the next sub-section, the researcher investigates information motivated insider trading without the use of discretionary accruals and with the use of discretionary accruals post SOX. Since earnings management and insider trading are jointly determined, potential problems of endogeneity exist. This two-way causality chain is resolved by employing the 2 stage least squares. As a robustness check, the researcher adjusts the model using alternative definitions of earnings management.

Table 6: Description of Variables.

<i>Dependent and independent variables.</i>	<i>Description</i>	<i>Objective.</i>
DA-discretionary accruals.	This is the current period discretionary accrual estimated according to the modified Jones 1991 model as suggested by Dechow et al., (1995). Positive DA=Income increasing. Negative DA=Income decreasing.	Captures the level of earnings management.
NST-net shares traded.	Current period net shares traded estimated as the difference between the net purchases over net sales. Net buy equals positive NST while net sales predominate NST turns negative.	Classifies insider's trades as net buying or selling over the specified period.
FE-forecast errors.	Measures the analyst's earnings forecast errors estimated as the difference between the actual and forecast earnings per shares deflated by the stock price at the beginning of the period. Optimistic forecast errors are negative while pessimistic forecast errors are positive.	Specifies whether analysts' forecast exhibit systematic optimism or pessimism. Used as the first proxy for future earnings.
Ret>Returns	This is the stock return measured as the difference between the current stock price and the prior year stock price scaled by the prior year stock price. They are estimated one month after earnings announcement.	Used as a proxy for firm performance.

Fret-Future returns.	This is the Future returns for the firm measured as the one-year ahead stock returns which is the difference between the current stock price and the prior year stock price scaled by the prior year stock price.	Another proxy for firm's stock market performance (mostly post transaction and earnings management practices).
SOX-Sarbanes Oxley Act.	This is a dummy set equal to 1 for firm year's post-SOX (after 2002) and zero otherwise.	Aim to capture changes post-SOX
NST*SOX- NST and SOX are as defined above.	This is an interaction variable between net shares traded and the SOX period.	Objective is to capture changes in insider transactions post SOX.
DA*SOX-DA and SOX are as defined above.	This is an interaction variable of the relationship between discretionary accruals and the SOX period.	Aim to capture changes in the use of earnings management practices post SOX.
FRET*SOX-FRET and SOX are as defined above.	This is an interaction variable of the relationship between future returns and the SOX period.	Aim to capture changes in stocks market performance in the post SOX period.

SIZE	Total asset is used as a proxy for size to control for the impact of firm size.	The aim is to control for the influence of size on earnings management practices and firm performances.
MTB-market to book value	This is the firm's market value over the book value at the beginning of the year.	To control for growth opportunities
TA-total accruals.	This is the firm's total accrual that is customarily used as proxy for earnings management. However, its residual, discretionary accruals (DA) are used more often.	
NI-Net income.	This is the firm's net income normally used as a proxy for the accounting income earned by the firm.	To capture the firms performance.
LEV-Leverage	This is estimated as the total liabilities divided by the total assets.	Leverage is included to control for firm specific characteristics that are correlated to discretionary accruals.

Table 7: Summary Statistics About the Sample Firms.

Table 7 Panel A. Overall Sample Period Descriptive Statistics.											
	DA	TA	NDA	NST	FE	NI	Ret(ann)	Ret(fut)	lev	MTB	size
<i>Mean</i>	-0.0121	-0.0538	-0.0417	-0.0012	0.0024	0.0636	-0.0011	-0.0015	1.0209	4.7974	30694583.9
<i>Median</i>	-0.0041	-0.0476	-0.0291	-0.0011	-0.0043	0.0554	-0.0005	-0.0003	0.9875	3.1000	7138787
<i>STDEV</i>	0.1191	0.1198	0.0711	0.0357	0.1564	0.1932	0.0286	0.0270	0.3049	18.2560	102144067.9
<i>Min.</i>	-1.8208	-1.8113	-0.4762	-0.1040	-1.7984	-1.1318	-0.2449	-0.2449	0.0000	-147.2500	25039
<i>Max.</i>	0.5860	0.6167	0.4747	0.1065	5.0734	1.1799	0.2352	0.2352	3.1642	831.0800	1494037000

Table 7 Panel B: Descriptive Statistics for the differences in Mean in the Pre and Post SOX Era.

Variables	Mean			Differences in Means (Post SOX – Pre SOX)	T-statistics.
	Pre SOX	Post SOX			
Total Accruals	-0.0590	-0.0410		-0.0185	-5.35
Discretionary Accruals	-0.0220	-0.0020		-0.0193	-5.10
Non-Discretionary Accruals	-0.0421	-0.0401		-0.0020	-0.82
M-Score	-3.0900	-3.2940		0.2044	4.19
Net Income	0.0584	0.0628		-0.0045	-0.90
Annual Returns	0.2250	0.1410		0.0842	4.58
Leverage	1.0210	1.0290		-0.0077	-0.37
Size	26312676	44429384		-18116708	-5.75
Market to Book Value	4.4000	3.8000		0.6190	1.37
Net Shares Traded	-0.0075	0.0022		0.0096	-4.18

Table 7 above reports descriptive statistics for the overall sample period in Panel A and the pre and post SOX period in panel B. TA, NDA and DA are the total, non-discretionary and discretionary accruals as measured by the modified Jones (1995) model.

$$TA_t = (\Delta CA_t - \Delta CL_t - \Delta Cash_t + \Delta STD_t - DEP_t) / (A_{t-1}),$$

Where: TA = Total accruals, ΔCA = Change in current assets (*Datastream* datatype code wc02201); ΔCL = change in current liabilities (*Datastream* datatype code wc03101); $\Delta Cash$ = Change in cash and cash equivalents (*Datastream* datatype code wc02001); ΔSTD = Change in debt included in current liabilities (*Datastream* datatype code wc03251); DEP = Depreciation and amortization expense (*Datastream* datatype code wc01151) and A = Total assets (*Datastream* datatype code wc02999). Changes in various items are the difference between current period values (denoted as period t) less the previous period (denoted as period t-1). Non discretionary accruals is estimated from the modified Jones model by Dechow *et al* (1995) as

$$NDA_t = \alpha_1 (1/A_{t-1}) + \alpha_2 ((\Delta REV_t - \Delta REC_t)/A_{t-1}) + \alpha_3 (PPE_t/A_{t-1})$$

where NDA_t = Estimated non-discretionary accruals at time t, ΔREV = Change in revenue at time t (*Datastream* datatype code wc01001), ΔREC = Change in receivables at time t (*Datastream* datatype code wc02051), PPE = Property, plant and equipment at time t (*Datastream* datatype code wc02501). Estimates of the firm specific parameters $\alpha_1, \alpha_2, \alpha_3$, are generated using the following model in the estimation period:

$$TA_t/A_{t-1} = a_1 (1/A_{t-1}) + a_2 (\Delta REV_t/A_{t-1}) + a_3 (PPE_t/A_{t-1}) + v_t,$$

FE is the forecast errors measured as the actual minus the forecast earnings per share scaled by the share price, NI is the firm's net income, ret is the firms returns which is the price of the firms stock collected three months after the earnings announcement less the prior year price scaled by the prior year price. ret (ann) and Ret (fut) are the current (3 months after earnings announcements) and one year ahead stock returns after the earnings announcements. Lev is the leverage level of the firm, which is the total liabilities divided by the total assets, MTB is the firm's market-to-book ratio at the end of the year, size is a proxy by the total assets of the firm.

Figure 2: Trends of Discretionary and Total Accruals for the Overall Sample Period and The Pre and Post SOX Period.

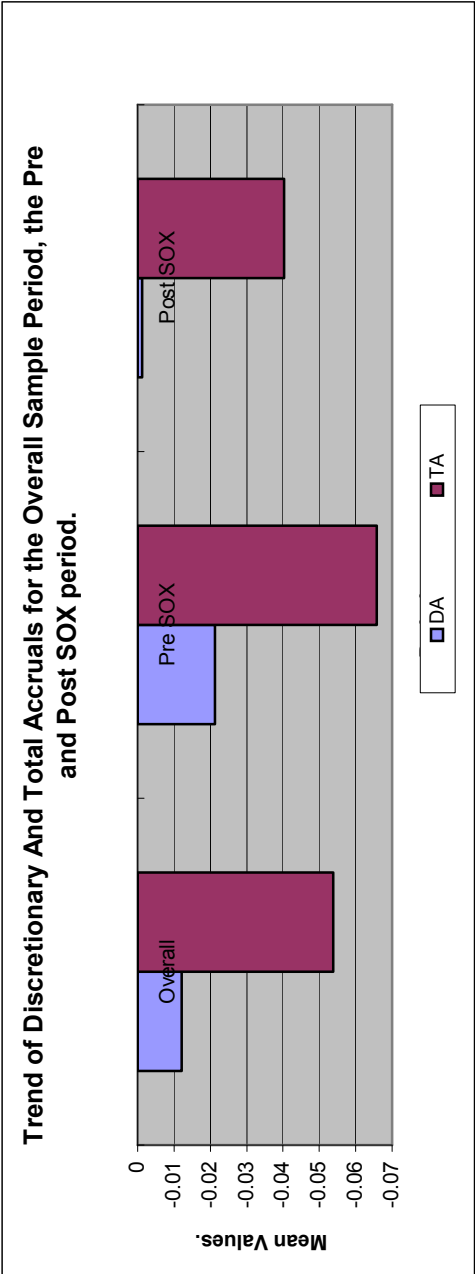


Figure 3: Plot of Trends In Earnings Management.

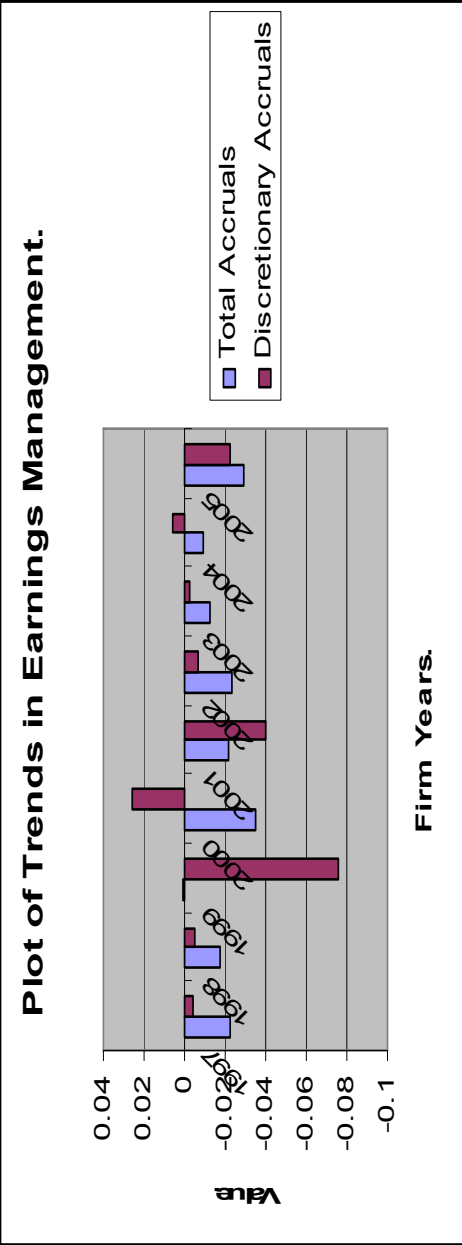


Figure 4: Plot of Accruals for Net Selling Firms.

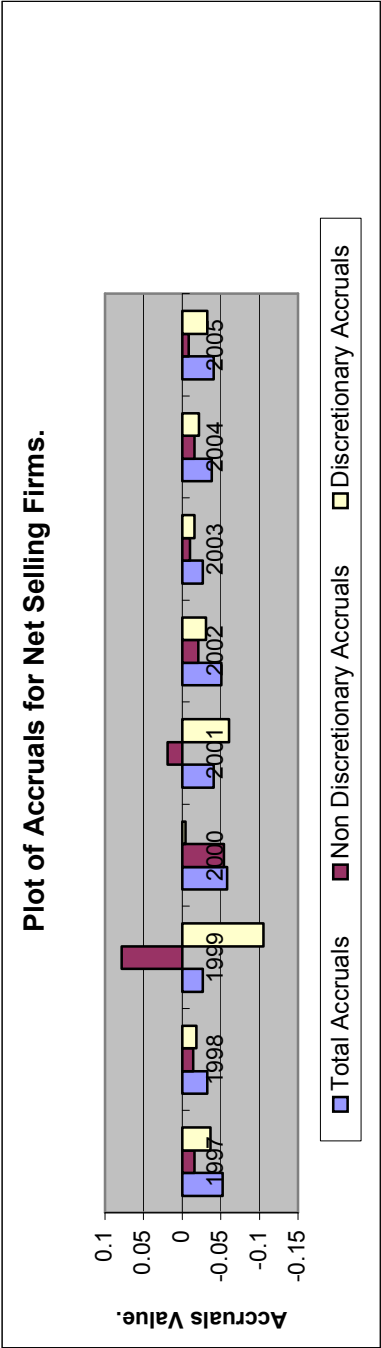


Figure 5: Plot of Accruals for Net Buying Firms.

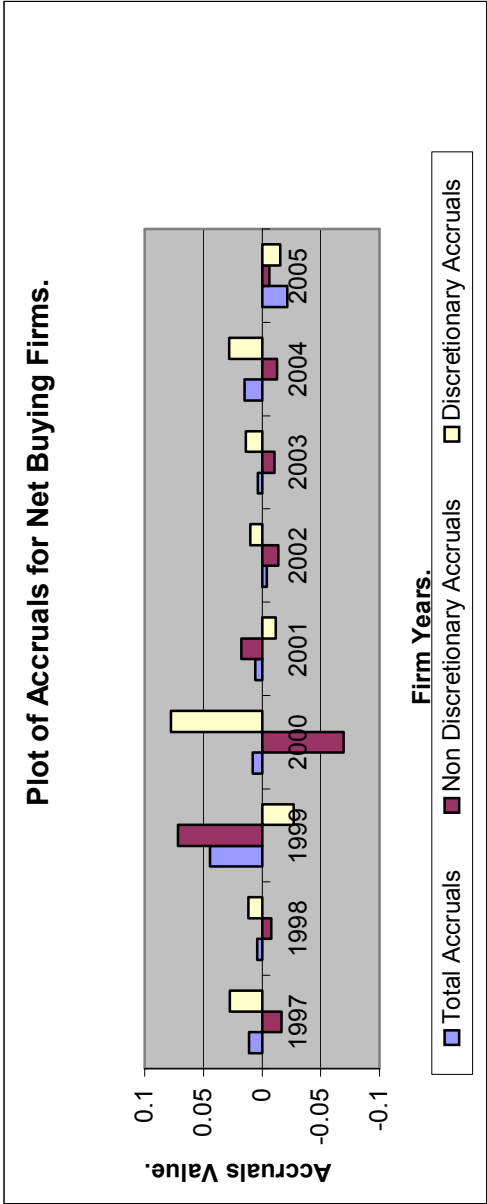


Table 7 Panel A and B present's descriptive statistics for the entire sample firm years, the pre SOX era and the Post SOX era respectively. As in table 7 panel A, the sample firms mean (median) values of discretionary and total accruals are respectively – 01.2100 (-0.41) and –5.3850 (-4.7640) percent of lagged total assets. Consistent with previous research (Sloan, 1996 and Bradshaw et al., 2001), this establishes that accounting accruals is habitually income decreasing primarily due to non-current accruals for depreciation and amortization. I document that analysts are optimistic judging from the realised mean forecast error of 2.45%. However, their median forecast error is negative (-4.31%). Results for the Pre and Post SOX periods are similar where accounting accruals are primarily income decreasing. Insiders in the overall sample period and the pre SOX period are mostly net sellers of the corporations stocks judging from realised mean net shares traded of -0.0012 and -0.0075. However, in the post SOX period, insiders are mostly net buyers of their stock judging from the mean net shares traded of 0.0022 (see table 7 Panel B). The difference in mean of the net shares traded between the Pre and Post SOX era is 0.0096 and the t-stats is -4.18. This might be as a result of the increasing confidence in the financial market after the recent corporate reforms for the US stock market.

As in Figure 3, the highest amount of discretionary and total accruals was realised during the period of 2000 and 2002. Like total accruals, the magnitude of the discretionary accruals metric which proxies for the discretion managers use to achieve their financial reporting objectives systematically reduces after its peak of 2000-2002, the period of the intense corporate scandals. The effect of the period of the late 1990's in magnifying earnings management cannot be underestimated. In fact, it might be viewed a what led to the corporate scandals of the period 1999-2002. This is because, during this period as many firms were making significant profits, managers of rival firms were facing huge pressure to improve their own performance. When this is followed by systematic structural changes like the enactment of the Sarbanes Oxley Act of 2002, they have the potential to mitigate earnings management. On average, I found that discretionary accruals under the modified Jones Model reduced from the pre Sarbanes-Oxley value of -2.2000 percent of total assets to the post Sarbanes-Oxley value of -0.2200 percent of total assets. The difference of mean between these periods is statistically significant and is -0.0193 with t stats of -5.1000. The Non-Discretionary

estimates suggest that in the pre SOX era firms employ negative non discretionary accruals of -0.0421 and in the post SOX era of -0.0401. The difference of mean between the Pre and Post SOX period is -0.0022 and t-statistics of -0.8200. In the Pre (Post) SOX era, the M-Score is -3.0900 (-3.2941) suggesting that overall, the probability of earnings manipulation is low. The difference in mean is 0.2044 and the t stat is 4.19. The net income in the Pre (Post) SOX period is 0.0582 (0.0628) suggesting that firms are more likely to be profitable before the SOX era. The difference in mean is -0.0045 and the t stat are -0.90. The annual returns in the Pre (Post) SOX era is 0.2255 (0.1414) suggesting that in both period, investments are more likely to be profitable. The differences in mean between the Post and Pre SOX period is 0.0842 and the t-stats is 4.58. The net shares traded for the Pre SOX period is -0.0075 suggesting that insiders are more likely to be net sellers before the passage of the SOX Act, however, in the Post SOX period, the net shares traded is 0.0022 suggesting that after the SOX period, insiders are more likely to be net buyers. The differences in mean between the Post and Pre SOX period is 0.0096 and the t stat is -4.18.

Plot of Figure 2 support this assertion that in the Post SOX era, firms are less likely to use discretionary and total accruals to boost reported earnings. The observed earnings pattern suggests that there has been a reduction in the use of discretionary accruals after the period of intensive corporate scandals in the United States. The results are consistent with the hypothesis that earnings management has been suppressed in recent times, especially after the corporate scandals of 2001 and the enactment of the SOX. Finally, the sample firms have mean and median total assets averaging 30694583 (7138787), an average market-to-book ratio of 4.7940 (3.1000) and leverage of 1.0209 (0.9875) in the overall sample period.

4.5.1: Correlation Between Variables.

Table 8-Panel A: Correlation for the Overall Sample Period (Pearson Correlation are Shown Above the Diagonal with Spearman Below the Diagonal).

This is the correlation Table pooled for the entire sample over the period 1997-2006. Correlations that are significant at the 5 percent levels are marked in bold and variable descriptions are provided below. Each cell contains the Pearson (Spearman) correlation coefficients with the P-Values in parenthesis. There are several technical reasons why

the Pearson and Spearman Rank correlations are included. Firstly, it helps the researcher investigate if the data is normally distributed and secondly if there may be multicollinearity between the independent variables.

	TA	NDA	DA	NI	RET (ANN)	LEV	SIZE	MTB	FE	NST
TA	1	0.449 (0.000)	0.795 (0.000)	0.081 (0.003)	0.083 (0.002)	-0.171 (0.000)	-0.020 (0.458)	-0.44 (0.033)	0.006 (0.772)	0.058 (0.006)
NDA	0.140 (0.000)	1	-0.078 (0.000)	0.012 (0.642)	-0.057 (0.035)	-0.155 (0.000)	-0.036 (0.176)	-0.024 (0.254)	0.003 (0.867)	0.001 (0.977)
DA	0.764 (0.000)	-0.394 (0.000)	1	0.073 (0.007)	0.119 (0.000)	-0.124 (0.000)	0.003 (0.902)	-0.036 (0.051)	0.005 (0.821)	0.064 (0.002)
NI	0.052 (0.002)	0.022 (0.078)	0.016 (0.005)	1	0.016 (0.557)	-0.032 (0.237)	0.060 (0.025)	-0.132 (0.000)	0.027 (0.309)	0.004 (0.977)
RET (ANN)	0.009 (0.000)	-0.098 (.0104)	0.021 (0.004)	0.154 (0.002)	1	-0.142 (0.000)	0.002 (0.930)	0.119 (0.000)	-0.024 (0.364)	-0.001 (0.977)
LEV	0.099 (0.000)	0.099 (0.000)	0.061 (0.003)	-0.005 (0.152)	-0.004 (0.000)	1	-0.002 (0.934)	-0.050 (0.016)	-0.008 (0.716)	0.015 (0.483)
SIZE	-0.1580 (0.051)	-0.0140 (0.102)	0.0000 (0.806)	0.0090 (0.100)	0.016 (0.562)	-0.002 (0.824)	1	-0.030 (0.260)	0.015 (0.579)	-0.004 (0.887)
MTB	-0.026 (0.212)	-0.130 (0.000)	0.028 (0.183)	-0.004 (0.000)	-0.002 (0.015)	-0.149 (0.000)	-0.042 (0.103)	1	0.003 (0.870)	-0.001 (0.962)
FE	-0.024 (0.243)	0.069 (0.001)	-0.051 (0.015)	0.001 (0.146)	-0.004 (0.005)	-0.020 (0.346)	0.014 (0.425)	0.052 (0.013)	1	0.009 (0.649)
NST	0.236 (0.000)	-0.027 (0.192)	0.225 (0.000)	0.025 (0.714)	0.0000 (0.438)	-0.001 (0.602)	-0.003 (0.0715)	-0.013 (0.541)	-0.001 (0.970)	1

Table 8-Panel B: Correlation For the Pre-SOX Period (Pearson Correlation are Shown Above the Diagonal with Spearman Below the Diagonal).

This is the correlation Table pooled for the pre-SOX sample over the period 1997-2002. Correlations that are significant at the 5 percent levels are marked in bold and variable descriptions are provided below. Each cell contains the Pearson (spearman) correlation coefficients with the P-Values in parenthesis.

	TA	NDA	DA	NI	RET (ANN)	LEV	SIZE	MTB	FE	NST
TA	1	0.464 (0.000)	0.852 (0.000)	0.108 (0.003)	0.086 (0.001)	-0.231 (0.000)	-0.054 (0.134)	-0.007 (0.003)	0.003 (0.459)	0.046 (0.051)
NDA	0.134 (0.000)	1	-0.069 (0.000)	0.010 (0.778)	-0.093 (0.010)	-0.154 (0.000)	-0.039 (0.286)	-0.054 (0.028)	0.031 (0.139)	0.002 (0.473)
DA	0.718 (0.000)	-0.457 (0.000)	1	0.102 (0.005)	0.147 (0.000)	-0.154 (0.000)	-0.029 (0.149)	-0.054 (0.027)	-0.015 (0.300)	0.051 (0.036)
NI	0.047 (0.037)	0.032 (0.152)	0.029 (0.210)	1	0.010 (0.793)	-0.039 (0.289)	-0.051 (0.159)	-0.248 (0.000)	0.011 (0.764)	0.005 (0.437)
RET (ANN)	0.096 (0.000)	0.069 (0.002)	0.049 (0.028)	0.033 (0.147)	1	-0.163 (0.000)	0.009 (0.806)	0.164 (0.000)	0.011 (0.770)	0.000 (0.993)
LEV	0.159 (0.000)	0.108 (0.000)	-0.380 (0.000)	-0.034 (0.135)	-0.085 (0.000)	1	-0.004 (0.084)	-0.099 (0.000)	0.007 (0.431)	0.016 (0.655)
SIZE	-0.046 (0.098)	-0.032 (0.425)	0.082 (0.002)	-0.055 (0.136)	0.008 (0.812)	-0.005 (0.099)	1	-0.018 (0.612)	-0.008 (0.832)	0.039 (0.287)
MTB	-0.055 (0.026)	-0.129 (0.000)	-0.014 (0.333)	-0.247 (0.000)	0.155 (0.000)	-0.214 (0.000)	-0.018 (0.155)	1	-0.031 (0.138)	0.000 (0.494)
FE	-0.029 (0.155)	0.092 (0.001)	-0.067 (0.000)	0.002 (0.464)	0.012 (0.785)	-0.006 (0.420)	-0.007 (0.676)	0.054 (0.029)	1	-0.029 (0.125)
NST	0.229 (0.000)	-0.041 (0.075)	0.223 (0.054)	0.054 (0.323)	0.008 (0.846)	-0.003 (0.454)	0.031 (0.251)	-0.011 (0.350)	0.035 (0.106)	1

Table 8-Panel C: Correlation For the Post-SOX Period (Pearson Correlation are Shown Above the Diagonal with Spearman Below the Diagonal).

This is the correlation table pooled for the post-SOX sample over the period 2002-2006. Correlations that are significant at the 5 percent levels are marked in bold and variable descriptions are provided below. Each cell contains the Pearson (Spearman) correlation coefficients with the P-Values in parenthesis.

	TA	NDA	DA	NI	RET (ANN)	LEV	SIZE	MTB	FE	NST
TA	1	0.199 (0.000)	0.919 (0.000)	0.020 (0.617)	0.087 (0.030)	0.150 (0.000)	0.002 (0.956)	-0.097 (0.001)	0.002 (0.221)	0.149 (0.000)
NDA	0.169 (0.000)	1	-0.202 (0.000)	0.012 (0.758)	0.084 (0.036)	0.153 (0.000)	-0.047 (0.237)	-0.030 (0.166)	0.011 (0.0361)	0.033 (0.140)
DA	0.831 (0.000)	-0.272 (0.000)	1	0.012 (0.767)	0.033 (0.409)	0.089 (0.002)	0.031 (0.436)	-0.085 (0.003)	0.019 (0.266)	0.136 (0.000)
NI	0.034 (0.125)	-0.013 (0.545)	0.032 (0.148)	1	0.039 (0.329)	-0.006 (0.877)	0.173 (0.000)	0.015 (0.703)	-0.018 (0.659)	-0.047 (0.242)
RET (ANN)	0.086 (0.000)	0.068 (0.002)	0.065 (0.003)	0.063 (0.005)	1	-0.053 (0.184)	-0.008 (0.842)	0.046 (0.252)	-0.081 (0.042)	-0.003 (0.946)
LEV	0.027 (0.058)	-0.050 (0.023)	-0.400 (0.000)	-0.014 (0.515)	-0.170 (0.000)	1	0.013 (0.746)	-0.008 (0.836)	-0.029 (0.471)	-0.014 (0.325)
SIZE	0.000 (0.918)	-0.061 (0.312)	0.029 (0.785)	0.164 (0.000)	-0.0076 (0.828)	0.014 (0.688)	1	-0.034 (0.389)	-0.064 (0.110)	-0.043 (0.285)
MTB	0.006 (0.428)	-0.102 (0.000)	0.020 (0.384)	0.016 (0.726)	0.044 (0.254)	-0.085 (0.003)	-0.345 (0.452)	1	0.005 (0.436)	-0.011 (0.352)
FE	-0.016 (0.303)	-0.002 (0.153)	0.009 (0.287)	-0.017 (0.597)	-0.098 (0.005)	-0.028 (0.183)	-0.066 (0.159)	0.083 (0.003)	1	0.024 (0.214)
NST	0.244 (0.000)	0.020 (0.253)	0.212 (0.000)	-0.054 (0.133)	-0.003 (0.0914)	-0.020 (0.253)	-0.009 (0.891)	-0.037 (0.112)	-0.017 (0.293)	1

The tables above reports Pearson (Spearman) correlation coefficients for the overall sample period (Table 8 Panel A), the pre SOX period (Table 8 Panel B) and post SOX period (Table 8 Panel C). TA, NDA and DA are the total, non-discretionary and discretionary accruals as measured by the modified Jones (1995) model.

$$TA_t = (\Delta CA_t - \Delta CL_t - \Delta Cash_t + \Delta STD_t - DEP_t) / (A_{t-1}),$$

Where: TA = Total accruals, ΔCA = Change in current assets (*Datastream* datatype code wc02201); ΔCL = change in current liabilities (*Datastream* datatype code wc03101); $\Delta Cash$ = Change in cash and cash equivalents (*Datastream* datatype code wc02001); ΔSTD = Change in debt included in current liabilities (*Datastream* datatype code wc03251); DEP = Depreciation and amortization expense (*Datastream* datatype code wc01151) and A = Total assets (*datastream* datatype code wc02999). Changes in various items are the difference between current period values (denoted as period t) less the previous period (denoted as period t-1). Non discretionary accruals are estimated from the modified Jones model by Dechow *et al* (1995) as:

$$NDA_t = \alpha_1 (1/A_{t-1}) + \alpha_2 ((\Delta REV_t - \Delta REC_t) / A_{t-1}) + \alpha_3 (PPE_t / A_{t-1})$$

where NDA_t = Estimated non-discretionary accruals at time t, ΔREV = Change in revenue at time t (*Datastream* datatype code wc01001), ΔREC = Change in receivables at time t (*Datastream* datatype code wc02051), PPE = Property, plant and equipment at time t (*Datastream* datatype code wc02501). Estimates of the firm specific parameters $\alpha_1, \alpha_2, \alpha_3$, are generated using the following model in the estimation period:

$$TA_t / A_{t-1} = a_1 (1/A_{t-1}) + a_2 (\Delta REV_t / A_{t-1}) + a_3 (PPE_t / A_{t-1}) + v_t,$$

FE is the forecast errors measured as the actual minus the forecast earnings per share scaled by the share price, NI is the firm's net income, *ret* is the firms returns which is the price of the firms stock collected three months after the earnings announcement less the prior year price scaled by the prior year price. *Ret* (*ann*) are the current (3 months after earnings announcements). *Lev* is the leverage level of the firm, which is the total liabilities divided by the total assets, *MTB* is the firm's market-to-book ratio's at the end of the year, *size* is a proxy

by the total assets of the firm, FE is the firm's forecast errors estimated as the actual minus forecast EPS scaled by the beginning of the period share price, NST is the net shares traded of the firm's insiders.

Table 8 Panel A presents the correlations coefficients (p-value in parentheses) of the dependent and the independent variables. Consistent to Sloan (1996), discretionary accruals are positively correlated to net income and are significant at the 5 percent level (Pearson (Spearman) correlation coefficient of 0.073 (0.016) and p-value of 0.0071 (0.005)). This is consistent to our expectations that firms that employ positive (negative) discretionary accruals to report favourable (unfavourable) earnings have high (low) accounting income at the end of the accounting period. Annual returns are also highly correlated to the firm's discretionary accruals (Pearson (Spearman) correlation coefficient of 0.1190 (0.0210) and p value of 0.0000 (0.0041)). One interpretation of this might be that investors do not realise the impact of discretionary accruals sufficiently early to discount the stocks of the firm leading to lower returns.

I also noted the positive correlation between discretionary accruals and prior year net shares traded (Pearson (Spearman) correlation coefficient of 0.077 (0.225) with a p value of 0.004 (0.000)). These suggest that net buying (selling) firms usually have positive (negative) discretionary accruals. Firm size is highly correlated with net income but the spearman rank correlation result is slightly insignificant (Pearson (Spearman) correlation coefficient of 0.060 (0.009) and p-values of 0.025 (0.100)). The market to book ratio is negatively correlated to discretionary accruals however, the spearman rank values is positive (Pearson (Spearman) correlation coefficient of -0.036 (0.028) and p-values of 0.051(0.183)). The interpretation of the Pearson value suggest that firms with more growth prospects are more likely to manage earnings unlike firms without growth prospects. The relationship between market and book ratio and net income is negative, suggesting that firms with more growth prospects are more likely to invest their earnings than those without growth prospects (Pearson (Spearman) correlation coefficient of -0.132 (-0.004) and p values of 0.000 (0.000)). The change in sign might be due to the effect of outliers.

The correlation between market to book ratio and leverage is negative, which suggest that firms with more growth prospects are more likely to have more debts than firms with less growth prospects (correlation coefficient of -0.050 (-0.149) and p values of 0.016 (0.000)). The relationship between leverage and annual returns is negative, which suggests that firms with more debts are more likely to have their stock prices discounted by investors unlike firms with less debts (Pearson (Spearman) correlation coefficient of -0.142 (-0.004) and p value of 0.000 (0.000)).

The correlation coefficients for the pre and post SOX era are reported in panel b and c of Table 8. In the pre SOX era, the correlation results are very similar to those of the overall sample period. Specifically, I found a positive and significant correlation between discretionary accruals and net income, discretionary accruals and stock returns, and discretionary and net shares traded. However, in the post SOX period, the relationship between discretionary accruals and net income is insignificant (Pearson (Spearman) correlation coefficient of 0.012 (0.032) and p-value of 0.767 (0.148)). This suggests that discretionary accruals do not directly influence net income after the introduction of SOX. The correlation between market to book ratio and leverage in the pre (post) SOX period is negative and significant (Pearson (Spearman) correlation of -0.009 (0.214) and the respective P values are significant at the 5 percent level. However, the Pearson (spearman) correlation of -0.008 (-0.085) in the post SOX period is also negative but the relationship is insignificant at the 5 percent level for the Pearson correlation coefficient. The results overall suggests that in the pre and post SOX period, firms with more growth prospects are more likely to manage earnings. In the pre SOX period, the Pearson (Spearman) rank correlation of net shares traded and discretionary accruals is positive and is respectively 0.051 (0.223) and both results are significant at the 5 percent level. In the post SOX period, the relationship is also positive (Spearman and Pearson correlation is respectively 0.136 and 0.212) and significant at the 5 percent level. The implications are that firms that are more likely to be net sellers (buyers) of their corporations stocks are more likely to use negative (positive) discretionary accruals to influence their results in both the pre and post SOX period.

4.5.2: Evidence Based on Regression Analysis.

In this section, I provide statistical tests of several predictions using regression analysis.

4.5.2.1: Test of the Relationship Between Discretionary Accruals and Prior Insider Trading.

My main hypothesis investigates if the regulatory intervention has suppressed earnings manipulation motivated by a desire to profit from prior insider trading. In this section, I examine the relationship between current period discretionary accruals and prior insider trading (as determined by the net shares traded) after controlling for other relevant factors that might influence discretionary accruals. My main focus is to investigate whether incentives to manage earnings have declined following the passage of the Sarbanes-Oxley Act of 2002. Drawing on prior literature, the relationship between discretionary management of earnings and prior insider trading can be explained in two ways. Firstly, managers actively

involved in trading might be deliberately manipulating future period earnings to benefit from prior insider trades⁴⁶. The second possibility is that they might be motivated to manage earnings due to other earnings management incentives. In an effort to investigate the relationship between discretionary accruals and prior insider trading, I regress discretionary accruals on prior insider trades and other variables based on the following regression equation:

$$DA_{i,t} = \alpha_0 + \beta_1 * (NST_{i,t}) + \beta_2 * (NST_{i,t} * SOX_t) + \beta_3 * (SOX_t) + \beta_4 * (FRET_{i,t}) + \beta_5 * (FRET * SOX_t) + \beta_6 * (SIZE_{i,t}) + \beta_7 * (LEV_{i,t}) + \beta_8 * (MTB_{i,t}) + e_{i,t} \dots\dots\dots (3.20).$$

The variables $NST_{i,t}$ and $NST_{i,t} * SOX_t$ measures respectively the impact of prior year net shares traded on current discretionary accruals and the impact of prior net shares traded in the post SOX period on current period discretionary accruals. To control for variables that have been identified in previous studies which are likely to affect the reporting of discretionary accruals and therefore the observed earnings patterns, I include other variables in the regressions. I include the firm's book-to-market ratios, firm's size and leverage factors. Low book-to-market ratios corporations, for example, are particularly sensitive to fluctuations in earnings (see Skinner and Sloan, 2002) while size and leverage are also related to earnings management and are habitually related to debt contracting motivations for earnings management (see Watts and Zimmerman, 1990, Klein 2002). Due to manager's interest in avoiding debt covenant violations, there may be a positive association between leverage and income increasing accounting choices (Young, 1999). I include the SOX variable to control for the impact of the Sarbanes-Oxley Act of 2002 on the use of discretionary accruals to benefit from trading in their corporations stocks. I additionally examine whether executives with incentives to manage earnings do manage earnings more before SOX and whether those firms engage in less earnings management after the SOX. Cohen *et al.* (2004) examined earnings management pre and post the SOX period and found that earnings management decreased after the implementation of the SOX. However, I examined if this change is due to firm specific insider trading incentives. I report the results in panel A table 9.

⁴⁶ In a seminal article by Beneish et al., (2004), he argued that managers employ higher discretionary accruals to benefit from prior insider trading.

The results reported in table 9 Panel A suggest a negative and insignificant relationship between the interactive variable $NST_{i,t} * SOX_t$ and DA (coefficient of -0.0426 and t-stats of -0.39) suggesting that in the post SOX period, insiders trade in their corporation's stocks is negatively but insignificantly related to future discretionary accruals. However, the interactive variable between future returns and SOX ($FRET_{i,t} * SOX_t$) is negative with a statistical significance (coefficient of -0.4525 and t statistics of -2.09) suggesting that when managers employ discretionary accruals to influence future returns, investors are quick to recognize this and discount the stocks of these companies leading to negative stock returns. The NST variable suggest that insiders trade and manage earnings overall, however the result of statistically insignificant (coefficient of 0.0592 and t stats of 0.76). The coefficient for the size variable is -1.6730 and the t statistics is -2.09 which suggest that the larger the size of a firm, the less likely the firm is going to manage earnings. One reason for this is because larger firms are followed more by analysts and other stakeholders including the media than smaller firms as such; they are less likely to manage earnings as this can be easily picked up leading to stock price declines. The LEV variable has a coefficient of 0.0051 and a t stats of 2.85 which suggest that firms with more debts are likely to manage earnings overall than those with less debts. This is in line with the debt covenants motivations for earnings management (De Fond and Jambalvo, 1991). The argument by De Fond and Jambalvo is that firms that violate their debt covenant obligations might incur large re-contracting cost, as such are motivated to overstate earnings. The market to book ratio suggest a negative coefficient that is statistically significant (coefficient of -0.0007 and t-stats of -4.06) suggesting that the more impressive the growth prospects a firm has, the less likely it is going to use discretionary accruals to report favorable earnings. This might be as a result of fear that the firm is more likely going to be discounted by the stock market.

4.5.2.2: Test For the Relationship Between Insider Trading and Future Discretionary Accruals/Stock Returns.

Managers might actively employ a timing behavior where they strategically choose where and when they trade and manage earnings to either benefit from prior trades or distance themselves from their trades. Beneish *et al.* (2004) in their litigation avoidance hypothesis provide evidence that managers manage earnings upwards after they have engaged in abnormally high levels of insider selling. If this is true, then insiders might be thought of as habitually using income increasing (decreasing) discretionary accruals to distance themselves from a prior net buy (sale) of their corporation's stocks. In this section, I

investigate the relationship between current net shares traded and subsequent discretionary accruals. I also control for variables that have been found in prior studies to affect prior discretionary accruals. I report the results in panel B Table 9 with the tests based on the following regression:

$$NST_{i,t} = \alpha_0 + \beta_1 * (DA_{i,t+1}) + \beta_2 * (DA_{i,t+1} * SOX_t) + \beta_3 * (FRET_{i,t+1}) + \beta_4 * (FRET_{i,t+1} * SOX_t) + \beta_5 * (SOX_t) + \beta_6 * (SIZE_{i,t-1}) + \beta_7 * (LEV_{i,t-1}) + \beta_8 * (MTB_{i,t-1}) + e_{it} \dots \dots \dots (3.21).$$

The coefficient on $DA_{i,t+1}$ is supposed to be positive if manager's prior insider purchases (sales) are followed by positive (negative) discretionary accruals to distance themselves from their prior insider trading. In the discretionary accruals equation (See table 9 Panel B), the coefficient is positive and significant (coefficient of 0.0182 and t-statistics of 2.7051) indicating that managers time their trade and employ discretionary accruals in the subsequent periods to distance themselves from it. However, in the post *SOX* period, this relationship is insignificant though positive as captured by the coefficient on $DA_{i,t+1} * SOX_t$ (coefficient of 0.0039 and t-statistics of 0.37). I additionally investigated the timing explanation as discussed in prior studies (Ke *et al.*, (2003), Rozeff and Zaman, (1998)) and found that in their overall sample period insiders time their trade to benefit from post transaction stock returns. This indication is from the fact that the coefficient on $FRET_t$ is positive and significant (coefficient of 0.0624 and t-statistics of 2.53). However, I do not find that insider can time their trades in the post *SOX* period to benefit from prior insider trading. The coefficient on $FRET_{i,t+1} * SOX_t$ is positive and insignificant (coefficient of 0.0543 and t-statistics of 0.74). The coefficient on *SOX* is positive and significant (coefficient 0.0046 and t stats of 3.67) suggesting that insiders are mostly net buyers of their stock in the post *SOX* period. The coefficient on size is positive but statistically weak and insignificant (coefficient of 0.0000 and t stats of 0.85), suggesting that insiders of large firms are more likely to buy shares. The coefficient on Leverage is positive and significant (coefficient of 0.0038 and t stats of 2.12) which suggests that insiders of highly levered firms are more likely to buy shares. Though this is contrary to my expectation, the implication might be that such insiders are trading on the shares to give the impression that despite the firms debt, all is going on well with the company. The coefficient on market to book ratio suggest that insiders of firms that have more growth prospects are prone to selling their shares. However, this coefficient is weak and statistically insignificant (coefficient of -0.0038 and t statistics of -1.18).

4.5.2.3: Test for Information Motivated Insider Trading.

In this section, I investigate information motivated insider trading: (1) without the use of discretionary accruals, assuming insiders are mainly employing an opportunistic trading strategy (2) with the use of discretionary accruals assuming insiders manage earnings to benefit from future insider transactions. I report the results in Panel C table 9. As discussed in the literature, some insider trading might be information related and discretionary accruals might not be associated with prior net shares traded. Managers who have private information relating to their expectations of the firm's future performance might trade on such a basis without necessarily manipulating earnings. Post transactions stock returns, used as a proxy for firm's future prospects might be associated with prior insider trading (See, Ke *et al.*, 2003, Seyhun (1986), Rozeff and Zaman (1998), Lakonishok and Lee (2001)). As discussed in Seyhun (1998), the stock price reactions after insider transactions might continue for up to 12 months after the earnings announcements. In an effort to examine the strength of the returns/insider trading and earnings management relationship, I regress stock returns on insider trading, discretionary accruals and explanatory variables in the following model. The regression equation used is:

$$FRET_{i,t} = \alpha_0 + \beta_1 * (DA_{i,t-1}) + \beta_2 * (DA_{i,t-1} * SOX_t) + \beta_3 * (SOX_t) + \beta_4 * (NST_{i,t}) + \beta_5 * (NST_{i,t} * SOX_t) + \beta_6 * (SIZE_{t-1}) + \beta_7 * (LEV_{i,t-1}) + \beta_8 * (MTB_{i,t-1}) + e \dots \dots (3.22).$$

The results reported in Table 10 Panel C for the coefficient of DA_i suggest a positive and significant relationship between prior year discretionary accruals and future stock returns (coefficient of 0.0241 and t-statistics of 3.16) suggesting that discretionary accruals boost earnings and in the sample period, the stock market does not capture this in its valuation of companies. This is the same with the net shares traded that predicts future returns quite well (coefficient of 0.0585 and t stats of 3.19). However, when this relationship is evaluated in the post SOX period, the relationship becomes insignificant as both discretionary accruals (coefficient of -0.0033 and t stats of -0.41) and net shares traded (coefficient of -0.0405 and t stats of -1.51) are negatively and insignificantly related to future stock returns. The coefficient on SOX is positive and significant suggesting that firm returns increases in the post SOX period. This might be due to increased confidence in the stock market after stricter regulations as a result of the corporate scandals involving Enron and WorldCom (coefficient of 0.0034 and t statistics of 3.60). The coefficient on size is weak, negative and statistically

insignificant (coefficient of -0.0000 and t stats of -0.20) suggesting that smaller firms are more likely to have a positive returns. The LEV variables suggested that the higher a company's debt, the more likely its returns would increase (the coefficient of 0.0036 and t statistics of 2.62). This result is surprising and suggests that investors do not monitor the total amount of debt in a company's balance. The coefficient on market to book is very weak and statistically insignificant (coefficient of -0.0000 and t statistics of -0.51) which suggest that firms with more growth prospects are likely to have negative returns.

Table 9: Regression Results for Essay 1.

Panel A.		Panel B.		Panel C.	
Dependent Variable: Discretionary Accruals.		Dependent variable: Net Shares Traded.		Dependent Variable: One Year Ahead Stock Returns.	
	Coefficient (t-stats).		Coefficient (t-stats).		Coefficient (t-stats).
Intercept	0.0417 (13.78)	Intercept	-0.0029 (-3.31)	Intercept	-0.0076 (-4.86)
$NST_{i,t}$	0.0592 (0.76)	$DA_{i,t+1}$	0.0182 (2.71)	$DA_{i,t-1}$	0.0241 (3.162)
$NST_{i,t} * SOX_t$	-0.0426 (-0.39)	$DA_{i,t+1} * SOX_t$	0.0039 (0.37)	$DA_{i,t-1} * SOX_t$	-0.0033 (-0.41)
SOX_t	-0.0061 (-1.68)	$FRET_{i,t+1}$	0.0624 (2.53)	SOX_t	0.0034 (3.60)
$FRET_{i,t}$	0.1732 (2.12)	$FRET_{i,t+1} * SOX_t$	0.0543 (0.74)	$NST_{i,t}$	0.0585 (3.19)
$FRET * SOX_t$	-0.4525 (-2.09)	SOX_t	0.0046 (3.67)	$NST_{i,t} * SOX_t$	-0.0405 (-1.51)
$SIZE_{i,t}$	-1.6730 (-1.02)	$SIZE_{i,t-1}$	0.0000 (0.85)	$SIZE_{t-1}$	-0.0001 (-0.20)
$LEV_{i,t}$	0.0051 (2.86)	$LEV_{i,t-1}$	0.0038 (2.12)	$LEV_{i,t-1}$	0.0037 (2.62)
$MTB_{i,t}$	-0.0007 (-4.06)	$MTB_{i,t-1}$	-0.0038 (-1.18)	$MTB_{i,t-1}$	-0.0000 (-0.51)
Adj-R sq.	63.72 %	Adj-R sq.	52 %	Adj-R sq.	1.21%.
Number of firm Years.	3212	(N)	3212	(N)	3212

Table 9 above presents results of OLS regressions. Panel A reports results for the relationship between discretionary accruals and predictor variables, Panel B presents results for the relationship between net shares traded and predictor variables and, finally, Panel C report results for future returns proxy for a firm growth prospects on predictor variables. DA_{it} = firm's i discretionary accruals at period t immediately after insider transactions in the prior period, NST_{it} is the net shares traded accumulated over the year, $NST * SOX$ is an interactive variable that measures the relationship between post SOX net shares traded on the dependent variable, SOX_{it} is a variable set equal to 1 if the firm year is in the post Sarbanes-Oxley period and zero otherwise, $FRET_{it}$ is the firms one year ahead stock returns after the period of insider trading or discretionary accruals, $FRET_{it} * SOX_{it}$ is an interactive variable that measures the influences of post SOX firms returns on the dependent variable, $SIZE_{it}$ is the firms total assets employed as a proxy for firm size, LEV_{it} which is leverage is the firm's total liabilities over the total assets, MTB_{it} is the firm's market to book ratio.

4.5.2.4: Test for the Causal Relationship between insider trading and Earnings Management Using Two-Stage Least Square.

Theoretical arguments suggest that the relationship between insider trading and earnings management might be jointly determined. One strand of literature suggests the pump-and-dump hypothesis, where managers might adjust current period discretionary accruals to benefit from insider sales (Park and Park, 2004) or manage earnings prior to insider sales (Bolton *et al.*, 2002). The other strand suggests that managers might manage earnings prior to insider trading, trading ahead based on earnings expectations (Ke *et al.*, 2003) or to avoid litigation (Beneish *et al.*, 2004). The joint determination between insider trading and earnings management suggests a simultaneous equation specification and that they are endogenous variables. The Hausman specification error tests can be used to test for simultaneity. It is important to note that, a test for simultaneity is essentially a test of whether an endogenous regressor is correlated with the error term (Gujarati, 1995). Following these, I regress DA on endogenous variables. I further regress net shares traded on estimated DA and the residuals generated from the previous regression. As suggested by Hausman (1976), since the error term is statistically significant in the second regression (coefficient of -0.0318 and t-stats of -2.8401) I do not reject the hypothesis of simultaneity.

As a result of the correlation between the stochastic disturbance term and the endogenous variable, the OLS estimation might not be appropriate for the estimation of just one equation in a system of simultaneous equation. In the presence of simultaneity problems, the 2 stage least squares estimation will give estimators that are consistent and efficient (Gujarati, 1995). As discussed above and specified in equations 3.23 and 3.24, both DA_{it} and NST_{it} are endogenous variables. The variables SOX_t , $FRET_t$, $SIZE_t$, LEV_t and MTB_t are endogenous variables. After having checked and confirmed the presence of simultaneity using the Hausman specification error test as discussed in the prior paragraph, we implement the two stage least squares technique. Theoretically, we can implement the OLS to equation 3.24, but the obtained estimates will be inconsistent as a result of the likely correlation between the explanatory variable DA_{it} and the error term in the equation. In such vein, to purify the stochastic explanatory variable DA_{it} of the perceived influence of the disturbance (or the error term), the test finds a proxy for the explanatory variable DA_{it} such that, although it resembles DA_{it} , it is uncorrelated with the error term.

To find this proxy, I first regress DA_{it} on the endogenous variables specified above. This is mainly a reduced form coefficient of equation 3.23 as only the endogenous variables appear on the right hand side of the equation²⁴. Equation 3.23 can now be effectively expressed as:

$$DA_{i,t} = \alpha_0 + \hat{DA}_{i,t} + \hat{e}_{i,t} \dots\dots\dots(3.23 \text{ Sub}).$$

As in Gujarati (1995), the stochastic $DA_{i,t}$ consists of two parts, which are a linear combination of the non-stochastic endogenous variables and random component $\hat{e}_{i,t}$. According to the OLS theory, $\hat{DA}_{i,t}$ and $\hat{e}_{i,t}$ are uncorrelated.

To illustrate further, in the first step, we regress the endogenous variables on all the predetermined variables in the system. In stage 2, we replace the endogenous variables in the original equations by their estimated values that were acquired from the preceding two regressions and run the OLS regression as in equations 3.23 and 3.24 discussed below.

This study therefore employs the two-stage least square approach of the form:

$$DA_{i,t} = \alpha_0 + \beta_1 * (NST_{i,t}) + \beta_2 * (NST_{i,t} * SOX_{i,t}) + \beta_3 * (SOX_{i,t}) + \beta_4 * (FRET_{i,t}) + \beta_5 * (FRET * SOX_{i,t}) + \beta_6 * (SIZE_{i,t}) + \beta_7 * (LEV_{i,t}) + \beta_8 * (MTB_{i,t}) + e_{i,t} \dots\dots\dots(3.23).$$

$$NST_{i,t} = \alpha_0 + \beta_1 * (DA_{i,t-1}) + \beta_2 * (DA_{i,t-1} * SOX_{i,t}) + \beta_3 * (FRET_{i,t+1}) + \beta_4 * (FRET_{i,t+1} * SOX_{i,t}) + \beta_5 * (SOX_{i,t}) + \beta_6 * (SIZE_{i,t-1}) + \beta_7 * (LEV_{i,t-1}) + \beta_8 * (MTB_{i,t-1}) + e_{i,t} \dots\dots\dots(3.24).$$

DA_{it} = firms i discretionary accruals at period t immediately after insider transactions in the prior period, NST_{it} is the net shares traded accumulated over the year, $NST_{it} * SOX_{it}$ is an interactive variable that captures the impact of post SOX net shares traded on future discretionary accruals, SOX_{it} is a variable set equal to 1 if the firm year is in the post Sarbanes-Oxley period and zero otherwise, $FRET_{it}$ is the firm's one year ahead stock returns after the period of insider trading or

²⁴ $DA_{i,t} = \alpha_0 + \beta_1 * (SOX_{i,t}) + \beta_2 * (FRET_{i,t}) + \beta_3 * (SIZE_{i,t}) + \beta_4 * (LEV_{i,t}) + \beta_5 * (MTB_{i,t}) + e_{i,t}$.

discretionary accruals, $FRET_{it} * SOX_{it}$ is an interactive variable that measures the influences of post SOX firms returns on the dependent variable, $SIZE_{it}$ is the firm's total assets employed as a proxy for firm size, LEV_{it} which is leverage is the firm's total liabilities over the total assets, MTB_{it} is the firm's market to book ratios.

The variable $FRET_{it}$ is included because prior research has suggested that current period returns can be influenced by prior discretionary accruals and that insider trading is associated with the firm's future prospects proxy for post transactions stock returns (Ke et al., 2003). The variable MTB_{it} controls for the impact of growth prospects on the use of discretionary accruals in table 11 Panel A and on insider trading on table 11 Panel b, the variable LEV_{it} is leverage that controls for debt covenants influence to earnings management, and $SIZE_{it}$ proxy with total assets control for the impact of size on earnings management practices and insider trading.

Table 10 reports the regression results of the 2 stage least squares. As discussed above, the test here have look for a proxy for the explanatory variable DA_{it} . After estimating this DA_{it} proxy following the specifications above, I have trimmed the sample for outliers causing the sample to reduce slightly from 3212 firm years to 3204 firm years. Outliers here have been defined here following the Easton and Harris (1991) study as 1.5 standard deviations to the mean. This technique was adopted following Marton (1998) who argued that the test will help existing structures in the data to be easily discovered and picked out. In Panel A, the dependent variable is the discretionary accruals and in Panel B, the dependent variable is the net shares traded. The

coefficient of NST_{it} in the discretionary accruals equation is positive and significant at the 1 percent level (coefficient of 0.6800 and t-stats of 2.89) suggesting that insiders manage earnings after insider transactions. However, the coefficient of $NST_{it} * SOX_{it}$ which is another key variable of interest is negative and significant suggesting that, when insiders manage earnings in the post SOX period after prior insider trading, they do so to distance themselves from the trade. The coefficient on $SIZE_{it}$ is positive and significant (coefficient of 0.0391 and t-stats of 2.08). The coefficient on LEV_{it} is positive and significant suggesting that firms with large debts are more likely to manage earnings to meet debt covenant obligations than firms with fewer debts (coefficient of 0.3120 and t-statistics of 3.58). In the net shares traded equation reported in panel b, Table 5 below, the coefficient of DA is positive and significant. This suggests that firms that have net buying (selling) firm employ positive (negative) discretionary accruals. However, the

coefficient on $DA_{it} * SOX_{it}$ is positive but insignificant suggesting that managers do not time their trades and employ discretionary accruals to benefit from it in the post SOX period. The coefficient on $FRET_{it}$ is positive and significant suggesting that prior insider trading is relating to future firm performance as proxy by stock returns (coefficient of 0.1040 and t-statistics 8.02). The coefficient of $FRET_{it} * SOX_{it}$ is negative and significant suggesting that managers are unable to time their trades in the post SOX period to benefit from prior insider trading (coefficient of -0.0610 and t statistics of -6.64).

Overall, the results using the 2 stage least square follows a similar pattern to that observed in the main hypothesis. Specifically, results for the Post SOX era suggest that insider trades does not significantly relate to firm performance. Also, discretionary accruals are not employed to boost firms earnings post SOX after insider trading. Combining the findings of the main hypothesis and the 2 stage least squares, the testable implications are that greater control of financial markets through stricter regulations will lead to controlled market behavior and less market abuse. The result for the Post SOX era also amplify the result of previously documented trading strategies using samples only in a normal business climate without substantial market abuse and changes in regulations (e.g. Ke et al., 2003, Beneish and Vargus, 2002, 2004, Park and Park, 2004) that investors can exploit knowledge earnings management and insider trading and make significant profit. In fact, Beneish and Vargus (2002) show that during periods when accruals are high, insiders are more likely to sell unusually high amounts of their shares and that period of high accruals accompanied by high insider sales are customarily following by low stock returns. However, when the regulations are tightened, this might not be possible as managers would be less likely to influence the quality of earnings.

Table 10: Regression Results for Essay 1, Causal Relationship Test Using 2 Stage Least Squares.

Panel A: Dependent variable is the DA.		Panel B: Dependent variable is the NST.	
DA _{it}	Coef (t-stats).	NST	Coef (t-stats).
Intercept	-0.1010 (-4.25)	Intercept	0.0910 (10.11)
NST _{it}	0.6800 (2.89)	DA _{it}	0.0140 (3.16)
NST _{it} *SOX _{it}	-0.1500 (7.59)	DA _{it} *SOX _{it}	0.0020 (0.41)
SOX _{it}	-0.0260 (-1.13)	SOX _{it}	0.1580 (14.98)
FRET _{it}	-0.1330 (-1.32)	FRET _{it}	0.1040 (8.02)
FRET _{it} *SOX _{it}	0.2700 (1.41)	FRET _{it} *SOX _{it}	-0.0610 (-6.64)
SIZE _{it}	0.0390 (2.08)	SIZE _{it}	-0.0760 (-21.96)
LEV _{it}	0.3120 (3.58)	LEV _{it}	-9.5300 (-7.75)
MTB _{it}	0.0210 (1.15)	MTB _{it}	-0.0500 (-4.26)
Adj-R sq.	24 %	Adj-R sq.	55 %
Number of Firm Years.	3204	Number of Firm Years.	3204

Table 10 presents the results of the two stage least square for the relationship between discretionary accruals and insider trading. Panel A reports results for the relationship between discretionary accruals and predictor variables, while panel B presents results for the relationship between net shares traded and predictor variables. DA_{it} = firms' discretionary accruals at period t immediately after insider transactions in the prior period, NST_{it} is the net shares traded accumulated over the year, $NST*SOX$ is an interactive variable that measures the relationship between post SOX net shares traded on the dependent variable, SOX_{it} is a variable set equal to 1 if the firm year is in the post Sarbanes-Oxley period and zero otherwise, $FRET_{it}$ is the firms one year ahead stock returns after the period of insider trading or discretionary accruals, $FRET_{it}*SOX_{it}$ is an interactive variable that measures the influences of post SOX firms returns on the dependent variable, $SIZE$ is the firms total assets employed as a proxy for firm size, LEV_{it} which is leverage is the firms total liabilities over the total assets, MTB_{it} is the firms market to book ratios.

4.5.2.5: Robustness Tests: Using Alternative Definition of Earnings Management.

Although the modified Jones model has been quite popular in previous earnings management research, the model also has problems separating earnings management from the effects of real financial decision and changing economic conditions (e.g. inventory build up). Additionally, few firms have sufficiently long time series of data to permit reliable estimation of the discretionary component of accruals. In contrast to accruals earnings management, real earnings management can be achieved by changing the firms underlying operations (cut in prices to improve sales, asset sales to improve profits, reduction in R&D expenditures, etc). The implications are that there can be erroneous interpretation of the results and due to the interaction of real and discretionary accruals variables used in the modified Jones (1991) model, without separation, the results might be of low power.

To check the robustness of my empirical results, I conduct additional tests using alternative definitions of earnings management. They include real earnings management through changes in discretionary expenses as discussed by Roychowdhury, (2006), and the rank variable model using the M-Score (Beneish, 1997, 1999). The use of the M-Score as a proxy for earnings management is a slight departure from previous studies. The M-Score (a Rank Variable) focuses on financial statement distortions and conditions that suggest earnings management. Using these alternative definitions of earnings management facilitates a more effective comparison of the results of this study with alternative models that employ other earnings management proxies. It also helps the researcher see if the results reported earlier are changed using these different definitions of earnings management. Following the discussion above, the empirical model is given by:

$$X_{i,t} = \alpha_0 + \beta_1 * (NST_{i,t}) + \beta_2 * (NST_{i,t} * SOX_t) + \beta_3 * (SOX_t) + \beta_4 * (FRET_{i,t}) + \beta_5 * (FRET_{i,t} * SOX_t) + \beta_6 * (SIZE_{i,t}) + \beta_7 * (LEV_{i,t}) + \beta_8 * (MTB_{i,t}) + e_{i,t} \dots\dots\dots (3.25).$$

Where $X_{i,t}$ are alternative proxies for earnings management including the M_SCORE, Abnormal discretionary expenses (ADEXP) and abnormal production cost (APROC). Based on 8 variables the M-Score is estimated as:

$$M = -4.84 + .920*DSRI + .528*GMI + .404*AQI + .892*SGI + .115*DEPI - .172*SGAI + 4.679*TATA - .327 \dots\dots (3.26)$$

For details of the estimation of M-Score, see section 3.3.2.7.

Table 11 report the results using these alternative real earnings management proxies in the OLS regressions. Panel A shows the results for the M_SCORE as the dependent variable; Panel B shows the results for abnormal discretionary expenses, while Panel C shows the results for abnormal production costs. As the result in Panel A suggest, the intercept for the M-Score (-2.9831) and the t-statistics (-2.81) suggests that based on the M-Score results, less firms are less likely to manage earnings. The coefficient on NST suggests a negative relationship between NST and M-Score though the result is statistically insignificant (coefficient of -1.2570 and t statistics of -0.94). The variable SOX suggest that in the post SOX period, firms are more likely to have a negative M-Score (coefficient of -0.2111 and t-statistics of -3.04) while the variable NST*SOX suggest that firms the relationship between insider trading and M-Score in the post SOX period is more likely to be positive, though statistically insignificant (coefficient of 0.2917 and t statistics of 1.05). The coefficient on FRET is negative and statistically significant, suggesting that when firms employ negative discretionary accruals to influence reported earnings as prescribed by the M-Score, investors are quick to discount it in the valuation of the companies, while the coefficient on FRET*SOX is positive, suggesting that when firms use discretionary accruals to influence reported earnings in the post SOX period, investors are not quick to discount this in the valuation of the companies, however, the result is statistically insignificant (coefficient of 2.4394 and t statistics of 0.61). The coefficient on SIZE is statistically very weak and insignificant suggesting no apparent relationship on SIZE and the M-Score (coefficient of 0.000 and t statistics of 0.00) and this is the same with the coefficient on LEV implying that debt obligations does not have any clear relationship with the M-Score.

The intercept of abnormal discretionary expenses in panel B table 11 though weak suggest that firms are more likely to increase discretionary expenses (coefficient of 0.0088 and t statistics of 2.72). The result for the NST suggests a negative relationship between earnings management using abnormal discretionary expenses and net shares traded. This implies that, when insiders buy (sell) shares, they reduce (increase) discretionary earnings to increase (decrease) future earnings. However, this result is statistically insignificant (coefficient of -0.1689 and t statistics of -1.14). In the Post SOX era, insider trades are positively related to abnormal discretionary expenses, though the result is statistically insignificant (coefficient of 0.2244 and t statistics of 1.03). The result for SOX suggests that firms are more likely to increase discretionary expenses (coefficient of 0.0057 and t statistics of 0.74). the result for

FRET is negative which suggest that firms that increase discretionary expenses are more likely to have a negative future returns in the future (coefficient of -0.2725 and t statistics of -2.19), additionally, in the post SOX period, when firms increase discretionary expenses they are more likely to have negative stock returns, but the result is statistically insignificant (coefficient of -0.1326 and t statistics of -0.29). the variable SIZE suggest that the larger the firm SIZE, the lower the amount of abnormal discretionary expenses that the firm is likely to employ (coefficient of -0.0001 and t statistics of -2.30) and the variable leverage suggest that a firms debt do not have any clear relationship with the amount of discretionary expenses the firm is likely to use (coefficient of 0.00269 and t statistics of 0.26). the coefficient on Market to book (MTB) suggests that firms with more growth prospects are less likely to engaged in abnormal changes in discretionary expenses (coefficient of 0.0009 and t statistics of 4.47).

The intercept for panel C for abnormal production cost is -0.0271 and the t statistics is -2.12 which suggest that firms are more likely to reduce production cost. However, a firms trading is positively related to its abnormal production cost, though the result is statistically insignificant (coefficient of -0.0271 and t statistics of -2.12). However, in the Post SOX period, when firms manage earnings using positive (negative) abnormal production cost, they are likely to engage in insider sales (purchases) (coefficient of -0.0025 and t statistics of -1.07). The result on abnormal production cost suggest that in the Post SOX period, firms are more likely to have a positive abnormal production cost (coefficient of 0.0084 and t statistics of 0.89). the coefficient on FRET suggest that production cost is positively related to future returns (coefficient of 0.41334 and t statistics of 2.25), however, in the post SOX period, though production cost is positively related to future returns, the result is statistically insignificant (coefficient of 0.5382 and t statistics of 0.99), suggesting that increased cost of production is viewed as a positive signal by investors, though the result is meaningless. The coefficient on SIZE (coefficient of -0.0001 and t statistics of -0.37) and LEV (coefficient of 0.0121 and t statistics of 0.92) produced statistically insignificant results, which imply that debt covenant obligations or firm SIZE does not have a clear relationship to the changes in production cost. The coefficient on Market to book value (MTB) suggest that the higher the growth prospect of a firm, the less likely the firm will employ abnormal production cost to influence reported earnings (coefficient of -0.0013 and t statistics of -5.21).

The results of these three earnings management proxies suggest that the statistical significance disappears when we repeat the test using other earnings management proxies. Thus investors are more vigilant when earnings are managed using discretionary accruals as supported by the results of FRET and FRET*SOX in the discretionary accruals model and

that insider trade and manage earnings using discretionary accruals is a more likely occurrence than insider trades and subsequent earnings management using real earnings management techniques. These suggest that there have been no changes on earnings management relationship to insider trading as a result of the effect of Sarbanes-Oxley Act of 2002 (coefficient of NST *SOX are 0.2917, 0.2224 and -0.0025 and t-stats are respectively 1.15, 1.02 and -1.07). The results overall are not qualitatively affected by other measures of earnings management as supported by either the insignificant coefficients or the reduced frequency of the observations. Although in retrospect, these results might be partly due to the fact that real earnings management variable are customarily captured in discretionary earnings management (Roychowdhury, 2006), I am otherwise unable to fully explain this feature from this research. Additionally, I cannot definitely rule out the possibility that each real earnings management technique might capture different issues linked to market abuse (e.g. seasoned equity offerings, Initial public offerings) and not necessarily insider trading in both the Pre and Post SOX era. However, this can be investigated later.

$$X_{i,t} = \alpha_0 + \beta_1 * (NST_{i,t}) + \beta_2 * (NST_{i,t} * SOX_t) + \beta_3 * (SOX_t) + \beta_4 * (FRET_{i,t}) + \beta_5 * (FRET_{i,t} * SOX_t) + \beta_6 * (SIZE_{i,t}) + \beta_7 * (LEV_{i,t}) + \beta_8 * (MTB_{i,t}) + e_{i,t} \dots\dots\dots (3.25).$$

Table 11: Regression Results for Robustness Test Using Alternative Definitions of Earnings Management.

Panel A.			Panel B.			Panel C.		
Dependent variable: M-Score.			Dependent variable: ADEXP.			Dependent variable: APROC.		
	Coefficient (t-stats).			Coefficient (t-stats).			Coefficient (t-stats).	
Intercept	-2.9830 (-2.81)		Intercept	0.0088 (2.71)		Intercept	-0.0271 (-2.12)	
$NST_{i,t}$	-1.2570 (-0.94)		$DA_{i,t+1}$	-0.1689 (-1.14)		$DA_{i,t-1}$	0.0275 (0.15)	
$NST_{i,t} * SOX_t$	0.2917 (1.15)		$DA_{i,t+1} * SOX_t$	0.2224 (1.02)		$DA_{i,t-1} * SOX_t$	-0.0025 (-1.07)	
SOX_t	-0.2110 (-3.04)		$FRET_{i,t+1}$	0.0057 (0.73)		SOX_t	0.0084 (0.89)	
$FRET_{i,t}$	-3.3848 (-2.48)		$FRET_{i,t+1} * SOX_t$	-0.2725 (-2.19)		$NST_{i,t}$	0.4133 (2.25)	
$FRET * SOX_t$	2.4398 (0.61)		SOX_t	-0.1326 (-0.29)		$NST_{i,t} * SOX_t$	0.5382 (0.99)	
$SIZE_{i,t}$	0.0001 (0.00)		$SIZE_{i,t-1}$	-0.0001(-2.03)		$SIZE_{i,t-1}$	-0.0001 (-0.37)	
$LEV_{i,t}$	-0.0055 (-0.05)		$LEV_{i,t-1}$	0.0026 (0.25)		$LEV_{i,t-1}$	0.0117 (0.92)	
$MTB_{i,t}$	0.0042 (2.23)		$MTB_{i,t-1}$	0.0009 (4.47)		$MTB_{i,t-1}$	-0.0013 (-5.21)	
Adj-R sq.	0.0051		Adj-R sq.	0.0071		Adj-R sq.	0.0095	
Number of firm Years.	3212		(N)	3212		(N)	3212	

Table 11 above presents OLS regressions. Panel A reports results for the relationship between the M_SCORE and predictor variables, Panel B presents results for the relationship between ADEXP (abnormal discretionary expenses) and predictor variables and finally Panel C report results for APROC (abnormal production costs) on predictor variables.

The M -Score is estimated based on Beneish (1997, 1999) model. An M -Score in the highest decile suggests accompany firm year where there is more likely financial statement distortion. Based on 8 variables the M -Score is estimated as

$$M = -4.84 + .920*DSRI + .528*GMI + .404*AQI + .892*SGI + .115*DEPI -.172*SGAI + 4.679*TATA - .327----- (5.7)$$

In case of data unavailability, the M -Score can be estimated based on 5 variables as:

$$M = -6.065 + .823*DSRI + .906*GMI + .593*AQI + .717*SGI + .107*DEPI.$$

Abnormal discretionary expenses: is the residual from the corresponding industry-year regression

$$DISEXP_t / A_{t-1} = \alpha * (1 / A_{t-1}) + \beta_1 * (S_t / A_{t-1}) + \varepsilon_t, ----- (5.3)$$

Where A_t = assets at end of year t, S_t = sales during year t, ΔS_t = change in sales during year t.

Abnormal production costs: is the residual from the corresponding industry-year regression

$$PROD_t / A_{t-1} = \alpha * (1 / A_{t-1}) + \beta_1 * (S_t / A_{t-1}) + \beta_2 * (\Delta S_t / A_{t-1}) + \beta_3 * (\Delta S_t / A_{t-1}) + \varepsilon_t, ----- (5.2)$$

Where A_t = assets at end of year t , S_t = sales during year t , ΔS_t = change in sales during year t .

NST_{it} is the net shares traded accumulated over the year, where $NST * SOX_{it}$ is an interactive variable that measures the relationship between post SOX net shares traded on the dependent variable, SOX_{it} is a variable set equal to 1 if the firm year is in the post Sarbanes-Oxley period and zero otherwise, $FRET_{it}$ is the firms one year ahead stock returns after the period of insider trading or discretionary accruals, $FRET_{it} * SOX_{it}$ is an interactive variable that measures the influences of post SOX firms returns on the dependent variable, $SIZE_{it}$ is the firms total assets employed as a proxy for firm size, LEV_{it} which is leverage is the firms total liabilities over the total assets, MTB_{it} is the firms market to book ratios

4.6: Conclusion.

This study has broadly examined the relationship between discretionary accruals and Insider trading activity and discusses how this relationship has changed as a result of the introduction of the Sarbanes-Oxley Act of 2002. Additionally, based on prior literature, it robustly tests the relationship between insider trading and future earnings realisations post SOX. In order to avoid a contamination of the signals conveyed by different kinds of relationship and other earnings management proxies, the analysis is conducted using other earnings management proxies. This is evaluated with a sample of S&P 500 firms over the period of 1997-2006. Prior literature (Trueman, (1990), Beneish and Vargus (2004)) provides a theoretical basis for some empirical investigation on whether insider trading is associated to future earnings. In addition, recent empirical findings have provided evidence to support the fact that strict insider trading rules may have an impact on the way managers do exercise their knowledge of private information about a firm's future prospect. Furthermore, Hope (2003) provided evidence ascertaining that strict insider trading laws may prevent managers from manipulating earnings for profit while trading in their corporation's stock. Additional research has examined the impact of the Sarbanes-Oxley Act of 2002 on earnings management⁴⁷, but to the best of my knowledge, none of these articles have investigated the relationship between earnings management and insider trading in light of the recent regulatory intervention. It is in such a context that this empirical essay examines the relationship between insider trading and earnings management in light of the recent regulatory intervention as prescribed by the SOX of 2002.

After controlling for important factors such as size, growth opportunities, leverage (or debt covenant obligations), on insider trading and earnings management relationship, several important conclusions emerge. First, consistent with many US studies, the findings show that on average companies employ negative discretionary accruals to manage earnings and are also net sellers of their stock. After the introduction of the Sarbanes-Oxley Act, the quality of earnings have improved as companies use less discretionary accruals to manage reported earnings. Contrary to prior studies (See Beneish, 1999), the results do not support the assertion that managers employ discretionary accruals to influence reported earnings after prior insider trading. As in prior literature (See Park and Park (2004) and Beneish and Vargus (2002)), the

⁴⁷ Cohen et al., (2004) find evidence that there is a decrease of earnings management after the Sarbanes-Oxley Act of 2002.

results suggest that in the overall sample period, there is a positive relationship between prior year discretionary accruals and one-year ahead stock returns. This suggests that discretionary accruals are customarily used to boost reported earnings leading to a positive stock returns. However, in the post SOX period, investors do not fixate on the earnings figure.

When managers employ discretionary accounting techniques to improve reported earnings post SOX, investors discount the stocks of these companies leading to negative stock returns. Another way to interpret this is, due to stricter regulations post SOX, when managers employ discretionary accruals to influence reported earnings, this triggers immediate market reactions as investors discount this through negative stock returns. Another plausible explanation for this result that is consistent to the litigation avoidance hypothesis by Beneish *et al.*, (2004), is that other stakeholders might follow insider transactions more cautiously post SOX, which causes insiders to trade more cautiously and to distance from information related trading.

It is important to distinguish between insider trades that are linked to future reported earnings without the use of discretionary accruals and those that are not. With respect to insider trading relationship to post-transactions stock returns (without necessarily using discretionary accruals to influence reported earnings), this relationship is tested between current period insider trading and future returns. Due to stricter market regulations post SOX, it is less likely insider trades might motivate earnings management. Ideally, investors with private information about the economy, the firm's future prospects and its effects on its cash flow and earnings might form expectations and trade on that basis without necessarily employing discretionary accruals to influence the public information (reported earnings). As in prior literature (See Ke *et al.* 2003, Park and Park, 2006), the findings suggest that in the overall sample period, insider trading is positively related to post transaction stock returns. However, in the post SOX period, managers are less likely to time their trade based on overall market and economic fundamentals even when they are not interested in influencing reported earnings. The result does not support the assumption that insiders might switch from real to discretionary earnings management and trade to benefit at the expense of other investors.

All in all, the results suggest that SOX has improved the integrity of the US financial market and strict insider trading regulations makes it risky for managers to trade and manage earnings to benefit from prior insider trading. In normal business conditions, insider's private information

(as disclosed by their trades) plays an important role in forming expectations about their earnings projections. However, when regulations are enforced, insiders are less likely to use their superior information to distinguish themselves from the “crowd” of other investors.

As an added robustness test, I test for possible simultaneous equation as the literature supposes that insider trading might influence earnings management and vice versa. Once this is confirmed through the Hausmann specification error test, the causal relationship between insider trading and earnings management is investigated using the 2 stage least squares. The results reported in section 4.5.2.4 are consistent to those already reported. I additionally test the robustness of the results using alternative definitions of earnings management and the results overall are not qualitatively affected by other measures of earnings management as supported by either the insignificant coefficients or the reduced frequency of the observations. Although in retrospect, these results might be partly due to the fact that real earnings management variable are customarily captured in discretionary earnings management (Roychowdhury, 2006), I am otherwise unable to fully explain this feature from this research. Additionally, I cannot definitely rule out the possibility that each real earnings management technique might capture different issues linked to market abuse (e.g. seasoned equity offerings, Initial public offerings) and not necessarily directly related to insider trading in both the Pre and Post SOX era. This can be investigated in any future research.

5.0: Earnings Quality and Firm Performance: Examining the Changes in the Post Sarbanes- Oxley Era.

5.1: Abstract.

This Chapter examines the relationship between earnings management and firm performance and evaluates how this relationship has changed as a result of the introduction of the Sarbanes-Oxley Act of 2002. The Chapter employs three measures of earnings quality that has been employed in the accounting literature using financial statements data: (1) the Beneish (1999) M-Score that ranks firms according to their probability of financial statements manipulations (Beneish 1997, 1999), (2) the discretionary accruals model by Dechow *et al.* (1995) (See Balsam *et al.*, (2003)) (3) and estimates of real earnings management involving abnormal changes in discretionary expenses, abnormal changes in production costs, abnormal changes in

receivables, abnormal changes in inventory, and abnormal operating accruals. The result suggests that firms are less likely to employ discretionary and real earnings management techniques to influence reported earnings after the introduction of SOX. In the post SOX period, investors discount earnings management practices through marking down stock returns. Finally, the results does not provide any clear evidence that managers substitute to real earnings management when tighter regulatory scrutiny restrict earnings management via accrual manipulations.

5.2: Background.

The enactment of the Sarbanes Oxley Act of 2002 after the high profile business scandals brought enormous expectations to the US capital market. This was as a result of the implicit assumption in most policy-oriented discussions that the failures of these companies were as a result of the ineffectiveness of current regulations relating to earnings management practices. The Acts primary objective was to improve the quality of financial reporting. Before this Act, news of financial fraud at Enron, WorldCom, Cendant, etc had changed the perception of the regulatory environment and has seemingly favoured stricter regulatory control on earnings management and other corporate governance practices. This is because the scandals caused systemic financial distress and a decline in the stock values in the US and other stock markets. According to Section 302 of the Sarbanes Oxley Act of 2002 (henceforth SOX), principal executives of public firms (primarily the CEO and CFO) have to certify that their company's financial statements do not contain material misstatements or omissions and reflects the firm's financial conditions. The implications were that such executives are to be accountable for material misstatements in financial reports.

Graham *et al.* (2005) argue that managers manage earnings to influence future stock prices. Investors extrapolate past trends from accounting information and make decisions on the future (Zhang, 2003). These suggest that future performance as measured by the future stock returns is important for managers. Due to the cost associated with fraudulent financial reporting, heightened attention was needed by investors, analysts and other users of accounting information in regard to earnings management practices. They also need to exploit all information useful in assessing fraud due to its influence on accounting earnings and subsequent stock returns (Beneish and Nichols, 2007). Apart from the strict regulatory attention to penalize

companies that manipulate earnings, some investors are capable of unravelling manipulated financial statements and undertake investment decisions on this basis.

The purpose of this Chapter is to empirically assess the relationship between a comprehensive set of earnings management signals and future firm performance. Its prime purpose is to verify whether there have been substantial benefits to investors as a result of the enactment of the SOX through (i) improvements in earnings quality as a result of the SOX (ii) if as a consequence of this, investors price the level of earnings management in the financial statements.

The primary motivation for this Chapter is derived from the recent regulation of financial reporting practices as prescribed by SOX. The second motivation originates from the inconclusive evidence presented in recent research regarding whether investors fixate on accounting information (Chan *et al.*, 2006) or are more sophisticated in processing accounting information. Public discussions and efforts made by regulators have been aimed at regulating earnings management. Considering price declines after public revelations of earnings management practices, the presumption is that investors do consider the extent of earnings management practices when making investment decisions (Spohr, 2005). As already discussed, the Sarbanes Oxley Act is meant to improve the quality of financial reporting. A key issue for researchers has been how earnings management influences the performance of companies. Since SOX in principle reduces the information uncertainty through the provision of high quality financial reports, we expect the stock price reaction to earnings announcement post SOX to be positive leading to positive returns. If firms still adopt earnings management practices and the stock market is able to discount its negative impact as a result of its low earnings quality, then SOX should have brought in substantial benefits to the overall market. My prediction is that firms with high earnings management should have negative stock returns in the subsequent period.

This chapter differs from the numerous findings that have documented a relationship between accounting information and future returns on several dimensions: First, it investigates the policy influences on the relationship between managed financial reporting practices and firm performance. Second, apart from examining a single predictive earnings management variable, I examined a comprehensive set of variables that have been found in the literature to influence

reported earnings and future performance. Though more attention has been placed on accounting accruals, in the absence of possibilities to manage earnings through accruals, managers are exposed to real earnings management techniques. Since the bulk of predictive power of accruals originates from changes in inventory, I separate the various components of accruals (like accounts receivables, accounts payables and inventories) and real earnings management and study their impact on firm performance. This is because, a broader set of financial statement information post SOX with strict regulation might enhance predictive power for stock returns ((see Chan *et al.*, 2007).

The rest of this chapter is organized as follows. Section two discusses prior academic literature and explains the motivations for this research. In the process, the research hypothesis is developed and explained. Section 3 discusses the research design; section 4 contains the descriptive and empirical evidences. Section 5 summarizes the main results of the Chapter, the research implications and finally provides suggestions for future research.

5.3.0: Review of the Literature, Test Motivation and Hypothesis Development.

This section reviews the literature that is specific to the second empirical essay. Specifically, it evaluates theory relating to earnings quality relationship to firms performance in light of the recent regulatory intervention as prescribed by the Sarbanes Oxley Act of 2002. Prior literature discussed in detail below provides a theoretical basis to investigate whether a firm's earnings quality is related to its future stock returns. Guay *et al.* (1996) documented that discretionary accruals are positively associated with future stock returns. Other literature (See Roychowdhury, 2006, Gunny, 2006) have provided evidence that other forms of real earnings management are positively related to future firm performance. Quite recently, Beneish and McNichols (2008) suggested a strong relationship between the probability of earnings manipulation and future returns. Additionally, in light of recent regulations, as prescribed by SOX, managers might still manage earnings using less detectable earnings management techniques (see Cohen *et al.*, (2006)).

Three measures of earnings quality are employed, including (1) the Beneish (1999) M-Score (Beneish 1997, 1999), (2) the discretionary accruals models by Dechow et al. (1995) (See Balsam et al., (2003)) (3) and estimates of real earnings management involving abnormal changes in discretionary expenses, abnormal changes in production costs, abnormal changes in

receivables, abnormal changes in inventory, and abnormal operating accruals (Roychowdhury, (2006)). Post transaction stock returns are also employed as a proxy for future firm performance⁴⁸ (see Beneish and Vargus 2002 and Ke *et al.*, 2003).

5.3.1: SOX Relationship to Earnings Management.

It can be argued that when firms are subject to regulatory scrutiny, they might employ measures that cannot be easily detected by the regulators. In contrast to accrual earnings management, earnings management through real operating decisions such as reductions in discretionary expenses (primarily R&D, advertisement, selling, general and administrative expenses), asset sales, price discounts to improve sales mostly occur during the course of the year (Roychowdhury, (2006)). These actions are costly, in relation to their impact on the cash flow of the company. Even though accruals are less costly, they customarily mean-revert and overstatements in the current period must be offset by an understatement in the future. The indirect and often easily detectable nature of accruals subject firms that report high accruals are likely to face SEC enforcement actions (see Dechow *et al.*, (1996), Bradshaw *et al.* 2001) than those that directly employ real earnings management. Moreover, the business judgement rule gives firms the flexibility to manage earnings without facing regulatory scrutiny. SEC enforcements and prior year accruals might thus limit a firm's ability to manage earnings using discretionary accrual techniques alone.

Since regulators habitually focus on the easy to detect discretionary accruals technique (e.g. Cohen *et al.*, 2006, Roychowdhury, 2006), unlike real earning management, accrual based earnings management is expected to reduce as a result of the passage of regulations aimed at improving earnings quality. Cohen *et al.*, (2006) documented that after the passage of SOX, accruals earnings management was reduced giving way to an increase in real earnings management. In a recent study by Chang and Sun (2008), the researchers found that SOX regulations on audit committee independence and other corporate governance have improved the quality of accounting earnings. Using sample firms' earnings informativeness and earnings management to measure the quality of accounting earnings, they found significantly positive (negative) relations between earnings informativeness (earnings management), audit committee independence and financial experts on audit committee in the post-SOX period and no significant relations in the pre-SOX period. Also, the researchers documented that a

⁴⁸ Details of how post transaction stock returns have been estimated are discussed in section 3.3.3.

independent audit committee and a majority independent board are found to complement each other in increasing (decreasing) earnings informativeness (earnings management) in the post-SOX period. Overall, the researchers argue that the effectiveness of corporate governance in monitoring managerial behaviours on earnings management has improved after SOX. The importance of examining changes in earnings management in the post Sarbanes-Oxley era is grounded in the cost and benefits of employing the different methods. Since most market participants fixate on discretionary earnings management (e.g. Cohen *et al.*, 2006, Graham *et al.*, 2006) that might be subject to regulatory scrutiny, it might negatively influence long-term stock prices.

5.3.2: Earnings Quality and Stock Returns.

The reasons for investigating the influence of earnings quality on future stock returns are two fold. First, large bodies of accounting and finance research discussed below have suggested that accounting information predicts contemporaneous stock returns. Secondly, managers manage earnings to influence future stock returns and post earnings stock returns is a good proxy for a firm's future prospects (Beneish and Vargus, 2002 and Ke *et al.*, 2003). Chan *et al.* (2001) argued that firm accruals are negatively related to stock returns. Sloan (1996) offered another explanation similar to the hypothesis above through a behavioural explanation that, investors habitually overprice accruals as a result of their failure to recognize their low persistence. Similar to the Sloan's (1996) behavioural explanation, Xie (2001) suggested that the market overprices the portion of discretionary accruals that originates from managerial discretion. Additionally, a company's financing and expenditure patterns influence future stock returns. As in the prior literature, R&D, advertising expenditures, income generated from asset sales are positively related to the stock returns. Beneish and Nichols (2005) suggested a strong relation between the probability of manipulation and future returns. They documented that firms with a high probability of financial statement manipulation have lower future returns relative to firms with a low probability of manipulation and suggested that investors and other users of financial statements need to be sceptical when using financial statements. Therefore analyzing the stock price behaviour based on different earnings management techniques might be useful in re-enforcing the empirical results especially post SOX.

5.3.4: Hypothesis Development.

Some events like regulatory changes that do not involve discretionary action by management might influence the use of discretionary accruals and future firm performance. For instance, SOX might influence the way managers manage earnings. But since investors normally focus on earnings management through discretionary accruals (Bradshaw *et al.*, 2001) and this can result in discounted share prices for such companies, managers might still be managing using other less detectable techniques. Some techniques like real earnings management that is not easily detected by auditors and regulators might become more popular especially after the recent corporate scandals. As predicted by Zhang (2003), when firms manage earnings to an egregious level in prior periods, they are more likely to engage in real earnings management relative to accruals in the future. Under normal circumstances, stakeholders might fixate on some form of earnings management rather than the others. Even the reversing nature of accruals makes it impossible to sometimes manage its shortfall and if they have to rely on discretionary techniques alone, they might sometimes be forced to miss earnings target. This is such that income-increasing (decreasing) choices made in one period will inevitably lead to understated (overstated) income in some future periods. It is thus possible managers might focus attention on real earnings management to cover the residual shortfall in cases where they are limited by their inability to utilize accruals techniques. Legislative actions might also have an influence on the techniques they apply. Cohen *et al.* (2006) provides evidence in support of the suggestion above by documenting that after the passage of the SOX, accruals earnings management was reduced, on the contrary, there was an increase in earnings management through real operating decisions.

There has been abundant literature (e.g. Chan *et al.*, 2006, Beneish *et al.*, 2004) suggesting that investors normally fixate on reporting accounting earnings to evaluate future performance. Recent studies have suggested that a majority of investors can unravel earnings management especially earnings managed to an egregious level leading to potential damages to shareholder value through share price declines (Rajgopal *et al.*, 2007). Operating performance has been associated with aspects of real earnings management like discretionary changes in R&D, selling, general and administrative expense, overproduction to improve sales through improve credit terms, selling of fixed assets and firms with high accruals in the current period customarily experiences future earnings problems (Gunny, 2006). Investors are however not customarily fooled by earnings management practices. They look for warning signs from the

financial statements and discount the stocks of firms that manage earnings⁴⁹. If more firms manage earnings, there might be market wide effects through a spiky decline in the value of several companies⁵⁰. Expectations for regulatory control leading to higher earnings quality would therefore be a rational response to investor demands for favourable financial reporting. One way of examining the benefit of legislative control on firm performance is to investigate stock price responses following the SOX Act. If the Act actually improves earnings quality, the information might be more certain and investors can respond to it by trading on the stocks of those companies more conveniently.

Although the above arguments have suggested that the capital market can unravel the extent of earnings management, the predictive ability of the different techniques on firm's performance has not been thoroughly investigated. The various components of accruals (notably accounts receivables, accounts payable and changes in inventory) have different predictive powers and investors might discount their impact on future returns differently. These components of accruals are the most popular tools that can be improperly used to fraudulently⁵¹ improve the company's revenues and earnings⁵². Most forced restatements and enforcement actions have resulted from abuse of reporting of these key variables. Accounts receivable is one component of accruals that is customarily employed to overstate the earnings of most corporations. But firms might genuinely offer sales discounts leading to sales growth in a bid to avoid product obsolescence in periods where they might have mistakenly overproduced. Customers can also be genuinely experiencing financial distress leading to rising accounts receivables. Increases in accounts payable too can still be connected to managerial intent in lowering current accruals, thereby shifting current earnings to the future. Investors can either interpret it as a current shock in earnings (bad news) or recognize its impact on future earnings. In this case, despite a reduction in earnings through accounts payable increases, future stock price performance can still be higher.

⁴⁹ Studies that have examined whether or not market participants identify and react to earnings management either through fraudulent accounting or accruals management include the Dechow *et al.* 1996;

⁵⁰ After several high profile business scandals like the Enron, WorldCom cases, there have always been spiky declines in the stocks of several companies that have not managed earnings.

⁵¹ It is important to note that my sample cases are not restricted to cases of fraud. It includes estimates of all forms of earnings management, whether legal or not.

⁵² Chan et al. (2006) discussed the importance of looking at a comprehensive set of earnings management signals as they can have different predictive abilities.

Another accounting component whose predictive power is uncertain is changes in inventory. Managers might manage earnings through the reporting of inventory changes by not writing off obsolete items completely or they might be allocating more overheads expenses to inventory than to cost of goods sold. Overproduction can also reflect an intention to improve sales through the provision of favourable credit terms and or to reduce cost of goods sold. When firms overproduce, they might technically spread fixed overhead cost leading to an overall reduction in per unit production cost as long as inventory holding cost is not increased over the period (Gunny, 2006). As supported by Chan *et al.*, (2006), some items might be more susceptible to earnings manipulation than others and changes might influence future returns different since investors would have competing interpretations of their effect. Stock return evidence also suggests that investors discount “abnormal” accruals relative to “normal” accruals, which suggests that investors view abnormal accruals as more likely to reflect earnings management (Healy and Whalen, 1999). There is further evidence of significant negative stock market responses to allegations of earnings management by the financial press or the SEC which is an indication that investors do not always investigate financial reporting impropriety. According to Dechow, Sloan, and Sweeney (1996), firms subject to SEC investigation for earnings management show an average stock price decline of 9% at the day of the announcement of the earnings management. Assuming there was a large decline in earnings quality before the enactment of the SOX, one significant question might relates to how SOX can constrain earnings management practices and how investors can avoid huge losses if earnings management is uncovered.

In light of the discussions above, I investigate the following hypothesis:

H1: After Sarbanes Oxley, stocks of suspect firms (firms with low earnings quality as measured by the probability of manipulation, abnormal changes in the various accruals and real earnings management items) will exhibit negative stock price performance while those of non-suspect firms (firms with high earnings quality) will exhibit positive stock price performance.

Section 5.4 specifies the models and variables to be used in the test.

5.4: Research design.

5.4.1: Data and Sample Selection.

The original sample for this study is the S&P 500 firms as at March 2007 and covers data from the period of 1996 to 2006. The choice of the S&P 500 Companies is because they are closely followed by analysts, actively traded and are the most widely used benchmark employed by researchers to investigate different performance related issues. Additionally, it has a diversified market weighting and most reports have suggested that it comprises more than 70 percent of the US market capitalization. Furthermore, these firms are most likely the group of companies the US congress had in mind when they debated the SOX legislation. This is because they were the largest firms and had many international operations.

As is standard in the literature, financial institutions are eliminated from the sample (SIC codes 6000-6999) due to their complex financial reporting practices, leaving the sample with 411 firms and 4110 firm years. Firms with missing data to estimate the various accounting and other performance metrics are also excluded. The final sample reports results for an unbalanced sample of 3528 firm years from 1997 to 2006 giving five consecutive years relating to the pre and post SOX era. It is important to note that, though the two empirical essays uses the S&P 500 firms as the main sample, the final sample in this test is larger than the unbalanced sample in the prior test. This is because only accounting and stock price data which are highly available have been utilised in the analysis. The final sample which in this test is an unbalanced sample of 3528 firm years requires the firms to have the necessary data to calculate the different earnings management metric and matching data to estimate the various proxies for firm performance. Total accruals, discretionary accruals, abnormal production cost, abnormal discretionary expenses, abnormal accruals, abnormal receivables, and abnormal inventory, are estimated for the corresponding industry year regression. In all, industrial classification is based on the four-digit SIC codes requiring at least 10 observations in each sample year (Jenkins *et al*, (2006)). To control for outliers, variables have been winsorized at the first and ninety-ninth percentiles. All the data for this study have been collected from DATASTREAM. Firms analysed were therefore required to have annual data and stock prices for the overall period of the study from the *Datastream* files. Lastly, firms that finally remain in the sample must have the same number of firm year presence in the pre and post SOX era to assist comparison of my results for the pre and post SOX period.

5.4.2: Measuring Earnings Quality.

My proxies for earnings quality information are three measures of “earnings management” employed in the accounting literature to explain how managers can manage reported earnings. They are earnings management through discretionary accruals (see section 3.3.2.1, 3.3.2.2, 3.3.2.3 and 3.3.2.4), real earnings management (see section 3.3.2.6) and the Beneish M-Score (see section 3.3.2.7). The discretionary accruals model is a variant-based model that separates accruals into its normal and total component. The normal portion is the portion that can be explained by past accounting transactions and the discretionary component originates from the use of discretionary accounting techniques to report favorable earnings. The real earnings management model primarily examines operating decisions that might deviate from standard expectations. Though most prior models have examined popular variables disclosed in the financial statements that might influence future cash flows like fixed asset (Bartov (1993), Black *et al.*, (1998)), R&D expenditures (Bushee (1998), Bange and DeBondt, (1998) Guay *et al.*, (1996)), managers might still manage earnings using other operating techniques like abnormal changes in receivables through price discounts, overproduction to spread unit inventory production cost, etc. in a bid to investigate several items that can be used to manage earnings using real operating decisions, I focus on key variables captured by Roychowdhury, (2006)) in detecting earnings management using real operating decisions. The model in my opinion, relates to a combination of variables that have been employed by prior research to predict real earnings management. These proxies include estimates of abnormal discretionary expenses (R&D, advertising, selling, general and administrative expenses and capital expenditures), abnormal accruals, abnormal production costs, and abnormal change in inventory and abnormal changes in net receivables. The M-Score developed by Beneish (1997, 1999) is another earnings management model that combines a firm’s operational and financial characteristics to determine the probability of manipulation.

5.4.3: Categorising Suspect Versus Non Suspect Firms.

As discussed above, the research employs three distinct measures that have been employed in the accounting literature to measure earnings management. Firms are also categorised as more likely to manipulate earnings (Suspect firms) and less likely to manipulate earnings (Non Suspect firms) based on a rank scale of their level of earnings management. In an effort to correctly identify firms, I used different assumptions that are consistent with prior research.

For the M-Score, the model sorts the firms according to their probability of manipulation and assumes that firms in the highest decile are more likely to manipulate earnings. This is a simpler version from the Beneish (1997, 1999) model that employs specific cut-off points to differentiate likely and unlikely manipulators. Beneish and Nichols (2004) recognised that though the Beneish model can realistically identify earnings manipulators, there are always likely classification errors based on the cut-off points. The model was able to flag only 12 of the 20 major companies that manipulated earnings in early 2000 as likely manipulators. For the discretionary accruals model, I classify suspect firms as firms in the highest decile of discretionary accruals. However, I redo the analysis classifying firms based on their absolute values of discretionary accruals (Balsam *et al.*, 2002) and negative discretionary accruals (Jenkins *et al.*, 2006). For the real earnings management variables, I employ different assumptions to classify firms based on prior assumptions that are linked to earnings management using real operating decisions. Firms in the lowest abnormal discretionary expenses decile are classified as suspect firms as these firms might have reduced expenses to improve current earnings. For the production cost and changes in inventory, I assume that abnormal levels of production cost might indicate current over production to reduce the resulting cost of goods sold (Dechow *et al.*, 1996). Firms thus in the highest decile of production cost and changes in inventory are classified as suspect firms that have attempted to decrease current period cost of goods sold, thereby improving earnings. Since receivables are customarily employed to improve current period earnings, I assume that firms in the highest decile engaged in earnings manipulation (suspect firms). The classifications based on these three models increases the power of my tests and provides a basis of testing the predictability of stock returns drawing upon a broader set of financial statements information and earnings management models.

5.5: Descriptive and Empirical Evidences.

This section begins by presenting the descriptive evidence, which is followed by formal statistical tests of my predictions using regression analysis. The research investigates the returns/earnings relationship, using stock returns as a measure of firm performance and contrasts the influence of stock returns on different measures of earnings management. The research extends prior models by categorising different levels of earnings management as suspect versus non-suspect firm years.

5.5.1: Descriptive Statistics and Correlation Between Variables.

Table 12 presents descriptive statistics for variables of interest. The full sample consists of the S&P 500 firms over the period 1997 to 2006. The Table presents results for the pre and post Sarbanes Oxley era. Mean results are reported for the overall sample, the non-suspect and suspect firm years. Suspect firm-years are classified as the firm years with an M-Score that is in the highest decile of the probability of financial statements manipulation. This is 2.9 standard deviations from the mean. According to Beneish (1997, 1999), there is a high probability of financial statements manipulation by firms with a probability of financial statement manipulation that is greater than -2.22. Suspect firms years are generally thought of as firm years with low earnings quality. See below for variables descriptions.

Across all companies and across all years, the results of the descriptive statistics of the main sample suggest that it is less likely that a firm distorts its financial statements. This is as a result of the mean M-Score that stands at -3.07 (less and -2.22). As in prior literatures, more firms manage earning using negative discretionary and total accruals with a mean respectively of -0.01 and -0.05. The descriptive statistics for the net income suggest that for the main sample, the average profitability for the S&P 500 firms is around 6 percent of total assets. It is important to note that, this ratio is much higher than in prior research (see Gupta *et al.* 2005), report an average profitability of firms in their sample (that included all COMPUSTAT firms from 1975 to 2003) of around 2 percent.

On a general note, it is less likely that firms are distorting their financial statements as the mean M-Scores in both the pre and post SOX periods are -2.95 and -3.18 respectively. For the suspect firms, the mean M-Score is respectively 0.96 and -0.59 in the pre and post SOX period.

The Sales growth index is 1.15 for non-suspect firms and 2.59 for suspect firms in the pre SOX period indicating an increase of more than 100 percent. However, in the post SOX period, there are no significant changes in sales growth for suspect and non-suspect firms as the ratio is 1.10 and 1.36 respectively. However, it is important to recall that suspect firms have a marginally greater increase in sales growth. No significant changes are also recognized for debt contracting obligations of the firms in the respective periods, as the leverage index ratio is significantly similar in most classifications.

As in prior research, discretionary and total accruals are primarily income decreasing. The total accruals for the overall pre SOX period are -6 percent of total assets. The Non-suspect firms have a total accruals decrease of 5 percent of total assets while suspect firms have total accruals decrease of 7 percent of total assets in the pre SOX period. However, in the post SOX period, the total accruals are -4 percent of total assets. The Non-Suspect firms realized a total accruals decrease of 3 percent while the suspect firms realized a decrease of 5 percent. Additionally, discretionary accruals for non-suspect firms are -1 percent of total assets while for suspect firms it is -5 percent of total assets in the pre SOX period. In the post SOX period, the ratio is -0.5 percent for non-suspect firms while for suspect firms, the ratio is -3 percent. Returns estimated on an annual basis suggest that in the pre SOX period, firms have overall returns of 24 percent while in the post SOX period, returns drop to 14 percent. However, in the Pre SOX period, non-suspect firms have realized returns of about 22 percent while suspect firms have returns of about 53 percent. However, in the post SOX period, non-suspect and suspect firms have returns of approximately 14 percent. Taken together, the descriptive results suggest that suspect firms manage earnings extensively to influence reported earnings and that trend is mitigated in the post SOX period. This suggests improvement in earnings quality in the post SOX period. Additionally, the drop in returns in the pre and post period for suspect and non suspect firms and the similarities between returns of suspect and non-suspect firms in the post SOX period can be thought of as being influenced by financial analysts and investors suspecting earnings quality decreases in specific periods and discounting it in their judgment of such companies.

Table 11: Panel A, Descriptive Statistics for Essay 2.

Variable	Average	Median	Standard deviation	Maximum	Minimum
M-score (5-variable model)	-3.0723	-3.2637	1.7886	7.6977	-5.3865
Total Accruals	-0.0533	-0.0467	0.1267	1.0103	-1.1850
Non-Discretionary Accruals	-0.0420	-0.0303	0.0792	0.5319	-0.7248
Discretionary Accruals	-0.0113	-0.0031	0.1205	1.0467	-1.1372
Abnormal Discretionary Expenses	0.01314	-0.0095	0.2452	4.3985	-1.9992
Abnormal Production Cost	-0.0114	0.0120	0.2699	2.2832	-2.2084
Abnormal Change In Inventory	0.00091	-0.0035	0.0494	1.1423	-0.3352
Abnormal Change In Net Receivables.	-0.0011	-0.0024	0.0569	1.2799	-0.3936
Abnormal Accruals	0.00311	0.0247	0.2911	2.8700	-9.4328
Net Income	0.0651	0.0567	0.1859	2.3244	-9.1318
Returns (Annual)	0.1956	0.0982	0.7105	26.195	-0.9537
DSRI (Days in Receivables Index).	0.9986	0.9889	0.4961	11.699	0
Gross Margin Index (GMI).	1.0005	0.9971	0.5683	7.6061	-4.3973
Asset Quality Index (AQI).	1.3023	1.0037	3.1877	23.581	0
Sales Growth Index (SGI).	1.1847	1.0923	0.6931	16.784	0
Depreciation Index (DEPI).	1.0187	0.9885	0.4458	18.715	0

Variable	Average	Median	Standard deviation	Maximum.	Minimum.
Sales, General And Administrative Expense Index (SGAI).	0.9434	0.9909	0.7410	32.9050	-1.1730
Leverage Index	1.0275	0.9885	0.3771	10.8840	0
Total Accruals to Total Assets Index	-0.0533	-0.0467	0.1268	1.0103	-1.1850
Size	30940189	7706009	104943919	1884318000	25039

Table 12: Panel B, Descriptive Statistics for the Pre and Post SOX Era.

Table 13: Descriptive Statistics for the differences in Mean in the Pre and Post SOX Era.				
Variables	Mean		Differences in Means (Post SOX – Pre SOX)	T-statistics.
	Pre SOX	Post SOX		
Total Accruals	-0.0591	-0.0412	-0.0185	-5.35
Discretionary Accruals	-0.0220	-0.0024	-0.0193	-5.10
Non-Discretionary Accruals	-0.0421	-0.0401	-0.0021	-0.82
M-Score	-3.0901	-3.2944	0.2044	4.19
Net Income	0.0580	0.0628	-0.0045	-0.90
Annual Returns	0.2250	0.1412	0.0842	4.58
Leverage	1.0210	1.0290	-0.0077	-0.37
Size	26312676	44429384	-18116708	-5.75
Market to Book Value	4.4000	3.8000	0.6194	1.37
Net Shares Traded	-0.0075	0.0022	0.0096	-4.18

Continued from above: Variables	Pre SOX	Post SOX	Differences in Means (Post SOX – Pre SOX)	T-statistics.
Abnormal Discretionary Expenses	0.0991	0.0123	-0.0026	-0.47
Abnormal Production Cost	-0.0093	-0.0054	-0.0039	-1.74
Abnormal change in Inventory	0.0008	0.0011	-0.0002	-0.19
Abnormal Change in Net Receivables	-0.0019	-0.0003	-0.0016	-0.96
Abnormal Accruals	0.0041	0.0028	0.0013	0.15
Days Sales in Receivables Index	0.9597	0.9938	-0.0341	-2.34
Gross Margin Index	0.9676	0.9895	-0.0219	-1.22
Asset Quality Index	1.4094	1.1383	0.2711	2.74
Sales Growth Index	1.2157	1.1018	0.1138	5.33
Depreciation Index	0.9698	1.0230	-0.0532	-3.68
Sales, General And Administrative Expense Index (SGAI).	0.9141	0.9314	-0.0173	-0.77
Total Accruals to Total Assets Index	-0.0639	-0.0425	-0.0214	-5.45

Table 12 reports the time series of accrual and real earnings management proxies for the overall sample period and the Pre and Post SOX period results is reported in table 13 with the differences of means from 1997 to 2007. N_I is the end of year net income. Ret_Ann is the annual returns collected 3 months after the earnings announcement measured as returns in year t less returns in the prior period scaled by prior period returns (See 3.3.4).

The M-Score is estimated based on Beneish (1997, 1999) model. An *M-Score* in the highest decile suggests accompany firm year where there is more likely financial statement distortion.

Based on 8 variables the *M-Score* is estimated as

$$M = -4.84 + .920*DSRI + .528*GMI + .404*AQI + .892*SGL + .115*DEPI - .172*SGAI + 4.679*TATA - .327----- (5.7)$$

In case of data unavailability, the M-Score can be estimated based on 5 variables as:

$$M = -6.065 + .823*DSRI + .906*GMI + .593*AQI + .717*SGL + .107*DEPI.$$

Discretionary accruals used as a proxy for earnings management is measured by the modified Jones (1995) model as: $TA_t - NDA_t$, where:

$$TA_t = (\Delta CA_t - \Delta CL_t - \Delta Cash_t + \Delta STD_t - DEP_t) / (A_{t-1}),$$

Where: TA = Total accruals, ΔCA = Change in current assets (*DataStream* datatype code wc02201); ΔCL = change in current liabilities (*DataStream* datatype code wc03101); $\Delta Cash$ = Change in cash and cash equivalents (*DataStream* datatype code wc02001); ΔSTD = Change in debt included in current liabilities (*DataStream* datatype code wc03251); DEP = Depreciation and amortization expense (*DataStream* datatype code wc01151) and A = Total assets (*DataStream* datatype code wc02999). Changes in various items are the difference between current period values (denoted as period t) less the previous period (denoted as period t-1). Non discretionary accruals is estimated from the modified Jones model by Dechow *et al* (1995) as

$$NDA_t = \alpha_1 (1/A_{t-1}) + \alpha_2 ((\Delta REV_t - \Delta REC_t) / A_{t-1}) + \alpha_3 (PPE_t / A_{t-1})$$

Where NDA_t = Estimated non-discretionary accruals at time t, ΔREV = Change in revenue at time t (*DataStream* datatype code wc01001), ΔREC = Change in receivables at time t (*DataStream* datatype code wc02051), PPE = Property, plant and equipment at time t (*DataStream* datatype code wc02501).

Estimates of the firm specific parameters $\alpha_1, \alpha_2, \alpha_3$, are generated using the following model in the estimation period:

$$TA_t/A_{t-1} = a_1 (I/A_{t-1}) + a_2 (\Delta REV_t/A_{t-1}) + a_3 (PPE_t/A_{t-1}) + v_t,$$

FE is the forecast errors measured as the actual minus the forecast earnings per share scaled by the share price, NI is the firm's net income, ret is the firms returns which is the price of the firms stock collected three months after the earnings announcement less the prior year price scaled by the prior year price. ret (ann) and Ret (fut) are the current (3 months after earnings announcements) and one year ahead stock returns after the earnings announcements. Lev is the leverage level of the firm, which is the total liabilities divided by the total assets, MTB is the firm's market-to-book ratio at the end of the year, size is a proxy by the total assets of the firm.

D_EXP is the discretionary expenses, A_DEXP is the abnormal discretionary expenses, A_PROC is the abnormal production costs, A_INVEN is the abnormal inventory, A_REC is the abnormal receivables, A_OAC is the abnormal operating accruals, D_EXP is the firm's discretionary expenses, TA is the total assets, PROD_C is the production costs, SOX_D is the SOX dummy that is set equal to 1 for firm years in the post SOX period and 0 otherwise. Discretionary accruals are estimated using the modified Jones Model; Abnormal cash flow from operations are estimated as the deviations from the predicted values from the following industry-year regression:

$$CFO_t/A_{t-1} = \alpha_1 (I/A_{t-1}) + \beta_1 (S_t/A_{t-1}) + \beta_2 (S_t/A_{t-1}) + \varepsilon_t, \text{----- (5.1)}$$

Where A_t = assets at end of year t, S_t = sales during year t, ΔS_t = change in sales during year t.

Abnormal production costs: is the residual from the corresponding industry-year regression

$$PROD_t/A_{t-1} = \alpha_1 (I/A_{t-1}) + \beta_1 (S_t/A_{t-1}) + \beta_2 (\Delta S_t/A_{t-1}) + \beta_3 (\Delta S_t/A_{t-1}) + \varepsilon_t, \text{----- (5.2)}$$

where A_t = assets at end of year t, S_t = sales during year t, ΔS_t = change in sales during year t.

Abnormal discretionary expenses: is the residual from the corresponding industry-year regression

$$DISEXP_t / A_{t-1} = \alpha^*(1/A_{t-1}) + \beta_1^*(S_t / A_{t-1}) + \varepsilon_t, \text{-----} (5.3)$$

Where A_t = assets at end of year t, S_t = sales during year t, ΔS_t = change in sales during year t.

Abnormal accruals: is the residual from the corresponding industry-year regression

$$Accruals_t / A_{t-1} = \alpha^*(1/A_{t-1}) + \beta_1^*(\Delta S_t / A_{t-1}) + \beta_2^*(PPE_t / A_{t-1}) + \varepsilon_t, \text{-----} (5.4)$$

Where A_t = total assets at end of year t, ΔS_t = change in sales during year t and PPE_t = property, plant and equipment at end of year t.

Abnormal Receivables: is the residual from the corresponding industry-year regression:

$$\Delta NR_t / A_{t-1} = \alpha^*(1/A_{t-1}) + \beta_1^*(\Delta S_t / A_{t-1}) + \varepsilon_t, \text{-----} (5.5)$$

Abnormal Inventory: is the residual from the corresponding industry-year regression

$$\Delta INVEN_t / A_{t-1} = \alpha^*(1/A_{t-1}) + \beta_1^*(\Delta S_t / A_{t-1}) + \beta_2^*(\Delta S_{t-1} / A_{t-1}) + \varepsilon_t, \text{-----} (5.6)$$

Table 13: Correlation Between Variables for Essay 2(Pearson Correlation are Shown Above the Diagonal with Spearman Below).

	N_I	Ret_Ann	M_Score	T_A	N_D_A	D_A	A_DEXP	A_PROC	A_INVE	A_REC	A_OACC	Sales/TA	D_EXPT	PROD_C/ TA	Size	Sox_D
N_I	1	-0.001 (0.932)	-0.018 (0.253)	0.132 (0.000)	0.127 (0.000)	0.055 (0.000)	0.027 (0.084)	-0.055 (0.000)	0.007 (0.647)	0.007 (0.675)	0.112 (0.000)	0.178 (0.000)	0.141 (0.000)	0.063 (0.000)	0.016 (0.39)	0.011 (0.504)
Ret_Ann	-0.000 (0.466)	1	0.072 (0.000)	0.098 (0.000)	0.069 (0.000)	0.057 (0.000)	0.023 (0.150)	-0.035 (0.26)	-0.033 (0.036)	0.014 (0.364)	0.047 (0.003)	0.028 (0.077)	0.061 (0.000)	0.017 (0.277)	-0.022 (0.155)	-0.074 (0.000)
M_Score	-0.061 (0.551)	0.055 (0.001)	1	-0.045 (0.005)	0.028 (0.076)	-0.066 (0.000)	0.088 (0.000)	-0.010 (0.537)	-0.037 (0.21)	0.130 (0.000)	0.063 (0.000)	0.047 (0.003)	0.074 (0.000)	0.032 (0.040)	-0.009 (0.569)	-0.065 (0.000)
T_A	0.311 (0.000)	0.089 (0.000)	-0.179 (0.000)	1	0.390 (0.000)	0.796 (0.000)	0.093 (0.000)	-0.007 (0.644)	0.038 (0.016)	0.002 (0.921)	0.572 (0.000)	0.041 (0.010)	0.055 (0.000)	0.013 (0.419)	-0.009 (0.570)	0.087 (0.870)
N_D_A	0.114 (0.021)	0.071 (0.000)	-0.080 (0.000)	0.281 (0.000)	1	-0.247 (0.000)	0.231 (0.000)	-0.107 (0.000)	0.009 (0.577)	0.029 (0.062)	0.251 (0.000)	0.038 (0.015)	0.089 (0.000)	-0.010 (0.507)	-0.003 (0.871)	0.020 (0.208)
D_A	0.009 (0.013)	0.054 (0.000)	-0.114 (0.000)	0.733 (0.000)	-0.333 (0.000)	1	-0.053 (0.001)	0.062 (0.000)	0.034 (0.030)	-0.018 (0.262)	0.437 (0.000)	0.018 (0.264)	-0.000 (0.990)	0.020 (0.199)	-0.008 (0.624)	0.079 (0.000)
A_DEXP	0.074 (0.055)	-0.003 (0.839)	-0.009 (0.575)	-0.009 (0.575)	0.208 (0.000)	-0.106 (0.000)	1	-0.631 (0.000)	-0.051 (0.001)	0.062 (0.000)	0.086 (0.000)	0.010 (0.533)	0.332 (0.000)	-0.123 (0.000)	-0.031 (0.047)	0.002 (0.897)
A_PROC	-0.042 (0.000)	-0.32 (0.045)	0.039 (0.014)	0.034 (0.031)	-0.082 (0.000)	0.085 (0.000)	-0.743 (0.000)	1	0.267 (0.000)	-0.020 (0.209)	-0.020 (0.196)	0.070 (0.000)	-0.102 (0.000)	0.177 (0.000)	0.001 (0.949)	0.019 (0.233)
A_INVE	0.007 (0.414)	-0.071 (0.000)	0.006 (0.707)	0.076 (0.000)	0.018 (0.257)	0.048 (0.002)	0.026 (0.097)	0.132 (0.000)	1	-0.009 (0.586)	-0.015 (0.336)	0.008 (0.603)	-0.024 (0.128)	0.047 (0.003)	-0.007 (0.636)	0.002 (0.915)
A_REC	0.004 (0.295)	0.052 (0.000)	0.490 (0.000)	0.006 (0.682)	0.017 (0.288)	-0.008 (0.821)	0.045 (0.000)	-0.107 (0.285)	0.079 (0.000)	1	-0.077 (0.000)	-0.037 (0.018)	-0.038 (0.016)	-0.027 (0.086)	-0.001 (0.928)	0.014 (0.364)
A_OACC	0.222 (0.012)	0.005 (0.000)	-0.145 (0.000)	0.724 (0.000)	-0.24 (0.135)	0.724 (0.000)	-0.111 (0.000)	0.094 (0.000)	0.032 (0.040)	-0.080 (0.000)	1	0.023 (0.147)	0.007 (0.665)	0.010 (0.541)	-0.008 (0.626)	-0.001 (0.937)
Sales/TA	0.136 (0.070)	0.193 (0.000)	0.344 (0.000)	0.062 (0.000)	-0.018 (0.258)	-0.013 (0.395)	-0.044 (0.000)	-0.028 (0.079)	-0.149 (0.000)	0.036 (0.024)	-0.054 (0.000)	1	0.547 (0.000)	0.908 (0.000)	-0.032 (0.045)	-0.083 (0.000)

Continued from above	N_I	Ret_Ann	M_Score	T_A	N_D_ A	D_A	A_DE XP	A_PROC	A_INVE N	A_RE C	A_OACC	Sales/TA	D_EXP/T A	PROD_C/ TA	Size	Sox_D
D_EXP/TA	0.142 (0.000)	-0.003 (0.839)	0.014 (0.361)	-0.067 (0.000)	0.021 (0.189)	-0.024 (0.000)	0.042 (0.000)	0.006 (0.484)	-0.054 (0.032)	0.046 (0.000)	-0.095 (0.336)	0.006 (0.342)	1	0.218 (0.000)	0.007 (0.651)	-0.054 (0.000)
PROD_C/TA	0.092 (0.000)	0.032 (0.045)	0.039 (0.014)	0.034 (0.016)	0.002 (0.102)	0.025 (0.000)	0.017 (0.483)	0.023 (0.106)	0.274 (0.002)	-0.001 (0.209)	-0.077 (0.001)	0.714 (0.018)	-0.032 (0.009)	1	-0.051 (0.000)	-0.054 (0.000)
Size	0.014 (0.62)	-0.016 (0.062)	-0.006 (0.769)	-0.008 (0.520)	-0.046 (0.882)	-0.009 (0.816)	-0.023 (0.009)	0.014 (0.217)	-0.066 (0.214)	-0.002 (0.846)	-0.011 (0.559)	-0.046 (0.066)	0.006 (0.767)	-0.051 (0.001)	1	0.071 (0.001)
Sox_D	0.044 (0.634)	-0.064 (0.000)	-0.026 (0.001)	0.059 (0.775)	0.001 (0.323)	0.046 (0.001)	0.006 (0.157)	0.046 (0.433)	0.002 (0.392)	0.004 (0.442)	-0.000 (0.124)	-0.026 (0.021)	-0.005 (0.000)	-0.041 (0.000)	0.142 (0.000)	1

Table 14 reports the correlation (Spearman correlation above the diagonal and Pearson below) between variables for the overall sample period. N_I is the end of year net income. FE is the forecast errors measured as the actual minus the forecast earnings per share scaled by the share price, Ret_Ann is the firms returns which is the price of the firms stock collected three months after the earnings announcement less the prior year price scaled by the prior year price. Ret (ann) and Ret (fut) are the current (3 months after earnings announcements) and one year ahead stock returns after the earnings announcements. Lev is the leverage level of the firm, which is the total liabilities divided by the total assets, MTB is the firm's market-to-book ratio at the end of the year, size is a proxy by the total assets of the firm.

The M-Score is estimated based on Beneish (1997, 1999) model. An *M-Score* in the highest decile suggests accompany firm year where there is more likely financial statement distortion. Based on 8 variables the *M-Score* is estimated as

$$M = -4.84 + .920*DSRI + .528*GMI + .404*AQI + .892*SGI + .115*DEPI -.172*SGAI + 4.679*TATA - .327----- (5.7)$$

In case of data unavailability, the M-Score can be estimated based on 5 variables as:

$$M = -6.065 + .823*DSRI + .906*GMI + .593*AQI + .717*SGI + .107*DEPI.$$

T_A is the total accruals, D_A is the discretionary accruals, N_D_A is the non-discretionary accruals. The total, non-discretionary and discretionary accruals are measured by the modified Jones (1995) model as:

$$TA_t = (\Delta CA_t - \Delta CL_t - \Delta Cash_t + \Delta STD_t - DEP_t) / (A_{t-1}),$$

Where: TA = Total accruals, ΔCA = Change in current assets (*Datastream* datatype code wc02201); ΔCL = change in current liabilities (*Datastream* datatype code wc03101); $\Delta Cash$ = Change in cash and cash equivalents (*Datastream* datatype code wc02001); ΔSTD = Change in debt included in current liabilities (*Datastream* datatype code wc03251); DEP = Depreciation and amortization expense (*Datastream* datatype code wc01151) and A = Total assets (*Datastream* datatype code wc02999). Changes in various items are the difference between current period values (denoted as period t) less the previous period (denoted as period t-1). Non discretionary accruals is estimated from the modified Jones model by Dechow *et al* (1995) as

$$NDA_t = \alpha_1 (1/A_{t-1}) + \alpha_2 ((\Delta REV_t - \Delta REC_t) / A_{t-1}) + \alpha_3 (PPE_t / A_{t-1})$$

Where NDA_t = Estimated non-discretionary accruals at time t, ΔREV = Change in revenue at time t (*Datastream* datatype code wc01001), ΔREC = Change in receivables at time t (*Datastream* datatype code wc02051), PPE = Property, plant and equipment at time t (*Datastream* datatype code wc02501).

Estimates of the firm specific parameters $\alpha_1, \alpha_2, \alpha_3$, are generated using the following model in the estimation period:

$$TA_t / A_{t-1} = a_1 (1/A_{t-1}) + a_2 (\Delta REV_t / A_{t-1}) + a_3 (PPE_t / A_{t-1}) + v_t,$$

Abnormal cash flow from operations is estimated as the deviations from the predicted values from the following industry-year regression:

$$CFO_t/A_{t-1} = \alpha^*(I/A_{t-1}) + \beta_1^*(S_t/A_{t-1}) + \beta_2^*(S/A_{t-1}) + \varepsilon_t,$$

Where A_t = assets at end of year t, S_t = sales during year t, ΔS_t = change in sales during year t.

Abnormal production costs: is the residual from the corresponding industry-year regression

$$PROD_t/A_{t-1} = \alpha^*(I/A_{t-1}) + \beta_1^*(S_t/A_{t-1}) + \beta_2^*(\Delta S_t/A_{t-1}) + \beta_3^*(\Delta S_t/A_{t-1}) + \varepsilon_t$$

Where A_t = assets at end of year t, S_t = sales during year t, ΔS_t = change in sales during year t.

Abnormal discretionary expenses: is the residual from the corresponding industry-year regression

$$DISEXP_t/A_{t-1} = \alpha^*(I/A_{t-1}) + \beta_1^*(S_t/A_{t-1}) + \varepsilon_t,$$

Where A_t = assets at end of year t, S_t = sales during year t, ΔS_t = change in sales during year t.

Abnormal accruals: is the residual from the corresponding industry-year regression

$$Accruals_t/A_{t-1} = \alpha^*(I/A_{t-1}) + \beta_1^*(\Delta S_t/A_{t-1}) + \beta_2^*(PPE_t/A_{t-1}) + \varepsilon_t,$$

Where A_t = total assets at end of year t, ΔS_t = change in sales during year t and PPE_t = property, plant and equipment at end of year t.

Abnormal Receivables: is the residual from the corresponding industry-year regression:

$$\Delta NR_t / A_{t-1} = \alpha^*(1/A_{t-1}) + \beta_1^*(\Delta S_t / A_{t-1}) + \varepsilon_t$$

Abnormal Inventory: is the residual from the corresponding industry-year regression

$$\Delta INVEN_t / A_{t-1} = \alpha^*(1/A_{t-1}) + \beta_1^*(\Delta S_t / A_{t-1}) + \beta_2^*(\Delta S_{t-1} / A_{t-1}) + \varepsilon_t$$

Where:

PROD (Production cost): Cost of goods sold (*Datastream* datatype code wc01051) + Change in inventory (*Datastream* datatype code WC18196).

DEXP (Discretionary Expenses): Research and development expenditures (datastream datatype code WC01201) + Advertisement Expenditures (*Datastream* datatype code) + Selling, general and Administrative expenditures (*Datastream* datatype code wc01101).

NR: Account receivables net of doubtful debts (*Datastream* Datatype Code WC02051).

$\Delta INVEN$: increases/decreases in inventory (*Datastream* datatype code WC18196).

Operating Accruals: Net income before extraordinary items (*Datastream* datatype code wc01551) minus Cash flow from operations (*Datastream* datatype code WC06915), CFO is the cash flow from operation, *A_DEXP* is the abnormal discretionary expenses, *A_PROC* is the abnormal production costs, *A_INVEN* is the abnormal inventory, *A_REC* is the abnormal receivables, *A_OAC* is the abnormal operating accruals, *D_EXP* is the firm's discretionary expenses, *TA* is the total assets, *PROD_C* is the production costs, *SOX_D* is the SOX dummy that is set equal to 1 for firm years in the post SOX period and 0 otherwise.

Table 14 presents the Pearson (spearman) correlation coefficients with the p values in parenthesis for the sample between the periods 1997 to 2006. The correlations are pooled for the entire sample (Pearson Correlation are Shown above the diagonal with Spearman below). Correlations significant at the 5 percent levels are marked in bold. This gives a balanced sample of five years before and after the SOX period. The intervening year is the year 2002 when SOX was enacted. Lagged total assets are used to scale several variables, as specified and total assets are a proxy for size. Correlations that are significant have been marked in bold. The most significant correlation is the correlation between production cost and sales. They have a Pearson (Spearman) correlation coefficient of 90 (71) percent. This suggests that firms with higher production costs also have a high amount of total sales. This is however true as most often, firms increase their production cost when they think the demand for their products are high and they also attempt to reduce unit production cost when they have contrary market expectations. We also observe marginally positive but significant correlations between net income and variables that drives income. Sales and net income are positively correlated and significant at the 5 percent level, with a Pearson (Spearman) correlation coefficient of 17 (13) percent respectively. Likewise discretionary expenses, abnormal operating accruals and total accruals are positively correlated with net income respectively for both Pearson (Spearman) correlation at 14 (14) percent, 11 (22) and 13 (31) percent. All the reported results are all significant. This is consistent with prior research (Sloan 1996, Roychowdhury, 2007) that found a positively correlated relationship between accruals and sales with net income.

As in Roychowdhury (2007), the correlations between the total and abnormal levels of various items are positive and significant at the 5 percent level. The Pearson (Spearman) correlation between operating accruals and total accruals is the highest at 57 (72) percent. Discretionary expenses and abnormal discretionary expenses are correlated positively for both Pearson (Spearman) correlation at 33 (4) percent, and production cost and abnormal production cost are positively correlated for both the Pearson (Spearman) correlation coefficient at 17 (2) percent. Recall that, actual production costs refer to cost for real transactions while discretionary costs are generic to management's intent. A reason for the positive correlation might be as a result of manager simultaneously increasing the discretionary items as they disburse for these items. Abnormal inventory and production costs are positively correlated with a Pearson (Spearman) correlation coefficient of 26 (27) percent. One reason for this

might be as a result of the relationship between inventory production and related expenses. Abnormal inventory build-ups are possibly as a result of earnings manipulation. Prior research (e.g. Gunny, 2006, Chan et al., 1996) has argued that most managers build up inventory and when they realize that sales are not matching the amounts of goods produced; they provide price discounts to dispose of their unwanted inventory. Their cost needs to be discretionary by management, as the normal inventory levels cannot account for them.

Consistent with prior research, there is a marginally negative correlation between abnormal inventory and stock returns. The Pearson (Spearman) correlation is -3 (-7) percent and is significant at the 5 percent level. Recall that abnormal inventory level reflects excess annual inventory growth whose production is customarily discretionary by management (e.g. Roychowdhury, 2003). One reason for the negative correlation might relate to the stock market's perception on abnormal inventory levels. In most cases, they are viewed as signals of problems with overproduction leading to high costs, turnover problems and inventory obsolescence. This has been supported by Abarbanell and Bushee (1997) who provided evidence of a negative relationship between excess inventory growth and future earnings.

It is important to recognize the highly negative Pearson (Spearman) correlation with abnormal production cost and abnormal discretionary expenses of about -63 (-74) percent. I interpret the reason for this as discussed in Roychowdhury, (2003). When firms normally provide price discounts that lead to an increase in sales volume, discretionary expenses would appear low relative to sales. Normally, price discounts increase a unit cost of production relative to sale price. Such price discounts can also be engineered by over production to reduce unit cost of goods sold, as long as inventory pile-up does not lead to excess unit holding cost. One therefore has to expect a negative relationship between abnormal production cost and abnormal discretionary expenses. The marginal, but significantly negative relationship (Pearson (Spearman) correlation coefficient of -5 (-4) percent) between abnormal production cost and net income is a signal that overproduction by firms increases the cost of production thereby reducing end of period net income.

5.5.2: Descriptive Statistics for the M-Score.

Figure 6: Plot of Mean Industry M-Score Over the Sample Period.

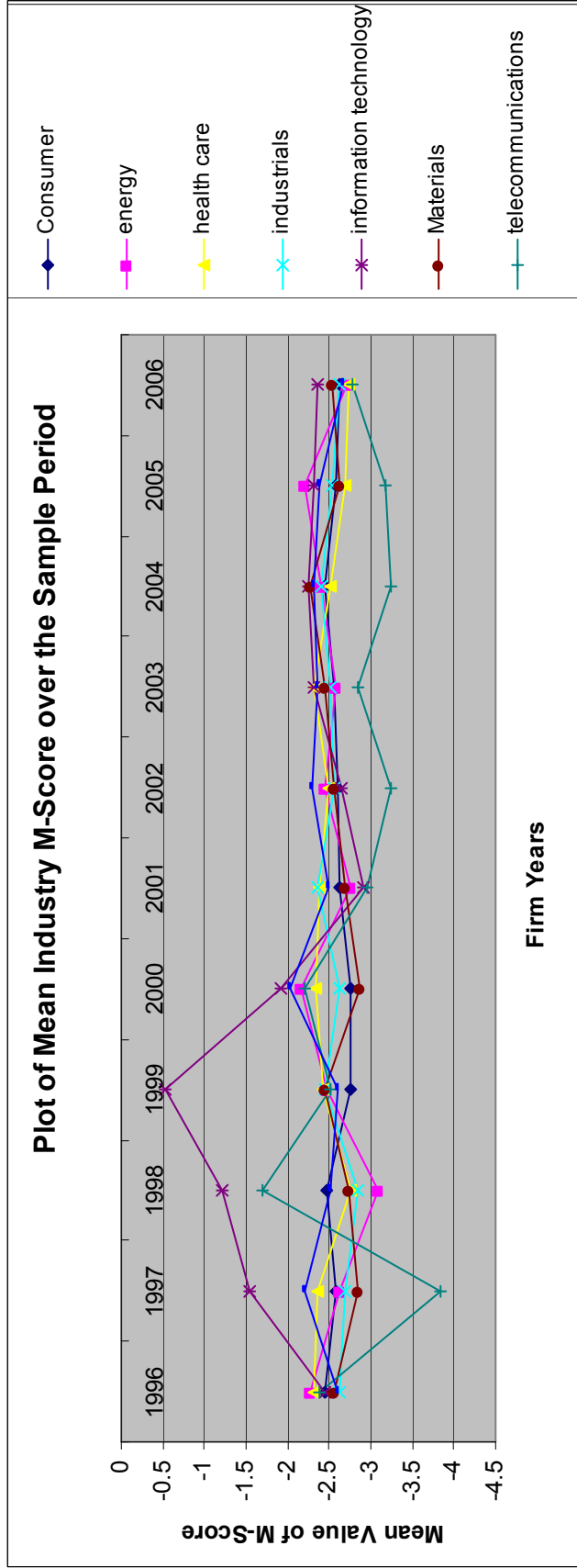


Figure 7: Plot of Suspect and Non-Suspect Firm in the Pre and Post SOX Era.

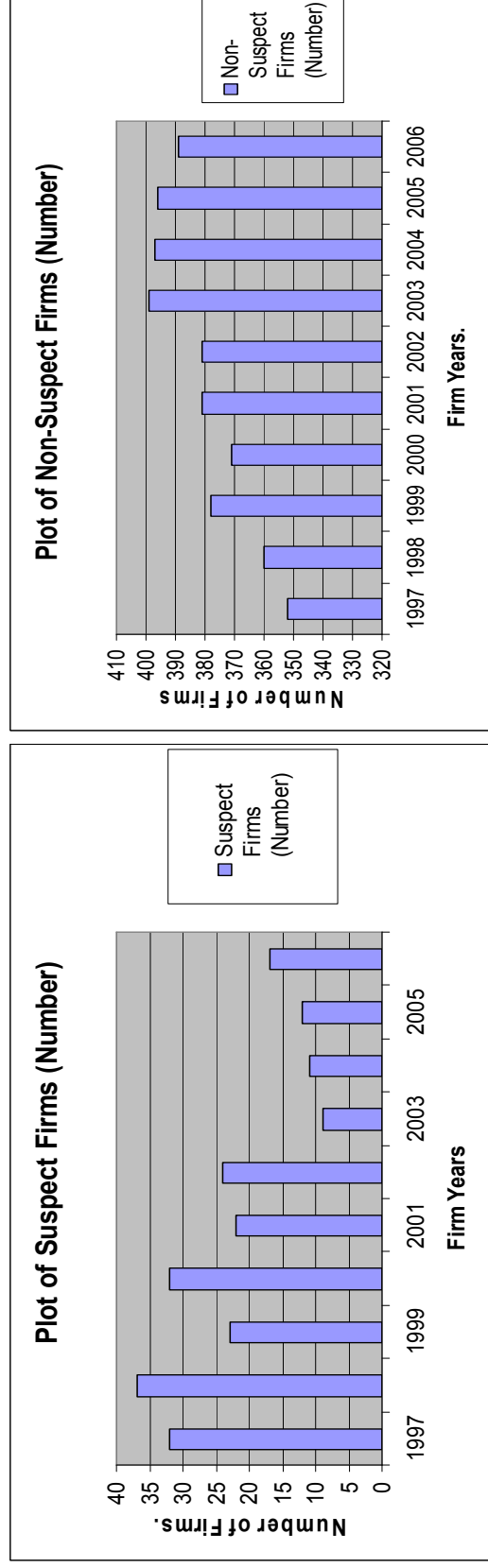


Figure 8: Plot of Discretionary Accruals and Abnormal Discretionary Expenses for Suspect and Non-Suspect Firms Over the Sample Period.

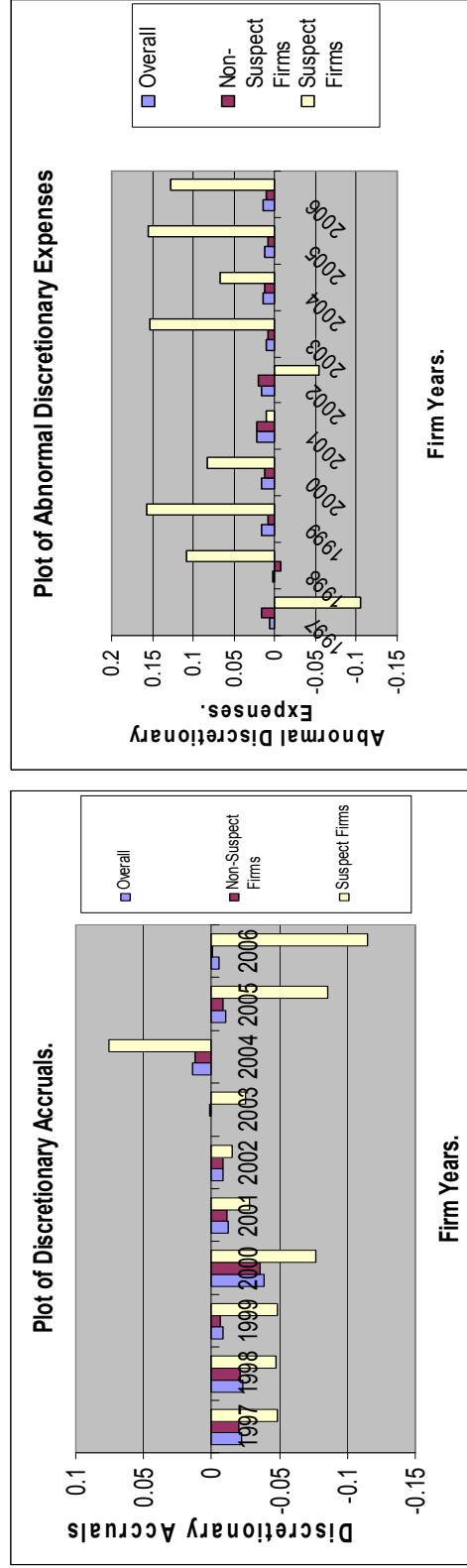


Table 14: Descriptive Statistic by Industry for Differences in Mean for the M-Score in the Pre and Post SOX Era.

Variables	Mean		Differences in Means (Post SOX – Pre SOX)	T-statistics.
	Pre SOX	Post SOX		
Consumer Discretionary	-2.6229	-2.5515	-0.0713	-2.36
Energy	-2.5520	-2.4683	-0.0836	-0.81
Health Care	-2.3944	-2.5686	0.1752	2.13
Industrials	-2.5874	-2.5391	-0.0482	-1.63
Information Technology	-1.6055	-2.4011	0.7956	3.02
Materials	-2.7184	-2.4953	-0.2231	-3.04
Telecommunication services	-2.6398	-2.7698	0.1301	1.44
Utilities	-2.3688	-2.4077	0.03885	0.46

Figure 6 shows the mean industry M-Score over the sample period. The plot suggests that the firm most likely to manage earnings in the pre SOX era are those in information technology. This is in line with the technology boom of the 90's where many firms were alleged to have manipulated their earnings to boost their stock price. In the post SOX era, the firm less likely to manipulate earnings are firms involved in telecommunications business. According to figure 7 above, the number of firms classified as suspect firms (M-Score greater than -2.22) reduces from the pre to the Post SOX era. Though the number of suspect firm dropped in 2003, it has been increasing slightly after that, while Non-Suspect firms have been reducing.

The descriptive statistics on table 15 provides the differences in industry mean for the M-Score in the Pre and Post SOX era. Changes in M score for Information technology stock increased across the periods and the changes is significant (differences in mean of 0.7956 and t statistics of 3.02). M Score for telecommunication services firm's increases around the period but the increases are insignificant. These are in line with the technology boom in the late 90's where most firms in these two industries were accused for manipulating earnings to inflate their stock price. It is important to note that overall, firms in the technology sector were growing rapidly in the 90's, but there was nothing to suggest that they were managing earnings. But in line with Mohanran (2003), when firms are growing, they can be aggressive with their accounting and get away with it. But when the growth reverses, prior aggressiveness in accounting manifests itself. This according to Mohanran (2003), is surely the reason why there were few accounting scandals in the height of the technology boom while there has been a spate of such scandals in the recessionary environment since. Firms in the consumer discretionary industry had their earnings changes decreased and it is statistically significant (differences in mean of -0.0713 and t statistics of -0.07). This suggests that they are less likely to manage earnings using the M Score in the Post SOX Era. This result is similar to results for firms in the materials (differences in mean of -0.2231 and t-statistics of -3.03) and health care (differences in mean of 0.1752 and t statistics of 2.13) industry. Finally, firms in the utility sectors have an increase in differences in mean (0.0388) suggesting that they are more likely to manage earnings in the post SOX era while those in the energy sector realised a decrease in their differences in mean (-0.0836) suggesting that they are less likely to manage earnings. However, the changes from the pre and post SOX period are not significant (t statistics for utilities is 0.4581 and for energy is -0.81).

5.5.2:Returns/Earnings Quality Relationships.

The main regression model for the second main research hypothesis, (defined as earnings quality and firm performance hypothesis) postulates that investors discount those firms that manage earnings highly through a negative stock return. Our empirical investigation distinguishes between five main categories of earnings management: the probability of financial statements distortions as measured by the Beneish *M-Score* (Beneish 1997,1999), earnings management through discretionary accruals, real earnings management through abnormal changes in discretionary expenses, earnings management through abnormal changes in receivables, and finally earnings management through abnormal changes in receivables. However, the first three categories are the main earnings management models, with respect to their superiority to the degree of information linked to earnings management that they are supposed to possess.

In the main regression models, the returns/earnings management relationship is examined. Stock returns (3.3.4) is used as a proxy for firm performance and is controlled for other variables that are likely to affect firm performance like firm size (Collins and Kothari, 1989, Collins *et al.*, 1997), growth opportunities (Collins and Kothari, 1989), Leverage (Subramanyam, 1996, Reynolds and Francis, 2000). The observed relationship between stock returns and prior earnings management can be explained by the argument that, managers may have employed earnings management techniques to influence reported earnings. This would either increase stock prices in the future if investors are passive and cannot differentiate managed from unmanaged earnings or might have negative effect on future stock prices if investors discount earnings management practices in the valuation of companies. As discussed above, during strict regulatory regimes as prescribed by the Sarbanes Oxley Act of 2002, managers might still be managing earnings using less scrutinised techniques. (Details of the relationship between earnings quality and stock returns are discussed in section 5.4.2).

The relationship between the firm's earnings quality and their future performance as measured by their future returns is therefore examined using the following regression model:

$$FRET_{i,t} = \alpha_0 + \beta_1 * (X_{i,t-1}) + \beta_2 * (SOX_{i,t}) + \beta_3 * (X_{i,t-1} * SOX) + \beta_4 * (Lev) + \beta_5 * (MTB_{t-1}) + \beta_6 * (SIZE_{t-1}) + \beta_7 * (SUS_FIRM_{i,t-1}) + \beta_8 * (SUS_FIRM * SOX_{i,t-1}) + \dots \dots \dots (5.13).$$

Where $FRET_{it}$ is the 12-month stock return that ends 3 months after the fiscal year in year t (see 3.3.4).

X_i is the proxy for earnings quality (see 3.3.2).

SOX is a dichotomous variable set equal to 1 for firm years in the SOX period and zero otherwise.

$X_i * SOX$ is an interaction variable between the earnings management proxy and the SOX period.

$SUS_FIRM * SOX_i$ is an interaction variable of the relationship between suspect firm years (years where the firm is judged to have most likely manipulated their earnings) and the SOX period.

Lev_{it} is the proxy for leverage measured as the total liabilities over the total assets.

MTB_{it} is the market to book value.

$SIZE_{it}$ is the total assets used as a proxy for firm size

SUS_FIRM is a dummy set equal to 1 if the firm year is at the highest decile of the Probability of manipulation, and at the highest decile for the absolute values for the estimated real earnings management and discretionary accruals values.

Table 16 below discuss the relationship between the independent variable and the dependent variable.

Table 15: Description of Variables.

<u>Dependent and independent variables.</u>	<u>Construct</u>	<u>Objective.</u>
Future returns.	This is the main explanatory variable in the regression. It is used as a proxy for future firm performance which is the one-year-ahead stock returns measured as the difference between the current stock price and the prior year stock price scaled by the prior year stock price.	Another proxy for a firm's stock market performance.
X_i	This is the proxy for earnings management. It is important to note that, this chapter uses three different proxies to investigate earnings management. This are, the Beneish M-Score that measures the probability of financial statements distortion, discretionary accruals models as discussed by Dechow et al., (1995) and real earnings management as discussed by Roychowdhury, (2007).	To capture the level of earnings quality.
SOX-Sarbanes Oxley Act.	This is a dummy set equal to 1 for firm years post SOX (after 2002) and zero otherwise.	Aim to capture changes post SOX
X_i *SOX	This is an interaction variable between the earnings management proxy and the SOX period. X_i is the different earnings management proxies used.	Objective is to capture the impact of changes in earnings quality post SOX.

<u>Continued from above: Dependent and independent variables.</u>	<u>Construct</u>	<u>Objective.</u>
LEV	Defined as leverage is estimated as the total liabilities divided by the total assets.	Leverage is included to control for firm specific characteristics that are correlated to discretionary accruals.
MTB-market to book value	This is the firm's market value over the book value at the beginning of the year. It is a control variable that measures the firm's growth prospects.	To control for growth opportunities
SIZE	This is a proxy for total assets used as a control variable.	The aim is to control for the influence of size on earnings management practices and firm performances.
SUS_FIRM	SUS_FIRM defined Suspect firms is a categorical variable that classifies firms as more likely (dummy 1) or less likely (dummy 0) to manipulate earnings. The dummy is set equal to 1 if the firm year is at the highest decile of the Probability of manipulation, and at the highest decile for the absolute values for the estimated real earnings management and discretionary accruals values.	The aim is to capture and classify firm years where the firm is more or less likely to have manipulated earnings.

<u>Continued from above: Dependent and independent variables.</u> SUS_FIRM*SOX	<u>Construct</u>	<u>Objective.</u>
	This is an interaction variable of the relationship between suspect firm years (years where the firm is judged to have most likely manipulated their earnings) and the SOX period.	Aim to capture changes in earnings management practices in the post SOX period.

Table 17 below presents the results of the model 5.13 above for the returns earnings quality relationship. Panels a, b, c, d and e provide the results for the different proxies for earnings quality. The coefficient on β_1 is to pick out the effect of earnings management as measured by the probability of financial statements distortion on firms performance. In panel A the relationship is positive and significant indicating that firms with a high probability of manipulation as measured by the Beneish M-Score performed better as documented by their positive stock returns. However, in the post SOX period, when firms have a high probability of financial statements distortions, they are less likely to perform better as supported by the insignificant results of the interaction variable between the probability of manipulation and the Sarbanes Oxley period (β_3 coefficient is 0.0008 and t stats is 0.75). Also the coefficient of β_7 is positive but insignificant suggesting that firms that manage earnings overall based on the probability of manipulation as measured by the M-Score, are less likely to influence stock returns. In the post SOX period, firms that are more likely to manage earnings have a negative stock returns (coefficient of -0.004 and t-stats of -1.87).

The results reported in panel b aims to capture the impact of earnings management using discretionary accruals techniques on firm performance. The findings as in Panel b suggest that when firms manage earnings using discretionary accruals, the market reaction is always positive (coefficient of β_1 0.0067 and t-stats of 2.29). Nonetheless, when discretionary accruals are employed to manage earnings in the post SOX period, there is a negative market reaction as reported by the coefficient of -0.003 and t-stats of -2.39. Firms that are more likely to manage earnings have negative returns; however, the relationship is insignificant (coefficient of -0.0016 and t stats of -0.83). In the post SOX era, firms that are more likely to manage earnings have a marginally positive stock returns though the relationship is insignificant (coefficient of 0.0009 and t stats of 0.31). The implication of the result above is that during periods of greater market regulations, investors are also very vigilant and discount stocks of firms that employ the more visible discretionary accruals technique to manage earnings. This is an indication that SOX influence greater monitoring of earnings management by investors.

Another key variable of interest is the discretionary expenses variable. This is a key variable of interest because it captures the impact of real earnings management. The indication is that an increase in discretionary expenses to reduce reported earnings leads to a reduction of stock returns (coefficient of -0.006 and t stats of -2.974). However, when firms manage earnings in the post SOX period using discretionary expenses, the results are

statistically insignificant (coefficient of 0.0044 and t stats of 1.03). Suspect firms (defined as those that are most likely to manage earnings using discretionary expenses) are more likely to have positive returns, though the relationship is insignificant (coefficient of 0.0008 and t stats of 0.45). However, suspect firms in the post SOX period have a negative but significant coefficient (coefficient is -0.0001 and t stats of -3.23) which suggests that firms that attempt to manage earnings have negative stock returns.

Since accruals involve a combination of other accounting constructs and they might be influenced by other items like changes in receivables, payables and inventory, I investigate the predictive power of other items like changes in inventory and receivables. The results suggest that firms that manage earnings through increases in abnormal changes in receivables normally have positive returns (coefficient of 0.0076 and t-stats of 2.67). But in the post SOX era, the relationship is insignificant (coefficient of -0.014 and t-stats of -0.54). While firms that are more likely to manage earnings as measured by abnormal changes in receivables have a negative returns (coefficient of -0.004 and t states of -2.12), in the Post SOX era, this relationship is positive and insignificant (coefficient of 0.00522 and t stats of 1.31). When firms stockpile inventory, there is always negative returns (coefficient of -0.013 and t-stats of -2.44). When firms are more likely to manage earnings in the overall sample period, they are more likely to have positive returns (coefficient of 0.0021 and t stats of 2.14). In the post SOX Era firms that are more likely to manage earnings using abnormal changes in inventory always have disappointing future returns (coefficient of -0.002 and t-stats of -2.74).

Table 16: Regression Results for Essay 2.

	Panel A: X=Probm.		Panel B: X=DA		Panel C: X=ADEXP		Panel d: X=AREC		Panel E: X=Ainv	
	Coef.	t-stats.	Coef.	t-stats.	Coef.	t-stats.	Coef.	t-stats.	Coef.	t-stats.
α_0	-0.0082	-4.74	-0.0042	-4.13	-0.0052	-3.88	-0.0055	-3.57	-0.006	-4.15
β_1	0.0006	2.49	0.0067	2.29	-0.0060	-2.97	0.0076	2.67	-0.013	-2.35
β_2	0.0054	1.49	0.0023	2.37	0.0026	2.67	0.0019	1.92	0.0028	2.91
β_3	0.0008	0.75	-0.003	-2.39	0.0044	1.03	-0.0141	-0.54	0.0256	1.06
β_4	0.0036	2.93	0.0043	3.36	0.0035	2.88	0.0030	3.08	0.0037	3.02
β_5	-0.0000	-0.64	-0.0000	-0.70	-0.0000	-0.43	-0.0000	-0.72	-0.000	-0.83
β_6	-0.0000	-0.37	-0.0000	-0.32	-0.0000	-0.44	-0.0001	-0.38	-0.000	-0.36
β_7	0.0022	1.09	-0.0016	-0.83	0.0008	0.44	-0.0044	-2.11	0.0021	2.14
β_8	-0.0041	-1.87	0.0009	0.31	-0.0002	-3.23	0.0052	1.31	-0.002	-2.75
	Number of firm years.	3528	Number of firm years.	3528	Number of firm years.	3528	Number of firm years.	3528	Number of firm years.	3528
	R-Sq.	1.57%	R-Sq.	3.21%	R-Sq.	1.12%	R-Sq.	1.42%	R-Sq.	2.26%

$$FRET_{i,t} = \alpha_0 + \beta_1 * (X_{i,t-1}) + \beta_2 * (SOX_{i,t}) + \beta_3 * (X_{i,t-1} * SOX_{i,t}) + \beta_4 * (SOX_{i,t}) + \beta_5 * (LEV_{i,t}) + \beta_6 * (MTB_{i,t-1}) + \beta_7 * (SIZE_{i,t-1}) + \beta_8 * (SUS_FIRM * SOX_{i,t-1})$$

+ e.....(5.14).

Table 17 reports the regression results between the independent variables.

Where $FRET_{it}$ is the 12-month stock return that ends 3 months after the fiscal year in year t (see 3.3.4).

X_i is the proxy for earnings quality (see 3.3.2).

SOX is a dichotomous variable set equal to 1 for firm years in the SOX period and zero otherwise.

$X_i * SOX$ is an interaction variable between the earnings management proxy and the SOX period.

$SUS_FIRM * SOX_i$ is an interaction variable of the relationship between suspect firm years (years where the firm is judged to have most likely manipulated their earnings) and the SOX period.

LEV_{it} is the proxy for leverage measured as the total liabilities over the total assets.

MTB_{it} is the market to book value.

$SIZE_{it}$ is the total assets used as a proxy for firm size

SUS_FIRM is a dummy set equal to 1 if the firm year is at the highest decile of the Probability of manipulation, and at the highest decile for the absolute values for the estimated real earnings management and discretionary accruals values.

The $PROBM$ (probability of manipulation) as measured by the M-Score is estimated based on Beneish (1997, 1999) model. An M -Score in the highest decile suggests accompany firm year where there is more likely financial statement distortion.

Based on 8 variables the M -Score is estimated as

$$M = -4.84 + .920 * DSR1 + .528 * GMI + .404 * AQI + .892 * SGI + .115 * DEPI - .172 * SGAI + 4.679 * TATA - .327 * \text{-----} \quad (5.7)$$

In case of data unavailability, the M-Score can be estimated based on 5 variables as:

$$M = -6.065 + .823 * DSR1 + .906 * GMI + .593 * AQI + .717 * SGI + .107 * DEPI.$$

Discretionary accruals are measured by the modified Jones (1995) model as $TA_t - NDA_t$, where;

$$TA_t = (\Delta CA_t - \Delta CL_t - \Delta Cash_t + \Delta STD_t - DEP_t) / (A_{t-1}),$$

Where: TA = Total accruals, ΔCA = Change in current assets (*Datastream* datatype code wc02201); ΔCL = change in current liabilities (*Datastream* datatype code wc03101); $\Delta Cash$ = Change in cash and cash equivalents (*Datastream* datatype code wc02001); ΔSTD = Change in debt included in current liabilities (*Datastream* datatype code wc03251); DEP = Depreciation and amortization expense (*Datastream* datatype code wc01151) and A = Total assets (*Datastream* datatype code wc02999). Changes in various items are the difference between current period values (denoted as period t) less the previous period (denoted as period t-1). Non discretionary accruals is estimated from the modified Jones model by Dechow *et al* (1995) as

$$NDA_t = \alpha_1 (1/A_{t-1}) + \alpha_2 ((\Delta REV_t - \Delta REC_t) / A_{t-1}) + \alpha_3 (PPE_t / A_{t-1})$$

where NDA_t = Estimated non-discretionary accruals at time t, ΔREV = Change in revenue at time t (*Datastream* datatype code wc01001), ΔREC = Change in receivables at time t (*Datastream* datatype code wc02051), PPE = Property, plant and equipment at time t (*Datastream* datatype code wc02501). Estimates of the firm specific parameters $\alpha_1, \alpha_2, \alpha_3$, are generated using the following model in the estimation period:

Abnormal discretionary expenses: is the residual from the corresponding industry-year regression

$$DISEXP_t / A_{t-1} = \alpha^* (1 / A_{t-1}) + \beta_1 * (S_t / A_{t-1}) + \varepsilon_t,$$

Abnormal Receivables: is the residual from the corresponding industry-year regression:

$$\Delta NR_t / A_{t-1} = \alpha^*(1/A_{t-1}) + \beta_1^*(\Delta S_t / A_{t-1}) + \varepsilon_t$$

Abnormal Inventory: is the residual from the corresponding industry-year regression

$$\Delta INVEN_t / A_{t-1} = \alpha^*(1/A_{t-1}) + \beta_1^*(\Delta S_t / A_{t-1}) + \beta_2^*(\Delta S_{t-1} / A_{t-1}) + \varepsilon_t$$

Where:

DEXP (Discretionary Expenses): Research and development expenditures (datastream datatype code WC01201) + Advertisement Expenditures (*Datastream* datatype code) + Selling, general and Administrative expenditures (*Datastream* datatype code wc01101).

NR: Account receivables net of doubtful debts (*Datastream* Datatype Code WC02051).

$\Delta INVEN$: increases/decreases in inventory (*Datastream* datatype code WC18196).

Operating Accruals: Net income before extraordinary items (*Datastream* datatype code wc01551) minus Cash flow from operations (*Datastream* datatype code WC06915), CFO is the cash flow from operation, *A_DEXP* is the abnormal discretionary expenses, *A_PROC* is the abnormal production costs, *A_INVEN* is the abnormal inventory, *A_REC* is the abnormal receivables, *A_OAC* is the abnormal operating accruals, *D_EXP* is the firm's discretionary expenses, *TA* is the total assets, *PROD_C* is the production costs, *SOX_D* is the SOX dummy that is set equal to 1 for firm years in the post SOX period and 0 otherwise.

5.6: Conclusion.

The objective of this chapter is to evaluate if investors discount earnings management practices (especially after the post SOX era). The major contribution of this study to the broader literature is to investigate the influence of earnings management on firm performance post SOX using a wider set of earnings management proxies. Given that the objective of the SOX was to improve the quality of financial reporting after the high profile business failures that led to significant losses by investors, one would expect investors post SOX to scrutinise a wider set of financial statement information, to be able to discount earnings management practices.

The proxies for earnings quality employed are three measures of earnings management that have been employed in the accounting literature to investigate how managers can manage reported earnings. This includes the discretionary accruals model by Dechow *et al.*, (1995), earnings management using real operating decisions (See Roychowdhury, 2006, Gunny, 2006, Graham *et al.* 2006) and the Beneish M-Score (Beneish 1997, 1999) model that estimates the probability of financial statement distortions. These different measures of earnings management have been employed in order to avoid a contamination of the research results on the influence of earnings management on firm performance. As in Chan *et al.*, (2006), post transaction stock returns are employed as a measure of firm performance.

Overall, the results support my prediction of the main hypothesis and provide evidence of greater monitoring of financial statements in the post SOX era. On average, when firm's attempt to manage earnings post SOX, investors discount this through poor stock returns. One major contribution of this study to the literature on earnings quality and firm performance in light of the recent regulatory intervention relates to the investigation of a comprehensive set of earnings management signals. Accrual components customarily include accounts receivables, accounts payables, changes in inventory, and so on. One interesting result relates to the greater predictive power of abnormal changes in inventory. Increases in inventory are negatively related to future stock returns both in the overall sample period and in the post SOX period. This suggests that investors discount firms that stockpile inventory even before the greater monitoring of financial statements. Consistent to Guay *et al.*, (1996), in the overall sample period, discretionary accruals are positively related to firm returns. However, in the post SOX period, the relationship between discretionary accruals and firm returns is negative.

All in all, the results provides strong evidence that there need to be a broad based approach in analysing financial statement information's through an evaluation of different sets of information. It is important to note that, different earnings management metrics are employed to investigate the influence of earnings management in the post SOX period. Further, investigations embrace the policy implications which constitute a stronger signal to the financial markets. That is, in periods of strict regulation of financial markets, firms are less likely to manipulate earnings to influence their performance. Even when firms manage earnings, investors quickly discount earnings management practices in their valuation of these companies. From an investor's point of view, there have been greater benefits to the public as a result of the enactment of the Sarbanes-Oxley Act of 2002 through increased accountability and monitoring by the investing community and presumably other stakeholders like the media. One important motive for this research was to investigate whether managers substitute real versus accrual management techniques in period of stricter financial statement regulations. What follows is that there is no clear evidence to support this assertion.

6.0: Summary of Findings, Conclusions and Recommendations.

6.1: Introduction.

The first section is a summary of the two key empirical chapters that forms the main results of the study; a second section where the main contributions and limitations of the essays are discussed follows this. The third sections addresses the implications of the results for policy makers, investors, corporate managers and academics, and a final section, section four presents the recommendations for future research.

6.2: Summary of the Chapters.

The notes below summarises the two main empirical essays around several characteristics that include: 1) aim of the essays 2) dependent variables in focus, independent variables and control variables, 3) research design issues 4) main empirical results. The reason for summarising the essays in this way was to assist in structuring the findings of the individual essays and provides an overview of the overall objective of the dissertation.

6.2.1: Empirical Essay 1.

The objective of Chapter 1 is to examine the relationship between discretionary accruals and Insider trading and discusses how this relationship has changed as a result of the introduction of the Sarbanes-Oxley Act (SOX) of 2002. The research specifically aims to provide answers to the following research questions:

1-Has the regulatory intervention (Sarbanes-Oxley Act), provided the desired effects which are:

- To suppress earnings manipulation thereby improving the quality of earnings?
- To suppress earnings manipulation motivated by prior insider trades.

2- Does insiders trading in their corporations stocks provide information about future earnings performance?

The original sample is the S&P 500 firms as of March 2007 and includes all firms in the sample from the period 1997 to 2007. Results are reported for an unbalanced sample of firms covering the period of analysis. As discussed, there are two key dependent variables, which are the discretionary accruals, and the net shares traded that define whether a firm's insiders are net buyers or sellers of their corporations stock. From the theoretical constructs underlying research in the area, several independent variables are included in the thesis that

includes forecast errors (FE), future returns (FRET), a dummy to capture the inception of the Sarbanes Oxley Act (SOX). Additional independent variables to incorporate the impact of the Sarbanes-Oxley Act of 2002 include $NST*SOX$, $DA*SOX$, $FRET*SOX$. The analysis also controls for size (Park and Park, 2006), growth opportunities (see Skinner and Sloan, 2002), debt covenant obligations (see Watts and Zimmerman, 1990, Klein 2002), firm performances ((see Skinner and Sloan, 2002) using respectively the variable SIZE, MTB, LEV, NI as independent variables in the regression analysis.

Since theoretical arguments suggest that the relationship between insider trading and earnings management might be jointly determined, I provide additional tests for the Causal Relationship between insider trading and Earnings Management Using Two-Stage Least Squares. To test the robustness of my empirical results, I conduct additional tests using other earnings management proxies that have become popular in the literature. They include real earnings management through changes in discretionary expenses as discussed by Roychowdhury, (2006), and the rank variable model using the M-Score (Beneish, 1997, 1999). The use of the M-Score as a proxy for earnings management is a slight departure from previous studies. The M-Score (a Rank Variable) focuses on financial statements distortions and conditions that suggest earnings Manipulations. Using these alternative definitions of earnings management facilitates a more effective comparison of the results of this study and other alternative models that employ other earnings management proxies. It also helps the researcher see if the results reported earlier are changed using these different earnings management proxies.

I document that on average, companies employ negative discretionary accruals to manage earnings and are also net sellers of their stock. After the introduction of the Sarbanes-Oxley Act, the quality of earnings have improved as companies use less discretionary accruals to manage reported earnings. In the overall sample period, there is a positive relationship between prior year discretionary accruals and one-year ahead stock returns. This suggests that discretionary accruals are customarily used to boost reported earnings leading to a positive stock return. However, in the post SOX period, investors do not fixate on the earnings figure. When managers employ discretionary accounting techniques to improve reported earnings post SOX, investors discount the stocks of these companies leading to negative stock returns. I also test the relationship between current period insider trading and future returns. Ideally, insiders with private information about the economy, the firm's future prospects and its effects on its cash flow and earnings, might form expectations and trade on that basis without necessarily employing discretionary accruals

to influence the public information (reported earnings). The findings suggest that in the overall sample period, insider trading is positively related to post transaction stock returns. However, in the post SOX period, managers are less likely to time their trade based on overall market and economic fundamentals even when they are not interested in influencing reported earnings. These suggest that SOX has improved the integrity of the US financial market. Overall, the results suggest that market participants detect and react to insider trading and earnings management practices under conditions of stricter regulations.

6.2.2: Empirical Essay 2.

The purpose of this essay is to empirically assess the relationship between a comprehensive set of earnings management signals and future firm performance. Its primary purpose is to verify whether there have been substantial benefits to the public as a result of the enactment of the SOX through (i) improvements in earnings quality as a result of the SOX (ii) if investors price the level of earnings management present in the financial statements. The research aims to answer the following question as to whether: After Sarbanes Oxley, stocks of suspect firms (firms with low earnings quality as measured by the Probability of manipulation, abnormal changes in the various accruals and real earnings management items) exhibit negative stock price performance while those of non-suspect firms (firms with high earnings quality) exhibit positive stock price performance?

The original sample for this study is the S&P 500 firms as at March 2007 and covers data from the period of 1997 to 2006. Results are reported for an unbalanced sample of firms from 1997 to 2006 giving five consecutive years for analysis of the pre and post SOX studies. The Beneish (1997, 1999) M-Score is used to detect probability of financial statements fraud, the Modified Jones (1995) model by Dechow et al., (1995) is used to measure discretionary accruals and finally the Roychowdhury, (2007) model used to measure real earnings management as defined by abnormal changes in discretionary expenses, abnormal production cost, abnormal changes in inventory, abnormal changes in receivables, abnormal accruals as measures of earnings quality. In the main returns/earnings relationship that forms the basis of these tests, the dependent variable is the FRET that is used as a proxy for firm performance. Independent variables include X which is the proxy for earnings quality, as employed by the researcher, SOX is a dichotomous variable set equal to 1 for firm years in the SOX period and zero otherwise. Other independent variables included as control variables that have been found to influence firm performance include LEV measures debt covenant obligations (Reynolds and Francis,

2000), SIZE (Collins and Kothari, 1989, Collins et al., 1997) growth opportunities as in MTB (Collins and Kothari, 1989). Other variables included are SUS_FIRM which is a dummy set equal to 1 if the firm year is at the highest decile of the Probability of manipulation, and at the highest decile for the absolute values for the estimated real earnings management and discretionary accruals values. To capture the impact of the SOX, two interactive variables are included in the regression like X*SOX (which captures the impact of the earnings management proxy in the post SOX era) and SUS_FIRM*SOX (captures the impact of high earnings management in the post SOX era).

Overall, the test provides evidence of greater monitoring of financial statements in the post SOX era. On average, when firm's attempt to manage earnings post SOX, investors discount this through disappointing stock returns. One interesting result relates to the greater predictive power of abnormal changes in inventory. Increases in inventory are negatively related to future stock returns both in the overall sample period and in the post SOX period. This suggests that investors discount firms that stockpile inventory even before the greater monitoring of financial statements. Overall, the results suggest a broad based approach in analysing financial statement information's through an evaluation of different sets of financial information. The implications point to the fact that there have been greater benefits to the public as a result of the enactment of the Sarbanes-Oxley Act of 2002 through increased accountability and monitoring of financial statements. However, the results does not provide any clear evidence that managers substitute to real earnings management when tighter regulatory control restrict accrual earnings management.

6.3: Contributions and Limitations.

6.3.1: Research Contributions.

6.3.1.1: New Research Focus:

Empirical Essay 1- Prior research has provided evidence in support of large market value losses in the event of a revelation of regulatory violation involving accounting fraud (Karpoff et al., 2007). In such vein, the avoidance of such losses should become the primary responsibility of the regulators and investors alike. However, there is little evidence in the literature to suggest that regulators and investors can conveniently see through earnings management practices for regulatory purposes (Healy and Whalen, 1999). This research provides a new focus in that; it introduces a new variable that embraces the policy implications, in the context of research relating to the relationship between insider trading and earnings management on the one hand and earnings management and firm performance on the other hand. The SOX variable is used in Essay 1 specifically to evaluate the impact of Sarbanes-Oxley Act of 2002 on the use of discretionary accruals to benefit from insider trading in their corporations stocks. In essay 2, the SOX variable is used to analyse the stock price behaviour base on different earnings management techniques in the post Sarbanes-Oxley Era.

Essay 2- In essay 2, the researcher examines the relationship between earnings quality and firm performance in the light of the regulatory intervention (SOX). This is because due the effect of financial market regulations, different forms of earnings management might be discounted differently by investors. Although prior research has addressed the issues of earnings quality and stock returns (proxy for firm performance) using a comprehensive set of earnings management proxy, this is the literature to discuss this issues in the light of the regulatory intervention.

The thesis aim is to analyse and test the presumption that the stock market is sensitive to specific earnings management proxies that have become popular in the academic literature (discretionary accruals) and that a wider set of information from financial statements might have rich predictive power. This is specifically true when stringent measures are put in place like the Sarbanes-Oxley Act of 2002. The researcher therefore examines the relationship between earnings management (using different proxies) and firm performance and evaluates how this relationship has changed as a result of the introduction of the Sarbanes-Oxley Act of 2002. Specifically, the researcher employed three measures of

earnings quality that is popular in the accounting literature using financial statements data: (1) the Beneish (1999) M-Score that rank firms according to their probability of financial statements manipulations (2) the discretionary accruals models by Dechow *et al.* (1995) (3) and estimates of real earnings management involving abnormal changes in discretionary expenses, abnormal changes in production costs, abnormal changes in receivables, abnormal changes in inventory, and abnormal operating accruals. Results point to the fact that firms are less likely to employ discretionary and real earnings management techniques to influence reported earnings after the introduction of SOX. In the post SOX period, investors discount myopic earnings management practices through disappointing stock returns. Finally, the results does not provide any clear evidence that managers substitute to real earnings management when tighter regulatory scrutiny restrict earnings management via accrual manipulations.

6.3.1.2: Refinement of Statistical Technique.

Essay 1-The literature suggests a causal relationship between insider trading and earnings management hence problems with endogeneity. The Hausman (1976) specification error tests can be used to test for simultaneity. It is important to note that, a test for simultaneity is essentially a test of whether an endogenous regressor is correlated with the error term (Gujarati, 1995). As a result of the correlation between the stochastic disturbance term and the endogenous variable, the OLS estimation might not be appropriate for the estimation of an equation in a system of simultaneous equation. In the presence of simultaneity problems, the 2 stage least squares will give estimators that are consistent and efficient (Gujarati, 1995). To obtain consistent estimates on the relationship between discretionary accruals and insider trading, the Thesis employs a 2-stage least squares to solve the implicit endogeneity problem.

Essay 1- in essay 1, there is a robustness check carried out with different types of earnings management proxy. For example, there is not a single research that has controlled for the impact of real earnings management or used the rank variable model to examine the relationship between insider trading and earnings management. It has been documented that strong regulatory regimes influences the use of real earnings management techniques at the expense of the more visible discretionary accruals techniques (Cohen *et al.*, 2004). More recent models like the Rank variable model are more sophisticated, combining operating and financial characteristics to assess the likelihood of a firm's probability of manipulation (Beneish and Nichols, 2005). It is likely that the use of these different models provides an opportunity to test their strengths and weaknesses. This might help different

stakeholders interested in earnings management information to evaluate whether egregious levels of earnings management lead to significant losses to the market like Enron.

6.4.: Limitations of the Research.

This section discusses a number of general limitations of the study.

6.4.1: US Study.

The Thesis is limited in terms of the scope of the countries that its results can be applicable to. The Thesis samples only US companies thus care need to be taken in generalising its results to other markets.

6.4.2: Time Period of Study.

The time period of the study is the period after the recent corporate scandals that brought enormous wealth loss to the US capital market. These failures preceded the stock market bubble with significant changes in corporate structures like mergers and acquisitions of major US companies. Like previous corporate scandals, the SOX were greatly needed to the US market to ease the pressure on regulators and promote the integrity of our capital markets. It is normal that several stakeholders including investors, regulators and managers ought to restructure their beliefs and values to avoid causing another embarrassment to the entire market. It may not be possible to generalise the results to other time periods.

6.4.3: Industry Analysis.

Though the research employed a cross sectional and time series analysis to calculate several metrics, the results reported are generalised for the entire sample. They are not reported on a cross sectional basis. This suggests that, they might reflect the entire S&P 500 companies and not specific industries.

6.4.4: Limitation of Scope.

The statistical studies employed measures the relationship between a selected numbers of variables for the S&P 500 firms over a specified period. As in most market based accounting and finance research, all the variables employed have been well defined and quantified with mostly averages used. However, in order to quantify the variables above, the researcher must make simplifying assumptions linked to practical realities and to formalize the empirical reality that is to be studied. This suggests that what is being proven must somewhat be limited in scope. Moreover, many valued logic has been employed

based on the researchers own investigation of what prior research has found. Though the fundamental differences with prior research have been made explicit, to make clear the thesis' contribution, it is important to investigate this same research using other techniques.

6.4.5: Survivorship Bias.

The study compares firms in the pre and post SOX period. The implications are that there is need for an automatic requirement for a constant sample of firms for the entire 10-year period of the study in order to eliminate the effect of differences in firms that initially appear in the latter period. As in Jenkins et al., (2006), the research believes while this sample restriction technique may somewhat induce a survivorship bias, the believe is that any resulting detrimental effect has been eclipsed by the benefit of eliminating potential volatility in the data that may be caused by the introduction of certain firms in specific periods.

6.5: Implications of the Results.

This section presents the implications of the results of the essays for policy makers, investors, corporate managers and academics.

6.5.1: Implications for Policy Makers.

Since many executives are customarily fascinated by reported earnings figure and this affects stock prices, managers might be concerned about their inability to manage earnings as a result of responsive new and stringent regulations. In Essay 1, the result suggests that market participants detect and react to insider trading and earnings management practices under conditions of stricter regulations. As documented by Cohen (2007), firms might switch from accrual based to real earnings management as a result of the introduction of the SOX. My point of departure with regards to the implications for policy makers are based on the assumptions that mandatory regulations might influence the trade-off between real and discretionary earnings management and their impact on firm performances and insider trading still needs to be investigated. Policy makers should focus their attention on a comprehensive set of earnings management signals and not just discretionary accruals. Tests in Essay 2 provide evidence of greater monitoring of financial statements in the post SOX era. On average, when firm's attempt to manage earnings post SOX, investors discount this through disappointing stock returns. The results point to the fact that there have been greater benefits to the public as a result of the enactment of the Sarbanes-Oxley

Act of 2002 through increased accountability and monitoring as a result of SEC decisions. However, the results does not provide any clear evidence that managers substitute to real earnings management when tighter regulatory controls restrict accruals earnings management.

6.5.2: Implications for Investors.

The empirical results in both essays reveal that a broader set of information from financial statements might guide investors about the types of ways firms manage earnings and warn that they should not just fixate on reported earnings alone and accruals techniques alone. It further suggests that investors should not rely only on annual report disclosures alone, but should monitor and evaluate the firms' report to be able to ascertain if the firm has managed its earnings or not. In Essay 1, the evidence point to the importance of stricter regulations. The results suggest that, overall market participants detect and react to insider trading and earnings management practices under conditions of stricter regulations. In Essay 2 for example, the results points to the fact that, when firm's attempt to manage earnings post SOX, investors readily unravel their valuation effects as envisaged through disappointing stock returns. One interesting result relates to the greater predictive power of abnormal changes in inventory. Increases in inventory are negatively related to future stock returns both in the overall sample period and in the post SOX period. This suggests that investors discount firms that stockpile inventory even before the greater monitoring of financial statements following SOX. Overall, the results suggest a broad based approach in analysing financial statement information's through an evaluation of different sets of financial information's. Furthermore, insider trading is positively related to post transaction stock returns. However, in the post SOX period, managers are ideally less likely to time their trade based on overall market and economic fundamentals even when they are not interested in influencing reported earnings.

6.5.3: Implications for Corporate Managers.

The implications for corporate manager's point to the fact that there have been greater monitoring of financial reports of recent and that a comprehensive set of earnings management practices have recently gained attention. There is no need to consider switching techniques under stricter regulations as suggested by Cohen et al., (2007), as this can still be unravelled by all stakeholders leading to large wealth losses by external investors and resulting criminal penalties to the managers. The conclusion in essay one points to the fact that SOX has improved the integrity of the US financial market and that

market participants detect and react to insider trading and earnings management practices under conditions of stricter regulations. In Essay 2, the results argue that, when firm's attempt to manage earnings post SOX, investors discount their stocks through disappointing stock returns. This suggests greater vigilance of financial reports as investors strive to gain a clearer picture of financial statements.

6.6: Suggestions for Future Research.

This section proposes a number of suggestions for future research arising from the two independent essays.

6.6.1: Studies of International Influences of SOX.

The author believes that future research should investigate the impact of SOX internationally. The scandals affected not only US companies but were spread internationally. In such vein, even non-US companies might be affected by the SOX regulations and researchers need to investigate how other capital markets are reacting to SOX regulations. Moreover, other countries followed the US to impose responsive new regulations to their capital markets. Additional work need to be done to ascertain if these regulations have been cost efficient to their respective capital markets.

6.6.2: Research on Earnings Management.

The results of the two essays clearly demonstrate the usefulness of distinguishing between real and discretionary earnings management by academic research. The traditional starting point in the measuring of earnings management in the popular accounting literature has been the use of discretionary accruals. The author believes that it is important for future academic research to continue the refinement of the statistical properties involved and the techniques used to measure these two strands of earnings management practices. In a bid to avoid erroneous interpretation and see if results reported earlier are changed, the author suggests that when researchers utilize one technique, they should robustly test for the other to avoid confusing a reduction in earnings management for a change in the style of earnings management.

Table 17: Summary of the Essays.

<i>Characteristics</i>	<i>Empirical Essay 1.</i>	<i>Empirical Essay 2.</i>
Research Area and main title of the chapter.	Empirical finance and Market based Accounting: Sarbanes Oxley Act, Insider Trading and Earnings Management.	Empirical finance and Market based Accounting: Earnings Quality and Firm Performance: Examining the Changes in the Post Sarbanes-Oxley Era with the S&P 500 Index.
Aims.	To investigate the relationship between insiders trading and earnings management to be able to factor out the impact of SOX provisions on the perceived credibility of the US financial markets.	To investigate market response to material weaknesses in the financial statements. For example if investors truly care about firms disclosures and how they factor that out in their trades in the company's stocks.
Research questions.	<p>Has the regulatory intervention (Sarbanes-Oxley Act), provided the desired effect?</p> <ol style="list-style-type: none"> 1- To suppress earnings manipulation thereby improving the quality of earnings? 2- To suppress earnings manipulation conditional on prior insider trades? 3- Are insider trading of their corporations stocks informative to future earnings performance? 	<p>1-Has the magnitude of earnings management reduced as a result of the introduction of the Sarbanes Oxley Act of 2002?</p> <p>2-After SOX provisions, do investors and analysts respond to earnings management practices by discounting the stocks of suspect firms (firms with low earnings quality) and trading on stocks of non suspect firms (firms with high earnings quality), thereby improving the stock price performance of non suspect firms?</p>

Dependent variables.	Insider trading, forecast errors and earnings management proxies.	Firm performance metrics. Stock returns (market responses) and operating performance metric (Net income).
Independent variables.	Accruals earnings management, control variables, real earnings management proxies, SOX proxies and other interactive variables.	Real and accruals earnings management proxies. Real earnings management proxies include estimates of abnormal changes in discretionary R&D, Selling and administrative asset sales, production costs, abnormal changes in account receivables, etc SOX proxies and other interactive variables.
Control variables.		
Statistical methods.	Descriptive evidences, Pearson correlation, regression analysis, Hausman tests and the 2 stage least squares.	Descriptive evidences, Pearson correlation and regression analysis.
Academic models employed.	Modified Jones Model. Hausman Test 2-Stage Least Squares.	Beneish M-Score. Modified Jones model to estimate discretionary accruals. Roychowdhury model to estimate real earnings management proxies (abnormal changes in discretionary expenses, abnormal production cost, abnormal changes in inventory, abnormal changes in receivables, abnormal accruals as measures of earnings quality).

Sample of firms in the analysis.	S&P 500	S&P 500
Period covered in the analysis.	1997-2006	1997-2006.
Type of study.	Time series cross sectional study.	Time series and cross sectional study.
Main empirical findings.	<p>In the post SOX period, investors do not fixate on the earnings figure. When managers employ discretionary accounting techniques to influence reported earnings post SOX, investors discount the stocks of these companies leading to negative stock returns.</p> <p>In the overall sample period, insider trading is positively related to post transaction stock returns. However, in the post SOX period, managers are ideally less likely to time their trade based on overall market and economic fundamentals. Overall, the results suggest that market participants detect and react to insider trading and earnings management practices under conditions of strict regulations.</p> <p>After SOX, firms are less likely to employ discretionary and real earnings management proxies to influence reported earnings.</p> <p>In the post SOX period, investors are able to discount the impact of earnings management practices for firms that attempt to manage earnings.</p> <p>After SOX, investors are concerned about firm's earnings management practices; they consider firms with low earnings quality as riskier investments and avoid investing on those stocks.</p>	

Contribution	<p>The research addresses the policy implications on insider trading and earnings management relationship (Sarbanes Oxley Act of 2002).</p> <p>Test for simultaneity (Hausman test) recognised a causal relationship between insider trading and earnings management. To address the joint determination (insider trading and earnings management), the research employs the two-stage least squares.</p>	<p>Develops empirical methods to test the influence of legislative actions on discretionary and real earnings management practices.</p> <p>Secondly, in the light of the legislative actions, it investigates if investors can discount the impact of earnings management practices.</p>
Key limitations and suggestions for future research.	<p>Sample size.</p> <p>US study and cannot be used to evaluate other markets.</p> <p>Industry variations not reported.</p>	<p>Sample size,</p> <p>US study and cannot be used to evaluate other markets.</p> <p>Industry variations not reported.</p>

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