

AN ANALYSIS OF FINANCIAL STATEMENT FRAUD AT THE ASSERTION LEVEL

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SUMMARY: This study investigates which assertions tend to be violated when management issues fraudulent financial statements. Using a sample of companies with alleged involvement in accounting manipulations as documented in Accounting and Auditing Enforcement Releases issued by the Securities and Exchanges Commission, the results suggest that the *occurrence* and *cutoff* assertions are the major assertions at risk for revenue transactions and *accuracy* for expense transactions. We present evidence that violations of the *occurrence* assertion are associated with boards that are dominated by a few individuals. The findings are consistent with the importance of considering the *occurrence* assertion in relation to potential management override of controls in fraud assessment.

Keywords: Audit assertion, financial statement fraud.

Data Availability: Publicly available or commercially available from sources outlined in the text.

INTRODUCTION

Although audit standards, audit education and audit practice focus on the use of assertions to plan the conduct of the audit, relatively few studies directly examine the link between assertions and financial statement fraud. Prior research has identified the types of manipulations that lead to misstatement of the financial statements, and the accounts affected (e.g. Dechow et al. 1996; Smieliauskas 2008, Dechow et al. 2008)¹, but it does not explicitly consider the nature of the manipulations at the *assertion* level.

This study uses examples of alleged manipulations of financial reports to provide descriptive evidence of the assertions most commonly violated in recent major financial frauds. The sample used in this study is chosen from U.S companies alleged to have accounting manipulations as documented in Accounting and Auditing Enforcement Releases (AAERs) issued by the Securities and Exchanges Commission (SEC).

This study initially provides a descriptive analysis to address the research question: “Which assertions at the account level tend to be violated when management overrides the internal controls to issue fraudulent financial statements?” This descriptive, analysis is appropriate because prior research examining these frauds have not explicitly focused on the assertions involved. This analysis shows that the highest frequency of violations is for the *occurrence* assertion for revenue transactions. The *cutoff* assertion is the second most frequently violated assertion for revenue transactions, and the *accuracy* assertion is the major assertion at risk for expense transactions.

Secondly, we extend the analysis by examining risk factors associated with frauds involving a violation of the *occurrence* assertion. We specifically examine the hypothesis

¹ For a comprehensive review of research related to fraud refer to Hogan et al. (2008).

that the dominant power of top management allows management to perpetrate this type of financial statement fraud. We present evidence that violations of the *occurrence* assertion are associated with boards that are dominated by a few individuals.

PRIOR RESEARCH

Auditors are not guarantors, and should not be responsible for detecting all fraud, however the discovery of material misstatement in the financial statements is a major purpose of an audit (SAS No. 99). Since auditing standards require the assessment of risk and collection of sufficient appropriate audit evidence at the assertion level, this study explores the nature of fraudulent transactions at the assertion level.

Material misstatement can arise from: (1) fraudulent financial reporting and (2) misappropriation of assets which result in nonconformity of the financial statements' presentation with generally accepted accounting principles (SAS No. 99). Consistent with prior research (e.g. Zimbelman 1997) this study is restricted to examining fraud which involves intentionally misstating the financial statements.²

Prior research has examined earnings management identified in SEC AAERs (e.g. Feroz et al. 1991, Dechow et al. 1996, Beneish 1997, Bonner et al. 1998, Beasley et al. 2000). This paper focuses on fraud detection from an external auditor's perspective (see for example Graham and Bedard 2003, and Mock and Turner 2005). Auditors use assertions to assess risks by considering the different types of potential misstatements that may occur. More formally, auditors use assertions when assessing risks by determining the different types of misstatements that could occur, and developing audit procedures

² Besides these two sources there are of course other corruption schemes identified by the Association of Certified Fraud Examiners including conflict of interest (e.g. purchases and sales schemes of related parties), bribery (e.g. kickbacks and bid-rigging), illegal gratuities and economic extortion. This study focuses on fraudulent financial reporting.

that are appropriate in the circumstances (Louwers et al. 2007). Hence, we would expect that the frequency of some fraudulent transactions will be correlated with violations of specific assertions.

Assertions are categorized into classes of transactions, account balances and presentation and disclosure. Findings from COSO (1999) indicate that over half of the fraud examined from 1982 to 1997 related to revenue fraud. Therefore, this study focuses on fraudulent transactions related to revenue fraud in particular. The category of assertions relating to classes of transactions during the period being audited is thus of primary concern. Five assertions about transactions and events examined in this study include: *occurrence*, transactions and events that have been recorded have occurred and pertain to the entity; *completeness*, all transactions and events that should have been recorded have been recorded; *accuracy*, amounts and other data relating to recorded transactions and events have been recorded appropriately; *cutoff*, transactions and events have been recorded in the correct accounting period and *classification*, transactions and events have been recorded in the proper accounts.

Although audit standards, audit education and audit practice focus on the use of assertions to plan the conduct of the audit, relatively few studies explicitly examine the link between assertions and financial statement fraud. We argue that it is important to understand the assertions that are most relevant to previous manipulations of the financial statements, in order to better design audits to identify potential management overriding of controls and the resulting financial statement fraud.

Prior literature has found that some assertions are shown to have significant impact on auditors' assessment of inherent risks (IR) and control risks (CR) on specific accounts and transactions. For example, Waller (1993) focuses on accounts receivable

and found assertions such as existence, valuation, completeness, cut-off and accuracy have material influences on the assessment of IR and CR for this account balance; Davis (1996) found assertions such as completeness, existence and valuation have material influences when planning audit procedures for sales transactions. Since some assertions (e.g. existence, cut-off, and completeness) may be at higher risk for specific transactions (e.g. sales, inventory and accounts receivables), an in-depth examination of these assertions can help auditors to identify the irregularities in those transactions at an earlier stage, and thus assist in designing audit procedures for detecting financial statement fraud.

Prior research (e.g. Dechow et al. 1996; Dunn 2004) suggests that the probability of perpetrating financial statement fraud is related to an unequal distribution of executive power. Following Dunn (2004) management power in this study is refers to the structural power and ownership power of the top executives. Once the power of a particular executive, or a small group of executives, is unequally distributed, that is, dominated by a particular group, the top officers are more likely to have perpetrated financial statement fraud relative to firms with a more equally distributed balance of executive authority. The general hypothesis in this study is that, for a sample of companies alleged to have a serious misstatement of the financial statements, as the concentration of power of top management increases, the likelihood of top management having violated particular assertions to perpetrate financial statement fraud increases. Because we find that the *occurrence* assertion is the most frequently violated assertion, we examine the risk factors associated with violation of this assertion. We specifically examine whether the probability of the violation of the *occurrence* assertion is positively associated with a higher concentration of management power.

SAMPLE AND RESEARCH DESIGN

A sample of U.S. companies with alleged accounting manipulations is selected from the SEC's Accounting and Auditing Enforcement Releases (AAERs). AAERs are issued by the SEC and provide one of the few documented sources of information across a sufficiently large population of companies that have been alleged to be involved in fraudulent activities to enable systematic research (Beasley 1996; Dechow et al. 1996; Carcello and Nagy 2004; Dechow et al. 2008).³ The full population of AAERs includes allegations of illegal acts that do not directly affect financial statements. Because this paper is concerned with financial statement related fraud, the initial sample selection only includes AAERs involving an accusation of violating Section 10(b) of the 1934 Securities Exchange Act, Rule 10b-5, or Section 17(a) of the 1933 Securities Exchange Act.^{4,5}

Sample Selection Procedure

The sample selection procedure is summarized in Table 1. All AAERs from AAER number 2158 through AAER number 2817 were reviewed, covering AAERs dated from January 1st, 2005 to April 30th, 2008. There are 660 AAERs in total during this period. From these 660 AAERs, 20 could not be collected because they are not available on the SEC's database, 14 are the correction of a previous order or are orders for further suspension, and 14 do not involve a specific company name, resulting in a sample of 612 AAERs.

Since AAERs report actions against companies as well as their managers, auditors

³ SEC AAER's are one of the few sources for systematically examining fraud related to financial statements. Survey based research has been conducted where the focus is fraud involving the misappropriation of assets (e.g. Coram et al. 2008).

⁴ Section 17(a) of the 1933 Securities Act has similar content with Section 10(b) of the 1934 Securities Act.

⁵ This selection criterion is consistent with Skousen and Wright (2006), while Dechow et al. (2008) adopt a broader selection criterion when studying earnings manipulations in general.

and other related parties, the same company can have multiple releases. The 612 releases represent 304 distinct companies (the second column of Table 1). Of these, 45 companies are excluded because a valid CUSIP identifier is unavailable, and 98 companies are excluded because they did not violate Section 10(b) of the 1934 Act or were subject to financial statement frauds that cannot be linked to specific reporting periods. The sample is further reduced by 10 companies where the fraud is related to securities fraud. This results in a sample of 151 companies with at least one quarter of allegedly manipulated financial statements.

The third column of Table 1 summarises the number of fraudulent transactions referenced in the AAERs. There are 440 allegedly fraudulent transactions included in the sample. For completeness the fourth column of Table 1 includes a calculation of the sample size used in the multivariate analysis. There are 346 company-year observations for 151 companies with financial statement fraud. A further 77 observations are excluded for companies with only manipulated quarterly financial statements, and a further 47 observations are excluded for companies with missing financial data. This leaves 222 company-year observations with at least one year of manipulated financial statements. These 222 company-years are matched to comparison companies by year, industry and company size, resulting in a final sample of 444 observations.

(Insert Table 1 here)

Research Approach

The initial approach is descriptive providing detail of the assertions violated in SEC documented fraud cases. This analysis identifies that the major risk for fraudulent transactions is the *occurrence* assertion for revenue transactions. A secondary

multivariate analysis is conducted using a logistic regression model to examine the determinants of the probability of the violation of the *occurrence* assertion for revenue. The independent variables are the various risk factors that potentially explain the probability of fraud resulting in violation of the occurrence assertion. Of particular interests are the variables that measure concentration of management power. Other variables are included to control for the known determinants of fraud (from Dechow et al 2008). The relationships are analysed by using the following logistic regression with each of the variables discussed below (company and year subscripts are ignored):

$$\begin{aligned}
 P(Occur) = & \alpha + \beta_1 Board_titles + \beta_2 CEO_dual + \beta_3 Exe_shares + \beta_4 Services + \beta_5 High_shares \\
 & + \beta_6 LogTA + \beta_7 Computers + \beta_8 Retail + \beta_9 SCAR \\
 & + \beta_{10} Post_2002 + \beta_{11} Rsst + \beta_{12} Ch_rec + \beta_{13} Ch_cs + \beta_{14} Ch_cm \\
 & + \beta_{15} Ch_earn + \beta_{16} Ch_top + \beta_{17} Leasedum + \beta_{18} Oplease + \beta_{19} Exfin \\
 & + \beta_{20} Issue + \beta_{21} Cff + \beta_{22} Ep + \varepsilon
 \end{aligned}
 \tag{1}$$

where:

- $P(Occur)$ = the probability of a transaction that violates the *Occurrence* assertion;
 $Occur$ = an indicator variable with a value of 1 for a company with a transaction that violates the occurrence assertion for this financial year as identified in the relevant SEC AAER; and 0 for matched sample of companies;
- $Board_titles$ = the percentage of titles management executives hold out of 10 official titles ;
 CEO_dual = an indicator variable with a value of 1 for CEOs also acts as the Chairman of the Board and 0 otherwise;
- Exe_shares = the percentage of shares owned by top management as a group as a proportion of the common share outstanding;
- $High_shares$ = an indicator variable with a value of 1 when the percentage of shares owned by top management as a group is greater than 50% and 0 otherwise;
- $LogTA$ = log of total assets measured one year prior to the year for which accounting data is reported;
- $Computers$ = SIC codes 3570-3579, 3670-3679, 7370-7379;
 $Retail$ = SIC codes 5000-5999;
 $Services$ = SIC codes 7000-7369, 7380-8999;
- $SCAR$ = the value of size adjusted abnormal return of common stock for the year prior to the year for which accounting data is reported;
- $Post_2002$ = an indicator variable with a value of 1 when the fraud occurred or continues to occur after 2002 and 0 otherwise;
- $Rsst$ = the value of the RSST accrual;
- Ch_rec = the percentage change in receivables;
 Ch_cs = the percentage change in cash from sales excluding year-end accruals;
 Ch_cm = the percentage change in cash margin;
 Ch_earn = the value of change in earnings;
 Ch_top = an indicator variable with a value of 1 when top management or board has

	=	been changed during the fraud period and 0 otherwise;
<i>Leasedum</i>	=	an indicator variable with a value of 1 when future operating lease obligations are greater than zero and 0 otherwise;
<i>Oplease</i>	=	the value of change in the present value of future non-cancellable operating lease obligations deflated by average assets;
<i>Exfin</i>	=	an indicator variable with a value of 1 when ex ante financing need is less than -0.5 and 0 otherwise;
<i>Issue</i>	=	an indicator variable with a value of 1 when the company issued securities during the fraud period and 0 otherwise;
<i>Cff</i>	=	the value of cash flow financing;
<i>Ep</i>	=	the ratio of earnings to price;
ε	=	error term.

The dependant variable *P (Occur)* represents the probability of the violation of the occurrence assertion relative to the matched control sample. *Occur* is set equal to one if the fraudulent transaction violates the *occurrence* assertion, and zero if the observation is a non-fraud company matched by time period, industry and company size. As discussed below the independent variables include the power of top management, plus risk factors typically included to explain the probability of fraud. The financial data is sourced from the COMPUSTAT and CRSP databases, and the characteristics of top management are sourced from the annual reports and proxy statements from the SEC EDGAR filings.

The Power of Top Management

The characteristics of dominant power of top management are examined through measures of structural power and ownership power. Consistent with Beasley (1996), Dechow et al. (1996), Dunn (2004) and Skousen and Wright (2006), a higher number of official titles is used to indicate greater power of an officer. Dunn (2004) specifies the ten titles of clout with respect to financial matters: Chair, Vice-Chair, President, Chief Executive Officer, Chief Financial Officer, Chief Operating Officer, Vice-President Finance, Secretary, Treasurer, and Founder. Therefore, the variable *Board_titles* is defined as the percentage of these titles the executives on the board have out of the ten

official titles. We expect that the higher the proportion of titles the executives have the more likely the occurrence of financial statement fraud, so the coefficient on *Board_titles* is expected to be positive. Further, Dechow et al. (1996) found evidence that one officer acting as both CEO and the Chairman of the Board at the same time, can facilitate his or her opportunity to commit fraud. The variable *CEO_dual* is coded as one if the CEO is also acting as the Chairman of the Board and zero otherwise. The ownership power of top management is further measured by shares held by executives. *Exe_shares* is the shares owned by top management as a percentage of the total common shares outstanding. This measure is supported by a number of prior studies which indicate that when executives have a significant financial stake in a company, they can face increased financial pressure when threatened by the company's poor financial performance (Beasley 1996; COSO 1999; Dunn 2004).

Control of Ownership

Since the executive officers could also include the founder of the company, or family holdings or other blockholders may own more than fifty percent of the total common shares outstanding, it is necessary to consider that such groups would not perpetrate fraud against themselves. The red flag fraud literature however emphasizes the risks associated with young companies dominated by a small group of individuals and hence higher concentration of control is predicted to be associated with a higher probability of fraud. That is, executives with a lot of their wealth at stake in the company are more likely to perpetrate fraud to maintain and enhance the value of company stock. In order to control for the potential influence of these blockholders on the association between *Exe_shares* and the probability of fraud, the variable *High_shares* is introduced as an indicator variable with a value of one when the percentage of shares owned by

board executives as a group is greater than 50% and zero otherwise.

Size and Industry

Skousen and Wright (2006) and Dechow et al. (2008) indicate size and industry membership of manipulating companies have significant relationship with the occurrence of financial statement fraud. In particular, according Dechow et al. (2008), companies in Computer, Retail and Services industries represent nearly half of the total manipulating companies. To be consistent with Dechow's model, the Size (*LogTA*) of the company is measured by the logarithm of total assets one year prior to the year for which accounting data is reported. Sample companies are classified into *Computer, Retail, Services* and other industries by SIC codes.

Measures of Recent Market Performance

SAS No.99 and prior studies (Skousen and Wright 2006; Dechow et al. 2008) indicate that market events and market performance can create financial pressures on management that provide motivation for financial statement fraud. That is, accounting manipulations tends to occur following abnormally good performance or prior to the need for additional financing. Abnormally good stock price performance in the year prior to the year of the fraud can provide motivation for financial statement fraud as managers seek to perpetrate the exceptional performance. Stock return performance is captured using the size-adjusted abnormal returns of common stock (*SCAR*) for the year prior to the year for which the financial statements are issued from CRSP. To be consistent with Dechow's model, ex ante need for financing (*Exfin*), actual issuance of new debt or equity (*Issue*), cash flow financing (*Cff*) and earnings to price ratios (*Ep*) are used to measure market-related events of interest.

Post-SOX Time Period

Prior research finds the power of top management impacts the company performance and financial reporting quality (Dechow et al. 1996). However, after the passing of the SOX legislation in 2002, corporate governance requirements have increased. It is expected that the increased regulation will reduce the occurrence of financial statement frauds involving top management overriding internal controls after 2002. As a result, the timing variable is included in the model to examine the changes between the pre and post SOX era. In this study, *Post_2002* is coded as one if the fraud occurred or continues to occur, after 2002 and zero otherwise. This variable potentially provides new evidence on the impact of SOX on the probability of fraud in the post-SOX period relative to the pre-SOX period.

Financial Variables

According to Dechow et al. (2008), manipulation years are associated with unusually high accruals. By testing various measures of accrual quality, they suggest that the more comprehensive *RSST* measure of accruals is more effective at detecting manipulations. *Change in receivables (Ch_rec)* is found to be significant because half of the manipulating companies are alleged to have been manipulating sales. In order to control the variation in financial performance, *change in cash from sales excluding year-end accruals (Ch_cs)*, *cash margins (Ch_cm)* and *change in earnings (Ch_earn)* are included in the model. Change in free cash flows and deferred tax expense will not be tested in this study. Dechow et al. (2008) do not find these variables to be significantly related to accounting manipulations.

Non-financial Variables

Dechow et al. (2008) use two non-financial measures of company performance-

abnormal change in the number of employees and abnormal change in order backlog. These variables are not currently included in the model due to the unavailability of data. Because this study is focused on the role of top management, an indicator variable for a change in top management or board (*Ch_top*) is used. It is coded as one if the composition of top management or the board has been changed during the fraud period and zero otherwise.

Off-balance Sheet Variables

Dechow et al. (2008) indicate that accounting for operating leases allows companies to record lower expenses early on in the life of the lease, and thus the use of operating leases and unusual increases in operating lease activity are positively associated with manipulations. To be consistent with prior research, the existence of operating leases (*Leasedum*) and the change in operating lease activity (*Oplease*) are used as proxies of off-balance sheet variables.

RESULTS

Descriptive Analysis of the Assertions Violated

From the sample of 440 fraudulent transactions, each transaction was reviewed, the manipulations identified, and then coded according to the assertions violated (refer Table 2, codes 1 to 20).⁶ The codes for the fraudulent transactions are categorized into revenue overstatement, expense understatement, expense overstatement and other manipulations unrelated to revenue and expenses.

Of importance to this study, is that the AAERs document financial statement

⁶ The primary coding was performed by the first author and checked by a co-author who has extensive audit experience. Ambiguous transactions were negotiated by the two coders after reviewing the facts of the AAERs and further consultation with third parties where necessary. A simple coding sheet and independent coding could not be used due to the complexity of the frauds and the variation in AAER documentation.

manipulations that are typically perpetrated by, or otherwise involve, senior executives (e.g. Dechow et al.1996; Summer and Sweeney 1998).⁷ Senior executives are typically alleged to have ‘participated’, ‘instructed’ or otherwise ‘abetted’ the falsifying of financial records. The active participation of management is consistent with the strategic management override of internal controls, and the need to consider assertions other than those regarding the controls of the client.⁸

(Insert Table 2)

As can be seen in Panel A of Table 2, revenue overstatement represents nearly half 208 (47.27%) of all 440 fraudulent transactions in the sample. 144 transactions (32.72%) are related to expenses understatement and another 2 transactions related to expenses overstatement representing a percentage of 0.45% of the total sample. Fraudulent transactions other than revenue and expenses misstatements represent 19.56% of all the misstatements in the sample. Table 2 analyses the fraudulent transactions by assertions: Panel B Revenue; Panel C Expenses and Panel D Frauds other than revenue and expenses.

Panel B of Table 2 reports the assertion violated that lead to the revenue overstatement. The violation of the *Occurrence* assertion covers nearly two thirds of all revenue overstatements (144/208, 69%). Revenue fraud primarily arose from the creation of fictitious transactions, such as round-trip and circular transactions (51 transactions)⁹,

⁷ Dechow et al.(2008) report that 49.2% of all AAERs involve top management. When focusing on fraud, we observe a much higher incidence of management involvement to an extent that it is not possible to identify a usable subset of AAERs where top management is not implicated at some level.

⁸ For example, an executive vice-president of Gemstar was alleged to have participated in fraudulent recording and disclosure of revenue including repeatedly signing false management representation letters regarding the status of negotiations to Gemstar’s auditors (AAER 2176, pp. 1-2).

⁹ For example, one of Qwest’s schemes allegedly included swapping with other telecom firms the rights to use fibre-optic strands for no legitimate business reason, and immediate booking of revenues to meet ‘Wall Street’s earnings expectations’ (AAER 2207, pp.2-5). Reliant Resources engaged in round trip power and gas trades (AAER 2197, pp. 1-2). Other examples are more straightforward such as the Managing Director of Humatech who allegedly instructed that a sale be (falsely) recorded and an invoice issued but that the product not be shipped (AAER 2193, pp. 5-9).

and the use of contingent or consignment sales to inflate their revenue for the reporting period (57 transactions)¹⁰. These transactions were not legitimate in nature as they failed to represent the actual transactions, or the underlying transaction did not exist. A further 55 observations violated the *Cutoff* assertion (12.5%), with companies backdating or misdating contracts to improperly record revenue from future period sales or services in the current-year accounts.¹¹

From Panel C of Table 2, it can be seen that fraud companies are also likely to use improper accounting methods to understate expenses (77 cases, 17.5%), suggesting that *Accuracy* is the major assertion of concern in detecting expense misstatements. The fraudulent transactions in this category include failing to write off bad debts, inventory and reserves.¹² Given the nature of double-entry bookkeeping system, the accounts receivables, inventory and reserves in the balance sheet are likely to be overstated, which is consistent with the findings in COSO (1999) that assets overstatement was found to be the second biggest manipulation used by fraud companies. Apart from the *Accuracy* assertion, which is at high risk, another 15.22% of the 440 observations were related to the understatement of expenses, including 25 (5.68%) cases violating the *Completeness* of the reporting, 13 cases (2.95%) of misdating or deferral of expenses, and 29 cases (6.59%) that *Classified* expenses into capital or revenue accounts. Interestingly, there were two cases related to the overstatement of expenses. These transactions involved related parties while the companies created fictitious transactions to overstate expenses for one party and overstate revenue for the other party.

¹⁰ For example, AAER 2404 alleges that “the former heads of the company entered into secret side deals” whereby the customer only had to pay if the software was successfully resold (AAER 2404, pp. 4-10).

¹¹ AER 2382 alleges that the management improperly shifted revenue into earlier quarters, a technique the employees referred to as “Revenue-brought-forward” (AAER 2382, page 5).

¹² For example, AAER 2402 alleges that the Vice President recorded unearned receivables and failed to adequately reserve for excess or obsolete inventory (AAER 2402, page 1).

Panel D of Table 2 reports the fraudulent transactions other than revenue or expense misstatements. Since they were not directly related to specific transactions or events that manipulated revenue or expenses accounts, no audit assertion about classes of transactions is applied to each code. 19.56% of all fraudulent transactions examined are in this category and these are disclosed for completeness of reporting however these are not the primary focus of this paper.

In summary, nearly 80% of the 440 fraudulent transactions alleged by the AAERs from 2005 to 2008 were revenue and expense misstatements. The assertions at highest risk are *Occurrence*, *Accuracy* and *Cutoff* with 32.72%, 17.50% and 15.45% of all observations respectively. These results are consistent with Waller (1993) who found existence, valuation, completeness and cutoff are the major assertions at risk for account receivables and sales accounts¹³. Since audit procedures are linked to the assertions at risk, audit planning should concentrate on obtaining evidence about these risks. That is, auditors need to identify the transaction *Occurrence*, *Accuracy* and *Cutoff* as high-risk areas and plan the procedures that can directly test the faithfulness, accuracy and timing of the transactions and events.

The analysis of these fraudulent transactions at assertion level provides an understanding of the nature of accounting manipulations and how top management were able to undertake manipulation of the financial information. Findings from this descriptive analysis indicate that the majority of the fraudulent transactions were not using routine transactions. Since internal controls exist over the routine transactions of a company, the evidence from these unusual transactions indicates that the controls over

¹³ Audit standards in 1993 specified only five assertions and did not distinguish between account balances and classes of transactions. They were: Existence, Valuation, Completeness, Rights and Obligations and Disclosure. The Completeness, Existence and Valuation assertions are comparable to Completeness, Occurrence, and Accuracy assertions relating to classes of transactions currently defined in the standards.

the specific transactions were easily overridden or bypassed by the management or there was no control at all on these transactions. For example, recognising revenue from fictitious sales (Code 1) would require management to authorise and approve transactions outside sales in the normal course of business. For channel stuffing (Code 3), management override of terms and conditions of sales were made by the issue of side agreements for extended return periods and payment terms. To overstate revenue by backdating or misdating the sales contracts (Code 5), management override of cutoff procedures would be required. Tests on the operation of internal controls are unlikely to detect these types of management override. Therefore, auditors must be aware of assertions with a higher risk of fraud as the result of management override, and consider the need for the increased use of substantive test of details and analytical procedures, when auditing these high-risk areas. For example, the detecting of channel stuffing may require the extension of substantive procedures for accounts receivable such that confirmations would also include confirmation of the terms and condition of sales.¹⁴

Descriptive Statistics

Descriptive statistics reported are in Table 3. Table 3 provides the results of the test of differences in characteristics between the companies which had fraudulent transactions with a violation of an *occurrence* assertion and non-fraud companies matched by time period, industry and company size. Because there are a high proportion of observations with some missing data, the descriptive statistics are presented for all observations with data partially available. The variables *Rsst*, *Ch_rec*, *Ch_cs*, *Ch_cm*, *Ch_earn*, *Cff*, *Ep* and *SCAR* are winsorized at the 1% and 99% level to mitigate the influence

¹⁴ This observation is consistent with Caster et al. (2008) who examine specific issues with confirmation failures documented in AAERs.

of extreme values on the analysis.

(Insert Table 3 here)

By construction the proportion of companies with an *occurrence* assertion violation represents 50% of the sample. As reported in Table 3, the difference in *Board_titles* ($p = 0.002$) indicates that the more concentration of power the top management has as a group, the more likely that top executives use fraudulent transactions with a violation of the *occurrence* assertion to inflate their revenue and profit. The test of *Ch_rec* and *Ch_cs* shows that companies with a violation of the *occurrence* assertion had significant higher changes of receivables and cash sales than the controlled companies ($p = 0.0033$ and 0.0379 respectively). Companies with *occurrence* violation had higher changes in the present value of future non-cancellable operating lease obligations ($p = 0.0248$) and higher cash flows from financing activities ($p = 0.0003$). The difference in *LogTA* indicates that companies with fraudulent financial reporting were larger than control sample companies, despite matching by company size. The difference in *SCAR* is significant at 1% level ($p = 0.0017$), indicating that companies with an *occurrence* assertion violation had a higher prior year abnormal return, consistent with this type of fraud being used to maintain investor perceptions of a successful company.

Multivariate Analysis

A multivariate analysis examines the attributes associated with violation of the *occurrence* assertion by company management Table 2 Panel B Coded 1-4 (total 144). The sample is restricted to observations with available data. Each AAER is included only once. This restricts the sample to 141 observations with an *occurrence* assertion violation and 141 observations with non-fraudulent transactions and a total sample of 282

companies.

(Insert Table 4 here)

The results of the logistic regression are reported in Table 4. Consistent with studies of this type the explanatory power of the model is relatively low (maximum Pseudo r-square 25%) and the results must be interpreted with respect to this limitation. The coefficient on the variable *Board_titles* is positive and significantly different from zero ($p = 0.0018$), suggesting that violations of the *occurrence* assertion are more likely to occur where boards have more concentrated structural power. This result is consistent with the concern that the occurrence assertion is more likely to be violated, where executives have greater opportunity to override controls. Companies are more likely to engage in transactions such as round-trip and circular transactions so as to inflate the accounts receivables. The coefficient on *Ch_rec* is however only marginally significant ($p = 0.0986$).

Positive and significant cumulative abnormal returns (*SCAR*) in the prior year are consistent with managers using manipulations that violate the *occurrence* assertion to try to continue to maintain investor perceptions of a previously successful company. The coefficient on *Cff* is positive and significant at the 1% level, suggesting that companies that manipulate the occurrence of actual transactions are more likely to use financing activities to compensate the cash deficiency. Consistent with the results in Table 3, we find that, despite matching by year, industry and company size, size (*LogTA*) is positively and significantly related to the probability of fraudulent transactions with the violation of the *occurrence* assertion ($p = 0.0257$) suggesting larger companies are more likely to use transactions such as circular transactions to falsify revenue.

Sensitivity Analysis

Two sensitivity analyses are provided to further examine the differences between companies with fraudulent transactions violating the occurrence assertion, companies with fraudulent transactions violating other assertions, and non-fraud companies matched by year, industry and company size. Firstly, we increase the size of the comparison sample by including those companies with fraudulent transactions that violated all assertions, resulting in 222 observations (refer Table 1). We compare companies with violations of the *occurrence* assertion with companies with fraudulent transactions violating other assertions and matched control companies. The dependent variable P (*Occur*) equals to one if the transaction violates the occurrence assertion, and P (*Occur*) equals to zero if the transaction violates other assertions or the transaction does not violate any of the assertions. Table 5 summaries the results. The coefficients on *Board_titles*, *Ch_rec*, *Cff* and *SCAR* are consistent with the results reported in Table 4. Results from *Ch_cm*, *Leasedum* and *Oplease* suggest that companies with fraudulent transactions that violate the *occurrence* assertion are more likely to have higher changes in the cash margin and more future operating lease obligations. Interestingly, we find *CEO_dual* and *Rsst* are negatively related to the probability of the violation of the *occurrence* assertion, which is inconsistent with expectations and prior research.

(Insert Table 5 here)

Secondly, we further differentiate the full sample into three categories and factorise the dependent variable P (*Occur*) to three levels: P (*Occur*) is equal to one if the transaction violates the occurrence assertion, P (*Occur*) is equal to zero if the transaction violates other assertions, and P (*Occur*) is equal to negative one if the transaction does not violate any of the assertions. We use a general linear model to estimate this

relationship. The results are reported in Table 6.¹⁵ The model has an F-value of 4.39, suggesting the differences between the three factor levels are significantly greater than the differences within each factor. Most results are consistent with the results in Table 4 and 5, except for *LogTA* and *Ch_cs* which are significantly related to the probability of fraudulent transactions with the violation of the *occurrence* assertion in the current model. *CEO_dual* and *Rsst* are no longer significant after differentiating between the fraudulent transactions that violate other assertions and non-fraudulent transactions.

CONCLUSION

This study explores factors associated with financial statement fraud by analysing fraudulent transactions at the audit assertion level. Since auditors are required to use assertions to plan the collection of sufficient audit evidence, this analysis has implications for both internal and external auditors when planning an audit to detect the potential risks of financial misstatement.

The results from the descriptive analysis of fraudulent transactions suggest that the *occurrence* and *cutoff* assertions about classes of transactions are the major assertions at risk for revenue transactions and *accuracy* for expense transactions. We also examine risk factors associated with frauds specifically involving a violation of the *occurrence* assertion and in particular the general hypothesis that the dominant power of top management allows management to perpetrate this type of financial statement fraud. The results provide mixed evidence on the ability of observable measures of top management power to explain the probability of fraud. We do find however find some small and

¹⁵ The results with Type III SS from the general linear model are similar to Type I SS, and therefore are not reported for brevity.

significant differences between governance and performance characteristics of companies violating the *occurrence* assertion. We present evidence that violations of the *occurrence* assertion are associated with boards that are dominated by a few individuals.

The findings are generally consistent with the ability of executives to bypass controls and use non-routine transactions to perpetrate financial statement fraud. A potential implication is that a ‘control risk based approach’ to audit, with strong reliance on the operation of internal controls for routine transactions, may fail to detect management override of controls. The identification of non-routine aspects of transactions may require extended procedures directed specifically at the high-risk *occurrence* and *cutoff* assertions.

There are several limitations. Firstly, similar to other studies that use the AAERs selection bias exists because the AAERs are selected by SEC investigators for further action. The companies captured by the SEC are relatively large and are mostly publicly listed companies. This is likely due to the SEC’s incentive to identify only the most material and visible manipulations involving large losses to numerous investors (Dechow et al. 2008). Further, the AAERs do not provide consistent information on the magnitude and details of the manipulations to fully evaluate the nature and extent of particular frauds. Future research is needed, where data permits, to examine the role and effectiveness of assertions in the collection of evidence and identification of frauds of a particular magnitude and type.

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Table 1: Sample selection and description

	AAERs	Companies	Transactions	Company-years
AAER No. 2158 – No. 2817 from 1 January 2005 to 30 April 2008	660			
<i>Less:</i> missing AAERs	(20)			
<i>Less:</i> releases that correct a previous order or order for further suspension	(14)			
<i>Less:</i> releases that do not involve specific company names	(14)			
	612			
<i>Less:</i> companies with multiple releases		(308)		
Number of distinct companies in AAERs		304		
<i>Less:</i> companies without CUSIP		(45)		
<i>Less:</i> enforcements that do not violate Section 10(b) of the 1934 Securities Act (e.g. bribes, disclosure etc.) or enforcement that cannot be linked to specific reporting periods		(98)		
<i>Less:</i> companies with securities fraud		(10)		
Companies with at least one quarter manipulated financial statements		151	440¹	346
<i>Less:</i> companies with quarterly manipulated financial statements				(77)
<i>Less:</i> missing data from COMPUSTAT, SEC filings and CRSP				(47)
Total number of observations (manipulation years)				222
<i>Add:</i> matched control sample				222
Total number of observations with all available data				444²

1. Number of transactions evaluated in Table 2 for type of assertion violated.

2. Tables 5 and 6 include 444 company-year observations. Tables 3 and 4 include only 141 company-year observations with occurrence assertion violations and 141 matched control sample observations.

Table 2: Summary of assertions violated for the sample of alleged financial statement frauds identified from AAERs (n = 440)

Panel A: Overall summary of the frequency of material misstatements

	Panel	N	Percentage*
Revenue overstatement	B	208	47.27%
Expenses understatement	C	144	32.72%
Expenses overstatement	C	2	0.45%
Other frauds not related to revenue or expense misstatements	D	86	19.56%
Total		440	100.00%

* All percentages reported are of the total number of observations (n = 440).

Panel B: Revenue overstatement classified by assertion violated

Assertions	Code	Description of the Code	Misstatements by Code		Misstatements by Assertion	
			Number	Percentage*	Number	Percentage*
Occurrence	1	Recognizing revenue from fictitious transactions (e.g. round-trip, circular transactions).	51	11.59%	144 [†]	32.72%
	2	Forging documents to support the overstatement of revenue;	26	5.91%		
	3	Recognizing revenue from contingent sales or consignment sales (e.g. channel stuffing, non-binding minimum-guarantee distribution contracts). ¹⁶	57	12.95%		
	4	Overstating revenue by improper revenue recognition without regard of GAAP or other financial reporting requirements.	10	2.27%		
Cutoff	5	Backdating or misdating contracts to overstate revenue (e.g. revenue recognized on delivery, over-accrue projects revenue, unearned performance warrants, etc.).	55	12.50%	55	12.50%
Classification	6	Misclassifying others as revenue (e.g. reserves, consideration for amending existing agreements, non-operating income, etc.).	9	2.05%	9	2.05%
Total			208	47.27%	208	47.27%

[†]The number of transactions that violated the occurrence assertion is reduced to 141 after excluding for missing financial data (examined in Tables 3 and 4).

¹⁶ This category includes transactions based on contingent contracts as the profits generated from these contracts are not legitimate in nature. These transactions are therefore categorized as the occurrence of revenue rather than cutoff (which refers to the timing of revenue).

Panel C: Expense misstatement classified by assertion violated

Assertions	Code	Description of the Code	Misstatements by Code		Misstatements by Assertion	
			Number	Percentage*	Number	Percentage*
<i>Expense understatement</i>						
Completeness	7	Under-recording expenses.	25	5.68%	25	5.68%
Cutoff	8	Misdating or deferral of expenses (e.g. improper accrual of expenses).	13	2.95%	13	2.95%
Classification	9	Classifying expenses as capital or revenue;	29	6.59%	29	6.59%
Accuracy	10	Improper accounting methods for expenses (e.g. fail to write off bad debts, inventory and reserves).	77	17.50%	77	17.50%
Total			144	32.72%	144	32.72%
<i>Expense overstatement</i>						
Occurrence	11	Fictitious transactions to increase expenses for one party and increase revenue for the other party. ¹⁷	2	0.45%	2	0.45%
Total			2	0.45%	2	0.45%

Panel D: Other frauds not related to revenue or expense misstatements

Code	Description of the Code	Number of misstatements by code	Percentage*
12	Failure to properly report consolidated subsidiary;	3	0.68%
13	Misrepresentation and omissions in the financial statements of material information other than revenue or expenses;	34	7.73%
14	Misclassifying suspense as receivables;	1	0.23%
15	Insider trading;	6	1.36%
16	Made journal entries (or alter entries/accounts) without adequate or complete documents for the transactions other than revenue or expenses;	12	2.73%
17	Misappropriation of assets or investor fund;	1	0.23%
18	Filing false and misleading financial statement by creating phony audit opinion;	9	2.05%
19	Manipulations related to marketable securities;	19	4.32%
20	Unknown category.	1	0.23%
Total		86	19.56%

¹⁷ These transactions can refer to related party transactions, for example, the subsidiary company aided and abetted fraudulent conduct by the employees in the parent company and engaged in a scheme with the parent company causing both companies to misrecorded the purchase or sale transaction.

Table 3: Differences in mean characteristics between a sample of AAERs involving violation of the Occurrence assertion and a sample of control companies matched by time period, industry and size.

	Occurrence Assertion Violation	Control companies	Difference	T-value	Pr > t	
<i>n</i>	141	141				
<i>Board_titles</i>	0.5645	0.5064	0.0581	3.74	0.0002	***
<i>CEO_dual</i>	0.9078	0.9007	0.0071	0.20	0.8403	
<i>Exe_shares</i>	0.1513	0.1831	-0.0318	-1.59	0.1137	
<i>High_shares</i>	0.0496	0.0638	-0.0142	-0.51	0.6028	
<i>LogTA</i>	2.8895	2.6190	0.2705	2.49	0.0132	**
<i>Computers</i>	0.2909	0.2908	0.0001	0.00	1.0000	
<i>Retail</i>	0.0851	0.0851	0.0000	0.00	1.0000	
<i>Services</i>	0.1206	0.1206	0.0000	0.00	1.0000	
<i>SCAR</i>	0.2774	-0.0452	0.3226	3.16	0.0017	***
<i>Post_2002</i>	0.2979	0.2979	0.0000	0.00	1.0000	
<i>Rsst</i>	0.0152	-0.0117	0.0269	0.79	0.4328	
<i>Ch_rec</i>	0.0316	0.0059	0.0257	2.97	0.0033	***
<i>Ch_cs</i>	0.3360	0.1749	0.1611	2.09	0.0379	**
<i>Ch_cm</i>	0.3819	0.0879	0.2940	1.44	0.1502	
<i>Ch_earn</i>	-1.5692	-1.0200	-0.5492	-0.77	0.4439	
<i>Ch_top</i>	0.6809	0.6099	0.0710	1.24	0.2146	
<i>Leasedum</i>	0.9291	0.9433	-0.0142	-0.49	0.6276	
<i>Oplease</i>	0.0149	0.0044	0.0105	2.26	0.0248	**
<i>Exfin</i>	0.0213	0.0567	-0.0354	-1.54	0.1250	
<i>Issue</i>	0.5745	0.4823	0.0922	1.55	0.1218	
<i>Cff</i>	0.0890	0.0153	0.0737	3.65	0.0003	***
<i>Ep</i>	0.0083	-0.0483	0.0566	1.32	0.1885	

*** $p < 0.01$, two-tailed test, ** $p < 0.05$, * $p < 0.10$

Board_titles is the percentage of titles executives hold out of 10 official titles, as stated in the annual report; *CEO_dual* is an indicator variable (1 for CEOs also acting as the Chairman of the Board; 0 otherwise); *Exe_shares* is the percentage of shares owned by top management as a group as a proportion of the common shares outstanding; *High_shares* is an indicator variable (1 for shares greater than 50%; 0 otherwise); *LogTA* is the logarithm of the total assets of the company in the year prior to first accounting manipulation; *Computer* is companies with SIC codes 3570-3579, 3670-3679, 7370-7379; *Retailer* is companies with SIC codes 5000-5999; *Services* is companies with SIC codes 7000-7369, 7380-8999; *SCAR* is the value of size adjusted abnormal return of common stock for the year prior to the year for which accounting data is reported; *Post_2002* is an indicator variable (1 for fraud occurred after 2002; 0 otherwise); *Rsst* is the value of the RSST accrual; *Ch_rec* is the percentage of change in receivables; *Ch_cs* is the percentage change in cash from sales excluding year-end accruals; *Ch_cm* is the percentage change in cash margin; *Ch_earn* is the value of change in earnings; *Ch_top* is an indicator variable (1 for changing in the Board composition; 0 otherwise); *Leasedum* is an indicator variable (1 for future operating lease obligations are greater than 0; 0 otherwise); *Oplease* is the value of change in the present value of future non-cancellable operating lease obligations deflated by average assets; *Exfin* is an indicator variable (1 for ex ante financing need is less than -0.5; 0 otherwise); *Issue* is an indicator variable (1 for new issued securities; 0 otherwise); *Cff* is the value of cash flow financing; *Ep* is the ratio of earnings to price; and ε is the error term.

Table 4: Logistic regression examining the Probability of financial statement fraud with the violation of the Occurrence assertion: Occurrence violation in comparison to matched control sample (n=282)

	Coefficient	Std. Error	Wald Chi-Square	Pr > ChiSq	
<i>const</i>	-2.8755	1.0143	8.0370	0.0046	***
<i>Board_titles</i>	3.5478	1.1379	9.7209	0.0018	***
<i>CEO_dual</i>	-0.4213	0.4960	0.7216	0.3956	
<i>Exe_shares</i>	-1.4012	1.2203	1.3183	0.2509	
<i>High_shares</i>	0.3527	0.8280	0.1814	0.6702	
<i>LogTA</i>	0.4365	0.1957	4.9739	0.0257	**
<i>Computers</i>	-0.0086	0.3617	0.0006	0.9809	
<i>Retail</i>	0.0528	0.5292	0.0100	0.9205	
<i>Services</i>	-0.1751	0.4775	0.1344	0.7139	
<i>SCAR</i>	0.4234	0.1854	5.2169	0.0224	**
<i>Post_2002</i>	-0.0258	0.3027	0.0073	0.9321	
<i>Rsst</i>	-0.6624	0.6069	1.1915	0.2750	
<i>Ch_rec</i>	3.6387	2.2030	2.7282	0.0986	*
<i>Ch_cs</i>	0.2218	0.2279	0.9472	0.3304	
<i>Ch_cm</i>	0.0862	0.0922	0.8756	0.3494	
<i>Ch_earn</i>	-0.0110	0.0227	0.2342	0.6284	
<i>Ch_top</i>	0.3164	0.2941	1.1577	0.2820	
<i>Leasedum</i>	-0.0997	0.5521	0.0326	0.8567	
<i>Oplease</i>	6.0493	4.0709	2.2082	0.1373	
<i>Exfin</i>	-0.2077	0.7826	0.0705	0.7907	
<i>Issue</i>	-0.1992	0.3289	0.3667	0.5448	
<i>Cff</i>	3.2077	1.1367	7.9635	0.0048	***
<i>Ep</i>	0.1709	0.4838	0.1248	0.7239	

Likelihood ratio test: Chi-square = 59.4905 (p-value < .0001)

Max-rescaled R² = 0.2536

*** $p < 0.01$, two-tailed test.

** $p < 0.05$

* $p < 0.10$

P (Occur) is an indicator variable (1 for fraudulent transactions violating the occurrence assertion; 0 otherwise). Refer to Table 3 for definitions of the independent variables.

Table 5: Logistic regression examining the Probability of financial statement fraud with the violation of the Occurrence assertion: Occurrence violation vs. All other companies (n=444)

	Coefficient	Std. Error	Wald Chi-Square	Pr > ChiSq	
<i>const</i>	-2.6615	0.8196	10.5450	0.0012	***
<i>Board_titles</i>	2.5425	0.8704	8.5327	0.0035	***
<i>CEO_dual</i>	-0.7953	0.4232	3.5321	0.0602	*
<i>Exe_shares</i>	-1.5948	1.0064	2.5111	0.1131	
<i>High_shares</i>	0.2982	0.6968	0.1831	0.6687	
<i>LogTA</i>	0.2198	0.1539	2.0395	0.1533	
<i>Computers</i>	-0.4172	0.2928	2.0309	0.1541	
<i>Retail</i>	-0.6267	0.4122	2.3122	0.1284	
<i>Services</i>	-0.4039	0.3666	1.2139	0.2706	
<i>SCAR</i>	0.4211	0.1446	8.4819	0.0036	***
<i>Post_2002</i>	-0.1067	0.2502	0.1818	0.6699	
<i>Rsst</i>	-1.1238	0.5102	4.8522	0.0276	**
<i>Ch_rec</i>	3.4432	1.7456	3.8907	0.0486	**
<i>Ch_cs</i>	0.2693	0.1802	2.2318	0.1352	
<i>Ch_cm</i>	0.1469	0.0678	4.6961	0.0302	**
<i>Ch_earn</i>	-0.0272	0.0199	1.8587	0.1728	
<i>Ch_top</i>	0.0509	0.2452	0.0431	0.8355	
<i>Leasedum</i>	0.8149	0.4189	3.7843	0.0517	*
<i>Oplease</i>	6.2326	3.1397	3.9405	0.0471	**
<i>Exfin</i>	-0.3164	0.7173	0.1946	0.6591	
<i>Issue</i>	0.0272	0.2603	0.0109	0.9168	
<i>Cff</i>	1.4063	0.7095	3.9284	0.0475	**
<i>Ep</i>	0.0672	0.3978	0.0286	0.8658	

Likelihood ratio test: Chi-square = 67.1566 (p-value < .0001)
 Max-rescaled R² = 0.1967

*** $p < 0.01$, two-tailed test.

** $p < 0.05$

* $p < 0.10$

P (Occur) is an indicator variable (1 for fraudulent transactions violating the occurrence assertion; 0 otherwise). Refer to Table 3 for definitions of the independent variables.

Table 6: General linear model: Probability of financial statement fraud with the violation of the Occurrence assertion: A three level analysis of Occurrence violation vs. Other violations vs. Matched Non-fraud Companies (n=444)

	Type I SS	F-value	Pr > F	
<i>Board_titles</i>	23.0244	34.23	<.0001	***
<i>CEO_dual</i>	0.0067	0.01	0.9205	
<i>Exe_shares</i>	1.7944	2.67	0.1032	
<i>High_shares</i>	0.3724	0.55	0.4572	
<i>LogTA</i>	6.0511	9.66	0.0020	***
<i>Computers</i>	0.1542	0.23	0.6323	
<i>Retail</i>	0.1305	0.19	0.6598	
<i>Services</i>	0.0036	0.01	0.9417	
<i>SCAR</i>	4.4883	6.67	0.0101	***
<i>Post_2002</i>	0.4163	0.62	0.4319	
<i>Rsst</i>	1.1123	1.65	0.1991	
<i>Ch_rec</i>	7.6743	11.41	0.0008	***
<i>Ch_cs</i>	2.5098	3.73	0.0541	*
<i>Ch_cm</i>	3.5382	5.26	0.0223	**
<i>Ch_earn</i>	0.4733	0.70	0.4020	
<i>Ch_top</i>	0.1515	0.23	0.6354	
<i>Leasedum</i>	0.8960	1.33	0.2491	
<i>Oplease</i>	3.6419	5.41	0.0205	**
<i>Exfin</i>	0.0734	0.11	0.7413	
<i>Issue</i>	0.1233	0.18	0.6688	
<i>Cff</i>	7.1776	10.67	0.0012	***
<i>Ep</i>	0.7520	1.12	0.2910	

Source	DF	Sum of squares	Mean square	F-value	Pr > F
Model	22	65.0160	2.9553	4.39	<.0001
Error	421	283.2070	0.6727		
Corrected Total	443	348.2230			

$$R^2 = 0.1867$$

*** $p < 0.01$, two-tailed test; ** $p < 0.05$; * $p < 0.10$

P (Occur) is an indicator variable (1 for fraudulent transactions violating the occurrence assertion; 0 for other violations and -1 for non-fraud firms).

Refer to Table 3 for definitions of the independent variables.