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## How Trust underpins auditor fraud risk assessments

Hernandez, J.R.; Groot, T.L.C.M.

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**HOW TRUST UNDERPINS  
AUDITOR FRAUD RISK ASSESSMENTS**

**Jose R Hernandez and  
Tom Groot**

Research Memorandum ARCA-RM-06-17

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*ARCA Amsterdam Research Center in Accounting*  
At: Vrije Universiteit Amsterdam  
FEWEB/ Department of Accounting  
De Boelelaan 1105  
1081 HV AMSTERDAM

Telephone: +31 (0)20 598 6040  
Telefax: +31 (0)20 598 9870  
Email: [jhernandez@feweb.vu.nl](mailto:jhernandez@feweb.vu.nl)

**Abstract:**

This study investigates the nature and extent to which managerial attitudes influence fraud risk perceptions, observations and experiences of audit partners. Using a sample of 5,603 client acceptance and audit continuance assessments at a Big Four audit firm in the Netherlands, this study finds that: (1) manager integrity, honesty, and ethics are considered by audit partners to be of highest importance in fraud risk assessments; (2) the aggressiveness of an organization's revenue recognition and accounting estimates appear to significantly influence auditor fraud risk perceptions; and (3) the quality of the audit-client relationship, and the level of senior management experience, provide important cues influencing auditor perceptions in "low risk" fraud situations, but neither are used to identify nor categorize high fraud risk clients. These empirical findings highlight the significant importance of senior management attitudes in influencing auditor perspectives, accounting for 82% of the variability in fraud risk assessments.

**Keywords:** fraud; ethics; trust; revenue recognition; accounting estimates

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**Survey ARCA RM**

## INTRODUCTION

This study investigates how indications of mistrust and managerial attitudes in an organization's financial reporting culture may be associated with heightened auditor fraud risk assessments.<sup>1</sup> Prior research has found that managerial attitudes and aggressiveness towards financial reporting are important fraud red flags (Loebbecke et al. 1989; Bell and Carcello 2000). There is evidence that the ethical tone in an organization is largely derived from senior management attitudes (Cohen 2002) and that intentions to engage in fraudulent activity are linked to moral reasoning levels (Uddin and Gillett 2002). Empirical research suggests that fraud red flags associated with management attitudes and behaviours carry more weight than motivation and condition red flags (Deshmukh and Talluru 1998); however, such behaviours and attitudes are difficult to observe and empirically study. This study attempts to address this gap in the literature, by examining senior management attitudes from the perspective and experiences of external auditors.<sup>2</sup>

One of the responsibilities of an auditor is to correctly assess the risk of financial fraud at their clients (Zimbelman and Waller 1999; SAS 99; ISA 240).<sup>3</sup> Auditor risk assessments have often been used to study earnings manipulation behaviour and auditor decisions (Bedard and Johnstone 2004; Johnstone 2000) and are used within this study as a basis to study the

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<sup>1</sup> This study is focused on financial reporting fraud and does not consider the broader definition of fraud which covers embezzlement, corruption, and other channels of opportunism, or illegal behaviour. Therefore, the findings from the study of financial reporting fraud need to be constrained to this one type of illegal activity.

<sup>2</sup> This study uses a sample of auditor risk assessments which were performed in the client acceptance and continuance procedures of a Big Four Dutch firm within a two year period.

<sup>3</sup> Wilks and Zimbelman (2004) used a game theory perspective of fraud settings in order to develop suggestions for audit policy and practice action steps intended to improve fraud detection and deterrence. Their overall summary on fraud risk assessments noted that fraud checklist usage may be unreliable; auditors generally overweight cues indicative of management's character, lowering their fraud risk assessment to a too-low level, even though the opportunity and incentives may be high (Jonas 2001; SAS 99) and these clues may be most unreliable; and audit standards should consider how management may manipulate their perception of fraud cues.

importance of management attitudes and trust across fraud risk assessments.<sup>4</sup> This study extends the work of Bell and Carcello (2000) and Loebbecke et al. (1989), and considers managerial ethics, alongside common accounting fraud schemes (management choices) involving revenue recognition and accounting estimates (extending the work of Hernandez and Groot 2006a,b). More specifically, three principal research questions will be investigated. First, as a general question, are indications of mistrust perceived by auditors as important considerations within their fraud risk assessments? Second, are ethical boundaries perceived more important than accounting rule boundaries in relation to fraud? Lastly, is there any guidance or recommendations for the development and improvement of financial reporting cultures, which build trust and potentially reduce instances of fraud?

Practitioner guidelines, as codified in audit standards (SAS 99; ISA 240), have outlined auditor responsibilities in relation to fraud and three conditions generally present when material misstatements due to fraud occur: (a) incentive and pressures on managers; (b) an opportunity to engage in fraud; and (c) managers, and the organization, have an attitude or method of rationalization which justifies their behaviour.<sup>5</sup> In applying such standards, auditors are called to pay special attention to illegal acts (ISA 250; SAS 54)<sup>6</sup> and the materiality or significance of senior management improper conduct in

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<sup>4</sup> Indications of mistrust, capturing dimensions of an organization's financial reporting culture, are defined within this study to cover the ethical conduct of senior management, their honesty, and the aggressiveness of management's accounting practices.

<sup>5</sup> ISA 240 and SAS 99 provide lists of fraud indications, but do not specifically define what an appropriate audit response should look like nor does it address the relative importance of fraud cues.

<sup>6</sup> ISA 250, *Consideration of Laws and Regulations in an Audit of Financial Statements*, which is similar to SAS 54, *Illegal Acts by Clients*, states that the auditor should "obtain an understanding of the nature of the act and the circumstances in which it has occurred, and sufficient other information to evaluate the possible effect on the financial statements." In addition, ISA 250 states that "the auditor should consider the implications of non-compliance [with laws and regulations] in relation to other aspects of the audit, particularly the reliability of management representations." Practitioner auditor guidance, therefore, highlights the importance of senior management integrity, ethics, honesty, and the aggressiveness of an organization's accounting practices as important elements associated with fraud.

relation to the financial statements and management's representations thereof (SAB 99; ISA 320; SAS 54; ISA 250).<sup>7</sup>

The contribution of this study to the existing literature is fourfold. Unlike the models tested by Loebbecke et al. (1989) and Bell and Carcello (2000), which are based on the presence or absence of risk factors, the model in this study contains Likert-type, risk-framed scales permitting more variability in the measurement of fraud risk factors. This study's data does not originate from surveys (Loebbecke et al. 1989; Bell and Carcello 2000; Nelson et al. 2002) or from experiments (as is the case, for instance, in Eining et al. 1997; Gillet and Uddin 2005; Dusenbury et al. 2000), but it is archival data from 5,603 client acceptance and audit continuation decisions made between 2002 and 2004. The type of data and the size of the sample allow the use of structural equation modelling techniques, which enables the analysis of the relative strength of each of the independent variables, as well as their interrelatedness in identifying fraudulent reporting. And, perhaps more important, this study extends the current literature by using non-US data, which may help bridge US research into a European context. The non-United States context is important as most empirical studies of fraud have been restricted to United States' SEC sanctioned firms. This sample of SEC-sanctioned firms covers over 100 companies and has been extensively investigated, but virtually nothing is known about the characteristics of fraud outside the United States, its impact on the capital markets, and whether non-US populations would respond differently to ethical financial reporting matters (Merchant and Rockness 1994). This study investigates the effect of two of the most-often cited fraud scheme areas in the US (revenue recognition

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<sup>7</sup> The degree of non-compliance with laws or ethical codes and the extent of an accounting violation, all refer to a set of rules which require judgement for interpretation. Generally, *materiality* or significance guidelines are used to determine the severity of a violation. ISA 240 distinguishes errors as unintentional misstatements and labels intentional misstatements as fraud. This approach is similar to the one adopted by SEC Staff Accounting Bulletin 99, *Materiality*. The focus on "softer" elements such as intent, aggressiveness, and bias are strong indications why a strong focus on the financial reporting culture warrants the research documented in this paper. The next generation of auditing procedures are not those that focus on complex transactions and control assertions, but those that set and test for boundaries for a sound financial reporting culture within an organization.

and accounting estimates; SEC 2003) and those most often involved in misconduct (senior executives; SEC 2003) within a European context.<sup>8</sup>

This study documents that managerial attitudes significantly affect auditor fraud risk decisions, accounting for 82% of the variability in audit partner judgements (supporting Deshmukh and Talluru 1998). Auditor concerns over senior management ethics and integrity are found to be of highest importance and significance in their assessments of fraud risks, followed by concerns over aggressive revenue recognition and accounting estimates (consistent with Kizirian et al. 2005).<sup>9</sup> At lower fraud propensity levels, indications of mistrust appear to be more driven by accounting practice considerations rather than ethics. This would indicate that accounting convention concerns are more prevalent and initial indications of increased fraud risk. However, across the full sample and after isolating all higher fraud risk assessments, senior management ethical and integrity concerns are found to be more important indications of managerial attitudes, affecting auditor fraud risk observations and shaped by experiences. Therefore, ethical principles may be perceived by auditors as more important boundaries defining the financial reporting culture in an organization, and affecting the likelihood of fraud, more than accounting rules. This could indicate that individual characteristics such as moral reasoning level and organizational conditions (ethical climate) need to be more closely considered by directors

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<sup>8</sup> Further, research into illegal acts has noted that executives who ignore, condone, reward, or participate in past instances of wrongdoing will likely be recidivists (Baucus 1994). Therefore, the financial reporting culture within an organization, shaped by the ethical tone of senior managers, their degree of honesty, and aggressiveness of accounting practices, is likely to be associated with fraud

<sup>9</sup> The audit literature dealing with fraud has found that senior executives are generally responsible for accounting fraud violations (SEC 2003) and that in the majority of cases where auditors recalled management fraud, there were indications of decision-making domination by one person or a small group acting in concert, ethical misconduct, and weak internal controls (Loebbecke et al. 1989; Bell and Carcello 2000). Further, US regulators have noted that the vast majority of accounting violations involved either aggressive revenue recognition or improper recording of expenses or losses (SEC 2003; Bell and Carcello 2000). Corporate cultures, influenced by the policies and practices of senior management, exert strong influence on employee behaviour and can therefore promote serious violations of law, and in such subtle and pervasive fashion that managers may come to lose sight of legal obligations completely (Baucus 1994).



and regulators in devising adequate policies and practices that mitigates this risk within organizations.

The results also show that the honesty and openness reflected in the auditor-management relationship is a significant source of cues which auditors use in gauging an organization's financial reporting culture and its propensity for fraud. However, cues attributable to the quality of the auditor-management relationship and the quality of senior management are not used by auditors (or perceived as important) in their assessment or categorization of higher fraud-risk clients. Both factors appear to be important trust-related red flags, but auditors appear to need additional, more specific indications to classify potential clients in high risk categories. Perhaps, as a possible implication, the next generation of audit procedures are those that seek out indications of management misconduct (e.g., through whistleblower "hotlines") rather than those exclusively focused on accounting errors and information systems.

The remainder of the paper is organized as follows. The next section provides a literature review, based on which an empirical model is developed. The third section discusses the risk assessment sample and describes the research design. The empirical results are given in the fourth section. Conclusions, recommendations, and implications for future research are found in the final section.

## LITERATURE REVIEW AND RESEARCH QUESTIONS

### Differing importance of fraud red flags

There is a substantive amount of research covering the subject of fraud.<sup>10</sup> However, there is limited research on how indications of increased fraud risk can be weighted or put into a model to assess the likelihood of fraud. Hackenbrack (1993) noted that there was a high degree of variability in the importance ratings assigned to various fraud risk factors which appeared partially attributable to the auditors' experience and client size. They noted that auditors assigned primarily to large client engagements place relatively more emphasis on risk factors relating to opportunity to commit fraud than do auditors assigned primarily to smaller companies.

Bell and Carcello (2000) proposed a model useful in predicting the existence of fraudulent financial reporting, which correctly classified 80 percent of the fraud cases while only misclassifying 11 percent of the non-fraud cases. The significant risk factors included in the model were: weak internal control environment, rapid growth, inadequate/inconsistent profitability, undue emphasis on meeting earnings projections, dishonest or overly evasive management, ownership status (private vs. public), and an

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<sup>10</sup> Academic literature, in the fields of psychology, accounting, auditing, law, and economics, provide various complementary theories, which explain why financial fraud arises in business. These disciplines provide alternative hypotheses to control mechanisms, that may help prevent such irregularities. For example, social and cognitive psychology gives insight into human thinking, rationalization, and behaviour at the individual level and within a social context. Management accounting and control literature, particularly literature related to reliance on accounting performance measures (RAPM) and budgeting, gives insight into the behaviour of managers in an accounting performance measurement, control, and evaluation system. Financial reporting research has studied capital market responses to accounting earnings and, in the area of earnings management, provided a wealth of knowledge into manager motivations and conditions that lead to earnings manipulation behaviour. The auditing literature has been studying auditor experiences and application of knowledge in the area of accounting fraud. Legal, criminal, and corporate governance research provide insight into the constraints and behaviours which affect individual managers, executives, boards, and audit committees and the repercussions (from regulators and litigation) of the failure of these groups to exercise their legal and fiduciary duties. Economics has contributed the principal-agency theory, the concept of utility as the basis for explaining that lead to accounting fraud, and the concept of contracts as a means to control agent behaviour.

interaction between a weak control environment and an aggressive attitude toward financial reporting.<sup>11</sup> Apostolou et al. (2001) found that management characteristics and influence over the control environment red flags were approximately twice as important as operating and financial stability characteristics red flags and about four times as important as industry conditions using an analytic hierarchy process.

Albrecht and Romney (1986) found that one-third of the 87 red flags studied were found to be significant predictors of fraud, which generally included personal characteristics of management. Loebbecke et al. (1989) presented the results of a survey of audit partners from KPMG who have had experiences with fraudulent financial reporting and with asset misappropriations. This research established that there were general conditions, motivations and attitudes, which could predict the probability of material irregularities. For example, they found the primary conditions that encouraged fraud included dominated decisions by senior management and weak internal controls.<sup>12</sup> Finally, Loebbecke et al. (1989) compiled the primary set of attitudes, or ethical values, of persons with positions of authority that would allow them to seek out, or partake in, management fraud which included dishonest management, personality anomalies, and lies or evasiveness, particularly to auditors.<sup>13</sup> Loebbecke et al. (1989) found in 75% of observations, there were indications of decision-making domination by one person or small group acting in concert and weak internal controls. Amongst a broader study of fraud indicators, the literature identifies three groups of red flags capturing a specific dimension of the financial reporting culture within organizations: aggressive accounting practices, management ethical attitudes, and the relationship between company managers and their auditor. These will be discussed in the following sections and are the focal point of this study.

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<sup>11</sup> Bell and Carcello's (2000) work notes that there are several risk factors presented in the authoritative guidance and elsewhere in the literature that are not particularly effective in discriminating between fraud and non-fraud engagements.

<sup>12</sup> Other primary conditions included: (i) major transactions were taken advantage of; (ii) there were business dealings with related parties; (iii) internal controls were weak; and (iv) transactions were difficult to audit.

<sup>13</sup> Other primary attitudes / rationalizations included: (i) emphasis on earnings projections; (ii) prior-year irregularities; and (iii) aggressive attitude to financial reporting.

## **Aggressive Accounting practices and Fraud**

Internal controls, particularly over critical accounting areas, are able to codify and capture expectations on legal behaviour, increase the likelihood of detection, punish transgressions, and reward desired behaviour (McKendall et al. 2002, AICPA 2001). Holmes et al. (2002) analyzed 2,600 cases of fraud and noted that organizations with lax management attitudes are more likely to be victimized internally, by both management and non-management employees. Further, the fraud schemes used were more complex, pervasive, and involved collusion in situations with lax management attitudes. Managers with strong incentives to commit fraud prefer weak controls in order to disguise their fraudulent behaviour. Bell and Carcello (2000) confirm that this combination of weak control and aggressive financial reporting contribute significantly to fraud. And, Loebbecke et al. (1989) found that an aggressive, senior management attitude towards financial reporting was an important factor associated with the risk of material irregularities.

The SEC has found that improper revenue recognition is the most common method of accounting fraud, and that aggressive financial estimates made by management (involving estimates of costs and expenses), is the second most common fraud scheme (SEC 2003).<sup>14</sup> It is, therefore, likely that auditors will mistrust the financial reporting environment whenever

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<sup>14</sup> The United States has the world's largest capital markets and also some of the tightest regulatory controls in the area of corporate fraud. The SEC publishes its enforcement actions and this provides a first window to explore the characteristics of firms accused of, or found to have, committed corporate fraud. The SEC has noted, that a significant number of enforcement actions, involve violations of reporting requirements, relate to inadequate books and records, and involve improper accounting controls (SEC 2003). Similarly, the SEC has found that the most common methods of fraudulent financial reporting are:

- (1) overstatement of revenues and assets
- (2) understatement of costs and expenses and liabilities
- (3) manipulation of the timing of when transactions are recorded or events are recognized
- (4) incorrect measurement or estimation of the effects of transactions or events
- (5) misapplication of generally accepted accounting principles ("GAAP")
- (6) misrepresentation or omission of information material to users of financial information.

indications of aggressive accounting practices arise, especially those involving the revenue recognition process and the determination of significant accounting estimates (consistent with SAS 99 and ISA 240).

Victor and Cullen (1988) have noted that ethical behaviour cannot simply be explained by individual characteristics. It seems inappropriate for organizations to exclusively rely on individual integrity to guide behaviour, and thus, organizations must provide the context to support ethical, and discourage unethical, behaviour (Butterfield et al. 2000; Dallas 2003). This support can be given by the company's ethical climate, consisting of the ethical meaning employees attach to organizational (financial reporting) standards, practices and procedures, including the managerial behaviour and reward systems that reflect the corporate norms and values (Barnett and Vaicys 2000; Dallas 2003).

### **Senior Management Ethical Conduct and Fraud**

Management fraud has been found to be typically committed by top management (SEC 2003, Loebbecke et al. 1989). From a legal perspective, firms with executives who ignored, condoned, rewarded, or participated, in past instances of wrongdoing, will likely be recidivists due to the predisposition of their behaviour and attitude (Baucus 1994). Further, Baucus (1994) reports that firms with highly committed employees and a corporate culture reinforcing illegal activities tend also to be predisposed to illegal behaviour. The legal view also reconciles with the view found in the audit literature. Managers, who are generally dishonest and are evasive towards their auditors, are more likely to engage in financial fraud (Loebbecke et al. 1989). Other audit studies – such as Bell and Carcello (2000) – have found, through matched-fraud and no-fraud samples, that overly-evasive or dishonest management is an important, fraud red flag.

The ethics and conduct of senior managers, in a corporation, sets the overall, ethical tone in an organization. It is not corporations that commit financial fraud; rather, fraud is perpetrated by the people within the corporation. It is generally understood that the primary reason why people commit fraud – especially white collar crime – is money (usually, from bonuses or options linked to the appreciation of stock prices), power, advancement, and *hubris* (Baucus 1994). The sample of auditor assessments of firms investigated in this study provides a unique opportunity to investigate whether firms with a higher propensity to commit fraud are more likely to demonstrate indications of ethical misconduct (mistrust).

Empirical research suggests that fraud red flags associated with management attitudes and behaviours carry more weight than motivation and condition red flags (Deshmukh and Talluru 1998). There is also evidence that the ethical tone in an organization is largely derived from senior management attitudes (Cohen et al. 2002). Research notes that a focus on long-term gains and idealist principles (rather than short-term gains and relativism) should have a positive contribution on reducing earnings manipulations (Elias 2002). Further, organizations should promote idealist values and have these be re-enforced through a long-term focus on the business. In an audit setting, management integrity assessments and concerns have been shown to impact the persuasiveness of evidence sought and the auditor's assessment of management integrity improved the likelihood of detecting misstatements (Kizirian et al. 2005).

Research in psychology and organizational behaviour has demonstrated that individuals make egocentric interpretations of fairness and ethics. In situations involving earnings management, where no consensus on acceptable behaviour exists, multiple interpretations of ethical actions are likely to arise (Kaplan 2001). Organizations, therefore, must reduce the moral ambiguity surrounding improper financial reporting and ethical compliance

conduct by providing the right guidance and decision support mechanisms that guide organizational behaviour.<sup>15</sup> Further, Kaplan (2001) has noted there are ethical disagreements and a lack of consensus between shareholders and non-shareholders on what constitutes ethical behaviour and the justifications and rationalizations justifying such actions.

Fraudulent financial reporting starts with small ethical transgressions (Treadway Commission 1987; Merchant and Rockness 1994). Trevino and Youngblood (1990) concluded that ethical decision-making behaviour in organizations results from a complex interplay of individual differences, how individuals think about ethical decisions, and how organizations manage rewards and punishment. They found that ethical decision making was influenced directly by cognitive moral development. In their path analysis, they also found (1) evidence that Locus of Control<sup>16</sup> influenced ethical decision making directly and through outcome expectancies; and (2) vicarious rewards affected ethical decision making indirectly as it influenced outcome expectancy (no significant linkage was found for vicarious punishment).

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<sup>15</sup> Ethical conduct controls within an organization generally are associated with the actions and control practices of organizations which shape the ethical climate. An organization's ethical climate refers to the ethical meaning which employees attach to organizational policies, practices, and procedures that determine the ethical conflicts that are to be considered, the process by which such conflicts are resolved, and the characteristics of the resolution (Dallas 2003). Schnatterly 2003 notes that clarity of policies and procedures and formal cross-company communication significantly reduces the likelihood of a crime. It is important to consider the relationship between ethics and the law. Generally, illegal behaviour is a subset of unethical behaviours, as laws are a means for society to capture our moral standards (Baucus 1994). Therefore, given the importance of the matter, one would have expected that regulators and industry would have detailed best practice guidance on how to organize the ethical and legal compliance functions within an organization. Such lack of guidance is also present in the academic literature.

<sup>16</sup> Trevino and Youngblood (1990) note that individuals with internal Locus of Control ("LOC") are more likely to do what they think is right and to tolerate discomfort or penalty for doing so. The concept of internal-external LOC classifies individuals as either attributing the cause of or control over events to themselves ("internals") or to their surrounding situation ("externals"). The characteristics of "externals" are closely related to the surrounding environment. Ashford et al. (1989) compared "externals" vs. "internals" and found that "internals" generally see environmental situations as being less important and believe that they have the power to counteract environmental threats.

Moral reasoning<sup>17</sup> is an important element that affects economic decisions, including fraudulent ones (Rutledge and Karim 1999). Uddin and Gillette (2002) found evidence that moral reasoning had some effect on intentions of Chief Financial Officers to report fraudulently on financial statements. They also noted having a greater number of high moral reasoners in an organization can decrease the probability of fraud as these individuals are less influenced by social norms. They suggest that addressing the personal attitudes and subjective norms in an organization can be a critical determinant that prevents fraudulent behaviour. It follows that corporations may affect a person's reasoning at the conventional level through its policies and practices by asserting or establishing the definition of what is socially acceptable within the work environment.<sup>18</sup> Under Kohlberg's theory of moral development (1969), researchers have found that managers use lower levels of reasoning in business contexts than in non- business contexts and that managers typically reason at the conventional level (Weber 1990).

Pant et al. (2002) suggest that rather than broad attempts being made to change the moral development of managers, efforts should be placed on sensitizing them to moral issues and how to address these. In turn, this would suggest that an Ethics and Compliance program is necessary within all organizations, but such programs can only work if they are sponsored by senior management. Because of the authority and status of top management, ethics researchers suggest that a high ranking officer in the organization oversee ethical compliance, and that such matters be discussed at the Board and Audit Committee level (Dallas 2003). Generally, as summarized by Dallas (2003), ethics and ethical compliance systems require consideration of:

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<sup>17</sup> Kohlberg (1969) developed a theory of moral development in which persons progress in moral reasoning through three levels: (1) Pre-conventional level, where labels of "good" or "bad" are interpreted in terms of physical consequences (punishment, reward) or in terms of physical power; (2) Conventional level, where active support of the fixed rules or authority in a society becomes the reference criteria; and (3) Post-conventional level, where the individual makes clear effort toward autonomous moral principles with validity apart from the authority of the groups or persons who hold them and apart from individual identifications.

<sup>18</sup> Moral philosophy can be described as the extent to which an individual is a relativist and/or idealist. High relativists (Forsyth, 1980) believe that the morality of an action depends upon the particular circumstances involved and not on moral/universal absolutes. High idealists believe that moral actions should and do have positive consequences and that is it always wrong to pursue a course of action that will cause harm (or affect the welfare of) others.



(i) organizational values; (ii) the nature of organizational decision making; (iii) the values and behaviours of the organization's leaders; (d) the organization's reward systems; (e) the handling of conflicts of interest; (f) the availability of ethical guidance for employees; and (g) the organization's monitoring system.

### **Management-auditor relation and Fraud**

Loebbecke et al. (1989) noted that the relationship between a client's management and the auditor is an important indicator of heightened fraud risk, including frequent disputes with the auditor, undue pressure on auditor, and disrespectful attitudes towards the auditor. Bell and Carcello (2000) confirm this finding and concluded that previous audit experiences had significant predictive abilities for the detection of current fraudulent behaviours, especially when management had been overly evasive in responding to audit inquiries and when management had engaged in frequent disputes with auditors. The strength of audit clients' corporate governance system and the strictness of their management control philosophy are related to greater willingness on the part of the auditor to recommend client acceptance and more likeliness to reduce substantive testing (Cohen and Hanno 2000). Auditors also appear to react to integrity information about a client's Chief Financial Officer (CFO): the CFO's integrity is negatively related to auditors' risk judgments and to recommendations for increasing audit extent and audit fee (Beaulieu 2001). Anderson et al. (2004) found that high incentive situations lead auditors to believe less on explanations given, than low incentive situation. A quantified explanation is viewed more likely to be sufficient than a non-quantified explanation. Audit planning decisions appear to be solely influenced by incentive system and expected resulting aggressiveness in financial accounting. Anderson et al. (2004) also found that when incentives for earnings management are low, auditors appear to fail in considering critical explanatory information contained in the quantified explanations. This study therefore expects auditors' judgments to be partly influenced by pre-audit information and experience about the client's behaviour, conduct and specific audit related circumstances. To do their job

effectively, auditors rely on representations from managers to validate their sample results. If managers are not open, interfere in the audit process, or are not cooperative with the auditors, then this could indicate a heightened risk of financial fraud. Managers who have a tense, or opaque relationship with their auditors, will tend to have a higher probability for financial fraud.

This study predicts the propensity of audit clients' managers to engage in fraudulent financial reporting based on three groups of trust indicators: aggressive accounting practices, senior management ethical conduct and the management-auditor relation (hypothesis 2A and 2B). Following the work of Bell and Carcello (2000) and Loebbecke et al. (1989), this study tests whether independent estimates of these three classes of fraud risk (and trust) indicators ( $X_j$ -risks) are significant and have equal weighting in determining the propensity for fraud (Model 1).

$$Y_i = \beta_0 + \beta_j X_{ij} + \varepsilon_{ij} \quad \text{[MODEL 1]}$$

where

$i$ : 1..N, denoting the sample of auditor client acceptance and continuance risk assessments.

$j$ : 1..J, denoting the number of risk factors being measured in the model.

$N$ : number of auditor assessments of their clients performed over a period of  $z$  years

$X_j$ : denoting risk factors (management attitude and mistrust indicators) associated with the propensity to engage in fraud.<sup>19</sup>

$Y_i$  : denoting the dependent measurement of the propensity to engage in fraud.

$\beta_j$ : represents the independent estimate of the independent risk factor  $X_j$

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<sup>19</sup> Within this study, indications of mistrust, residing within an organization's financial reporting culture, capture: (1) senior management integrity and ethical conduct; (2) honesty and openness of management to the auditor; (3) level of managerial experience and skill; (4) aggressiveness in revenue recognition practices; and (5) historical reliability of accounting estimates. Therefore, the following hypotheses are proposed.

|                       |           |     |               |  |
|-----------------------|-----------|-----|---------------|--|
| <b>Hypothesis 1A:</b> | $\beta_j$ | $>$ | $0$           | <b>for independent estimates of <math>X_j</math></b> |
| <b>Hypothesis 1B:</b> | $\beta_j$ | $=$ | $\beta_{j+1}$ |  |

In addition, these indicators of heightened fraud risk are grouped into constructs ( $\gamma_j$ ) to test the overall relative importance on fraud, and the individual contribution of ethical and accounting principles. Specifically, three elements influencing financial reporting quality and capturing dimensions of trust and managerial attitudes are grouped and measured through specific constructs: ethical tone of senior management, aggressive accounting, and auditor-management relationship. Therefore, the following hypotheses are presented.

|                       |                                 |     |                                     |  |
|-----------------------|---------------------------------|-----|-------------------------------------|--|
| <b>Hypothesis 2A:</b> | $\gamma_j$                      | $>$ | $0$                                 | <b>for independent estimates of <math>X_j</math></b> |
| <b>Hypothesis 2B:</b> | $\gamma_{\text{ethical\_tone}}$ | $=$ | $\gamma_{\text{acctg\_principles}}$ |  |

## **SAMPLE AND RESEARCH DESIGN**

This section is composed of three subsections. The first section discusses the auditor acceptance and continuance process undertaken by a Big Four accounting firm in the Netherlands. The second section gives the sample composition and presents some high-level, descriptive analytics on the sample. Finally, the third section describes the empirical proxies for fraud, unethical management conduct and tone set in the organization, excessive compensation pressures, and a poor control environment.

### **Auditor Acceptance and Continuance Process**

Risk assessment processes are critical to an auditor's design of procedures to detect material, financial statement misstatements, whether caused by fraud or otherwise. International audit standards require that an auditor obtain an understanding of audit risk and its components: inherent risk, control risk, and detection risk (ISA 400). Risk assessment systems at Big

Four accounting firms generally consider all key audit and fraud risk indicators, as suggested by audit standards, either in isolation or through separate questionnaires (Shelton et al. 2001). This study closely the approach employed by Bedard and Johnstone (2004) who used engagement partners' assessments of their clients, as part of their client acceptance and annual audit, continuance, risk assessment, process to examine the relationship between earnings manipulation and corporate governance variables.

The data used in this study was derived from audit partner assessments of their clients during the acceptance and audit continuance process, performed during the years 2002 to 2004, at a Big Four Dutch accounting firm. During this process, partners at the firm perform their preliminary assessments of the various risk factors affecting the probability of an inadequate, audit opinion for particular clients. The risk assessment is completed on a standardized, electronic form which requests that the audit partner select from a range of choices, or risk judgements, based on uniform definitions (adequacy of Big 4 risk assessments discussed by Shelton et al 2001). Once the acceptance and continuance form is completed by an audit manager or the audit partner, the partners must sign the form, and, in certain instances, the form is subject to additional internal, Firm reviews in accordance internal quality, review guidelines. Once the form has been approved, audit partners and managers then proceed to design an audit plan based on any heightened risk conditions identified through the process.

### **Sample Selection and Description**

In total, 5,603 acceptance and continuance risk evaluations were included in this study with only 3% of the assessments discarded due to missing information. These risk assessments include public and private companies, foreign and domestically-owned entities, and cover multiple industries. They are a sub-set of all the audit engagements performed by the

Big Four firm for the years 2002 through 2004. Excluded from the sample were all assessments performed for very small clients (total audit hours less than 500), assessments for non-financial audits, and other services. The remainder of the sample population covers the assessments of approximately 150 audit partners. In the Netherlands, there is a general statutory audit requirement, unless entities qualify for a “small entity” exception, (approximately €8 million revenues and €4 million in assets). Due to confidentiality limitations, information such as the client name, size, audit fees, and other sensitive information was removed from the data provided to the researcher. The Big Four firm uses a proprietary algorithm to arrive at a risk score, and to identify the indicators of increased risk, which are to be considered by the auditor as part of the planning, execution, and completion of the audit. The outputs of such an algorithm, and the ultimate performance of the auditor, were not observable nor the subject of this study.<sup>20</sup>

## Variable Measurement

The participating, Big Four accounting firm’s client acceptance and audit continuance risk assessment process requires audit partners to answer questions on a number of risk factors. Certain of these risk factors are the focus of this study (refer to Appendix 1 for full variable definitions). They are:

- (i) risk associated with the ethical conduct of managers based on perceptions and known instances of potential misconduct ( $X_1$ ; *IntegrityAndEthics*) and risk associated with the experience and skill of the management team ( $X_2$ ; *MgtExperienceDepth*)
- (ii) risk associated with aggressive accounting estimates ( $X_3$ ; *AcctgEstimateReliability*) and revenue recognition practices ( $X_4$ ; *RevenueRecognition*)

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<sup>20</sup> Note that auditors are required to perform specific risk evaluations and design appropriate procedures to meet SAS 99 and ISA 240 requirements dealing with fraud. The evaluations at the sampled Big 4 firm are based on initial risk indications arising from the acceptance and continuance system.

- (iii) risk arising from the lack of openness, trust, and transparency between an auditor and its audit client ( $X_5$ ; *AuditRelationship*).
- (iv) the risk from management inclinations to intentionally misstate financial statements – the proxy for actual fraud ( $Y$ ; *MgtInclin2IntentMisstate*).

Risk evaluation is based on a fully-anchored, five-point risk level instrument, based on a standardized set of framed statements (risk descriptions) and includes an explanation of that particular risk level. Most empirical research has tended to measure fraud red flags using binary variables. Deshmukh and Talluru (1998) note that, in the real world, the differences which exist in certain red flags have been largely ignored in researcher measurement and research models. For example, during an audit, it becomes necessary to consider internal controls on a continuous or categorical scale, rather than on a dichotomous, binary scale.

The empirical proxy used to measure the propensity for fraud in this study is derived from one question in the auditor acceptance and continuance questionnaire. This specific variable measures management inclinations to intentionally misstate financial statements. It is based on the client's approach to financial reporting and past experience which the auditor may have had, or observed, with their client. The first two risk levels of the dependent measure capture the importance managers place on financial reporting; the highest risk levels capture manager disregard or observed attempts to distort or hide material information (refer to Appendix I and Figure 3).

All risks are measured on a five point scale, from lowest to highest, with framed statements to assist the auditor in the process. A Likert scale from 1 (lowest risk) to 5 (highest risk) is used as a basis for analysis. Auditor risk statements are framed to capture auditor perceptions, observations, and suspicious at the lower risk levels. At the higher risk levels auditor recall, evidence of "red flags", and past incidents, are used by auditors to as a basis

for their risk assessments. Therefore, this study relies on auditor perceptions, observations, and auditor recall as the basis of analysis and conclusion.

To validate whether auditors were conscious of their fraud risk assessments (and responses to the dependent variable in this study - *MgtInclin2IntentMisstate*) and acted upon such assessments through additional audit safe-guards, two groups of sample ANOVA mean comparison tests were performed. The first test examined whether audit opinions were significantly affected by higher fraud risk assessments. It was found that higher risk assessments had the following statistical differences (1% level) with the rest of the sample: (i) more modified audit opinions; (ii) more explanatory paragraphs within audit opinions; (iii) there was more communication by the auditors to the Board of potential fraud or illegal acts; (iv) there had been more prior auditor disagreements, resignations, and prior auditor limitations of responses; and (v) there were more prior year errors and account restatements. In addition, a second group of tests for external validity of the dependent variable (using ANOVA means comparison, at the 1% level of significance) suggest that auditors respond to higher fraud risk assessments by refusing to have their audit scope changed, having more complex negotiations with their clients, and by implementing additional internal Firm quality controls (e.g., use of concurrent partners). In summary, there is evidence to suggest that auditors act on their fraud risk assessments and it establishes the external validity of the dependent variable for this study.

## **RESULTS OF EMPIRICAL TESTS**

The discussion of the results is presented in three sections. The first section provides a risk profile of the variables under study and evidence of the positive association between fraud red flags. The second section presents evidence that unethical management actions, aggressive accounting practices, and strained auditor relations are important indications of increased fraud risk. The last section provides evidence of the relative importance of ethical

manager conduct and accounting practices, in relation to the varying levels of fraud risk.

### **The importance of management attitudes**

Table 1 provides descriptive statistics on the indications of mistrust and managerial attitudes, and related risk judgments, across the 5,603 firm auditor assessments. Descriptive results of the sampled population indicate that relatively few clients were assessed as having high risk levels in the variables measured in this study. More specifically, 0.8% of auditor assessments had a low level of management experience and skill and 1.1% were perceived as exhibiting low levels of integrity and ethical behaviour. In the variables which captured aggressive accounting, 0.9% were assessed as having aggressively-structured revenue recognition practices, and 1.3% were assessed as having consistently, unreliable accounting estimates. In addition, 0.4% of entities were considered to have strained, audit-management relationships.

Table 2 provides the Pearson Correlation coefficients for all indicators of mistrust, measuring the managerial attitudes which shape financial reporting cultures of organizations. Consistent with what the literature suggests, all mistrust indications have a strong positive correlation with the risk of fraud (significance at the 1% level). Surprisingly, however, is the magnitude of the correlations assessed by auditors, generally ranging from 0.3 to 0.4. As well, the ethical integrity and conduct of senior management is seen as the single most significant element in fraud risk (0.47), followed by the quality of the audit relationship (0.4).



**TABLE 1: DESCRIPTIVE STATISTICS**

|                                   | TOTAL SAMPLE |     |     |      |          |                  | HIGHER RISK SUB-SAMPLE |      |          | LOWER RISK SUB-SAMPLE |      |          |
|-----------------------------------|--------------|-----|-----|------|----------|------------------|------------------------|------|----------|-----------------------|------|----------|
|                                   | N            | Min | Max | Mean | Variance | % High / Highest | N                      | Mean | Variance | N                     | Mean | Variance |
| <b>Y<sub>i</sub> fraud proxy</b>  |              |     |     |      |          |                  |                        |      |          |                       |      |          |
| MgtInclin2IntentMisstate          | 5,603        | 1   | 5   | 1.92 | 0.31     | 0.8%             | 565                    | 3.08 | 0.09     | 5,038                 | 1.78 | 0.17     |
| <b>X<sub>j</sub> risk factors</b> |              |     |     |      |          |                  |                        |      |          |                       |      |          |
| IntegrityAndEthics                | 5,603        | 1   | 5   | 2.22 | 0.39     | 1.1%             | 565                    | 2.81 | 0.28     | 5,038                 | 2.15 | 0.36     |
| AuditRelationship                 | 5,603        | 1   | 5   | 1.86 | 0.42     | 0.4%             | 565                    | 2.41 | 0.47     | 5,038                 | 1.80 | 0.38     |
| MgtExperienceDepth                | 5,603        | 1   | 5   | 2.08 | 0.34     | 0.8%             | 565                    | 2.48 | 0.42     | 5,038                 | 2.03 | 0.31     |
| RevenueRecognition                | 5,603        | 1   | 5   | 1.75 | 0.48     | 0.9%             | 565                    | 2.10 | 0.74     | 5,038                 | 1.71 | 0.43     |
| AcctgEstimateReliability          | 5,603        | 1   | 5   | 2.13 | 0.35     | 1.3%             | 565                    | 2.50 | 0.46     | 5,038                 | 2.09 | 0.32     |

- (1) The Acceptance and Continuance process at the sampled Big 4 firm asks the auditor for an assessment of specific risk conditions. For each of these questions the auditor is requested to provide an assessment across five categories: Lowest Risk, Low Risk, Some Risk, High Risk, and Highest Risk. Each of these risk categories contains a brief description of what is meant by each of the particular risk levels, which frames the assessment for the auditor. Generally, the framing statement associated with the low and lowest risk level contains positively framed statements representing good qualities that the auditor believes to be present. The high and highest risk generally refer to specific (more tangible) auditor indications of negative qualities associated with the question and perceived to pose risk of issuing an incorrect audit opinion. For the purpose of this study, a 5-point ordinal Likert Scale [1-5] is used to represent lowest to highest risk conditions respectively.
- (2) The higher risk sample contains sample cases for which the auditor has indicated that the management’s inclination to misstate is 3 or higher on the five-point Likert scale, representing some to highest risk (refer to Appendix I).

**TABLE 2: PEARSON CORRELATION COEFFICIENTS (FULL SAMPLE; N: 5,603)**

|                                     | (1)      | (2)      | (3)      | (4)      | (5)      | (6) |
|-------------------------------------|----------|----------|----------|----------|----------|-----|
| <b>(1)</b> MgtInclin2IntentMisstate | 1        |          |          |          |          |     |
| <b>(2)</b> IntegrityAndEthics       | .472(**) | 1        |          |          |          |     |
| <b>(3)</b> MgtExperienceDepth       | .315(**) | .355(**) | 1        |          |          |     |
| <b>(4)</b> AcctgEstimateReliability | .336(**) | .325(**) | .287(**) | 1        |          |     |
| <b>(5)</b> RevenueRecognition       | .296(**) | .255(**) | .203(**) | .294(**) | 1        |     |
| <b>(6)</b> AuditRelationship        | .404(**) | .334(**) | .238(**) | .276(**) | .302(**) | 1   |

Pearson correlation coefficients; (\*\*) denotes significance of correlation coefficient at 1% level (2-tailed test); N: 5,603

Note: Consistent with the above table, Pearson correlation coefficients at the lower risk sub-sample (N: 5,038) are all positive, amounts consistent, and all correlations remain significant. At the higher fraud risk sub-sample (N: 565), all correlation coefficients are lower (but continue to be significant at the 5% level); however, there is no significant correlation between *MgtInclin2IntentMisstate* and *MgtExperienceDepth* (i.e., the experience and skill of a senior management team is not related to the risk of fraud)

These findings are consistent with the Loebbecke et al. (1989) model for material irregularities and auditor observations. Interestingly, all mistrust indications and fraud red flags are statistically correlated with each other at the 1% level. These observations suggest that indications of an untrustworthy financial reporting culture are considered by auditors to be strongly associated with (and perhaps can deter) fraud.

### **A multivariate analysis of fraud risk components**

Table 3 provides the results of the linear regression between various management attitude and trust indications – unethical management conduct, inexperienced management, aggressive revenue practices, aggressive estimates, and honesty with the auditors – and the risk of fraud. The results confirm that there is a positive association between indications of mistrust and adverse managerial attitudes and fraud risk. The model is significant ( $F: 552$ ;  $p < 0.01$ ) and the explanatory potential is high ( $R^2: 0.33$ ). All the Betas are positive and statistically significant at the 1% level.

The results confirm that auditors do perceive the lack of honesty, openness and transparency between management and themselves as an important element increasing fraud risk ( $\beta^{\text{TOTAL}}: 0.22$ ;  $p < 0.01$ ). As demonstrated in Table 3, this is the second most important variable determining the risk of fraud. The implication is that auditor assessments may be capturing an element of management culture in an organization which is useful to auditors in assessing the risk of fraud. And, at the highest risk levels, auditors rely on tangible evidence rather than perceptions alone. An alternative view would be to say that the measures of fraud risk are biased by the perceptions of auditors. This alternative view is abandoned after re-running the regression model with a sub-sample of the higher fraud risk assessments (565 higher-risk assessment forms;  $\beta$  not significant; Table 3) which shows that the audit relationship is not perceived as an important factor at higher levels of fraud risk.

**TABLE 3: MULTIPLE REGRESSION RESULTS ACROSS FULL SAMPLE AND HIGHER/LOWER RISK SUB-SAMPLES**

| X <sub>j</sub> risk factor (independent variables) | TOTAL SAMPLE REGRESSION     |            |                            | HIGHER RISK SUB-SAMPLE REGRESSION |            |                           | LOWER RISK SUB-SAMPLE REGRESSION |            |                            |
|--|-----------------------------|------------|----------------------------|-----------------------------------|------------|---------------------------|----------------------------------|------------|----------------------------|
|  | Unstandardized Coefficients |            | Standardized Coefficients  | Unstandardized Coefficients       |            | Standardized Coefficients | Unstandardized Coefficients      |            | Standardized Coefficients  |
|  | B                           | Std. Error | Beta                       | B                                 | Std. Error | Beta                      | B                                | Std. Error | Beta                       |
| IntegrityAndEthics                                 | 0.27                        | 0.01       | 0.30<br><i>(24.01)</i> *** | 0.11                              | 0.02       | 0.20<br><i>(4.65)</i> *** | 0.16                             | 0.01       | 0.24<br><i>(17.53)</i> *** |
| AuditRelationship                                  | 0.19                        | 0.01       | 0.22<br><i>(17.87)</i> *** | 0.02                              | 0.02       | 0.04<br><i>(1.04)</i>     | 0.12                             | 0.01       | 0.18<br><i>(13.21)</i> *** |
| MgtExperienceDepth                                 | 0.10                        | 0.01       | 0.10<br><i>(8.54)</i> ***  | -0.03                             | 0.02       | -0.06<br><i>(-1.31)</i>   | 0.06                             | 0.01       | 0.08<br><i>(5.86)</i> ***  |
| RevenueRecognition                                 | 0.08                        | 0.01       | 0.10<br><i>(8.21)</i> ***  | 0.03                              | 0.02       | 0.08<br><i>(1.86)</i> *   | 0.07                             | 0.01       | 0.12<br><i>(9.06)</i> ***  |
| AcctgEstimateReliability                           | 0.11                        | 0.01       | 0.12<br><i>(9.92)</i> ***  | 0.04                              | 0.02       | 0.08<br><i>(1.89)</i> *   | 0.09                             | 0.01       | 0.12<br><i>(9.21)</i> ***  |
| (Constant)   | 0.39                        | 0.03       | ***                        | 2.64                              | 0.08       | ***                       | 0.79                             | 0.03       | ***                        |
|  | Adjusted R <sup>2</sup> :   |            | 0.33                       | Adjusted R <sup>2</sup> :         |            | 0.06                      | Adjusted R <sup>2</sup> :        |            | 0.23                       |
|  | F:                          |            | 552.97 ***                 | F:                                |            | 8.13 ***                  | F:                               |            | 308.53 ***                 |
|  | df:                         |            | 5,602                      | df:                               |            | 564                       | df:                              |            | 5,037                      |

Dependent Variable: *MgtInclin2IntentMisstate*

Note 1: Amounts in (·) and italics represent t-statistics. \*\*\* denotes significance at the 1% level; \*\* denotes significance at the 5% level (\* for 10% level)

Note 2: No evident multi-collinearity issue noted: variance inflation factors ranged from 1.06 to 1.3; tolerance levels ranged from 0.77 to 0.94.

In examining a smaller, sub-sample of higher fraud risk assessments (Table 3, middle column), neither the quality of the audit relationship, nor the level of management experience are found to be statistically significant ( $\beta^{\text{HIGH}}$ ). This finding appears unusual as practitioner and academic guidance would suggest that strained auditor-client relationships (built on honesty and trust) and inexperienced managers are an important element in higher, fraud risk levels. An alternative explanation is that auditors need additional red flag information besides and above the “soft” indicators of auditor-client relationship and managers’ experience before classifying clients in the high risk categories.

Results on Table 3 also confirm that aggressive management actions are perceived an important mistrust indicator associated with fraud. More specifically, aggressive revenue recognition practices are found to be an important and statistically-significant managerial attitudes associated with fraud risk ( $\beta^{\text{TOTAL}}$ : 0.10;  $p < 0.01$ ), alongside biased accounting estimates ( $\beta^{\text{TOTAL}}$ : 0.12;  $p < 0.01$ ). This finding is consistent with the observations from SEC enforcement actions which note that these two types of practices are noted in a large number of financial fraud allegations (SEC 2003). Further, this finding lends additional support to Loebbecke et al. (1989) and Bell and Carcello (2000), who noted that aggressive financial reporting practices are an important element which may lead to material irregularities.

The regression results confirm that manager ethical misconduct is the most important element perceived to drive the risk of fraud ( $\beta^{\text{TOTAL}}$ : 0.30;  $p < 0.01$ ). In addition, inexperience and lack of managerial skill are noted as additional conditions or factors which are also, independently, significantly associated with higher fraud risk assessments ( $\beta^{\text{TOTAL}}$ : 0.10;  $p < 0.01$ ). This finding is not surprising if one considers that various internal control frameworks, such as COSO, rate the control environment and relevant company-level controls (which are set by senior management) as the most important elements of control within an organization. However, this study

provides tangible evidence of the importance of both the ethics and experience of managers in determining the risk of fraud. For example, the standard  $\beta^{\text{TOTAL}}$  for the two variables representing aggressive accounting practices amounts to 0.22, compared to 0.40 for the ethical tone and experience of managers.

In summary, this study provides evidence that two groups of managerial attitudes and indications of the trustworthiness of an organization's financial reporting culture – ethical conduct of managers and aggressive accounting practices – are very important elements associated with higher fraud risk assessments. If auditors had their say in the world, and their perceptions were accurate representations of reality, they would choose to have more ethical management conduct first, before focusing on aggressive accounting practices. With new standards for communication to audit committees on critical accounting and control areas, there is clear, empirical evidence to suggest that manager conduct and critical accounting practices should continue to be at the top of the list of matters to be communicated to governance bodies, in an effort to minimize the risk of fraud.

### **Consistency across fraud risk levels**

The previous section noted that there were differences in the relative importance which auditors attributed to various fraud risk factors. It was documented that regression results differ between the full sample, and the sub-sample containing only the higher fraud risk assessments. These regression results showed, that the quality of the auditor relationship with management and the level of management experience, were not perceived by auditors as a statistically significant element in their assessment of higher fraud risk situations. To isolate risk factors, and to focus on the ethical conduct and tone set by managers versus aggressive accounting practices, a simple, structural equation model was created (to test hypotheses 2A and 2B).

Structural equations modelling (SEM) combines regression with factor analysis, simultaneously. The main advantage of SEM over multiple regressions is the ability to test a set of relations among variables, simultaneously. This cannot be done using standard regression, due to the complex set of simultaneous relations. SEM has been used and discussed in previous studies and in a similar context (Gillett and Uddin 2005; Johnstone 2000; Dusenbury et al. 2000; Wilks and Zimbelman 2004). For this study, AMOS version 6.0 is used as the vehicle to model the structural relationships between ethical conduct of managers and aggressive accounting practices. The SEM model uses four constructs:

- (1) a construct for the ethical conduct of managers, which is derived from the variables capturing the ethical conduct of senior management ( $\lambda:1$ ) and the degree of management experience and skill;
- (2) a construct for aggressive accounting practices, which is derived from the variables capturing revenue recognition practices and reliability of accounting estimates ( $\lambda:1$ );
- (3) a construct for audit relationship which has one variable linked to it;<sup>21</sup>
- (4) a construct for the interaction between management ethical risks and aggressive accounting;
- (5) a construct for fraud risk which is measured by the variable measuring management inclination to intentionally misstate financial statements.<sup>22</sup>

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<sup>21</sup> For latent variables within the SEM model which have only a single indicator variable (constructs for audit relationship risk and accounting control risk), these are represented like any other latent variable, except the error term for the single indicator variable which constrained to have a mean of 0 and a variance fixed at an 'arbitrary' value times its variance (Jöreskog et al. 1993 suggest that using an arbitrary value, or estimate based on reliability, is a more reasonable assumption than the assumption of a zero error). For Audit Relationship, the assumed variable reliability has been set at approximately 50%, as the assessment is largely based on auditor perceptions, rather than established facts (and this variable is meant to capture multiple dimensions affecting other latent variables); therefore the error variance mapped in the model is represented by approximately 50% times the variance observed of the underlying variable across the relevant sub-sample. This 'random' percentage was chosen based on the stability of the model (increasing the reliability of other constructs) and the plausibility that audit relationship risk is a difficult-to-measure metric of trust and honesty. For the higher risk sub-sample, construct reliability of 80% was chosen, as the underlying variable relies more on tangible observations and facts (refer to Figure 3).

<sup>22</sup> Construct reliability has been set at 90% for the full sample and lower-risk sub-sample. For the higher risk sub-sample, a 50% reliability was necessary for model stability.

**TABLE 4: SUMMARY OF RESULTS**

| <b>Fraud related risk factors</b>                          | $\beta_j^{LOW}$ | $\beta_j^{HIGH}$ | $\beta_j^{TOTAL}$ | <b>H1A: <math>\beta_j &gt; 0</math></b> | <b>H1B: <math>\beta_j = \beta_{j+1}</math></b> | $\gamma_j^{TOTAL}$ | $\gamma_j^{HIGH}$ | $\gamma_j^{LOW}$ | <b>H2A: <math>\gamma_j &gt; 0</math></b> | <b>H2B: <math>\gamma_{ethical\_tone} = \gamma_{acctg\_principles}</math></b> |
|--|-----------------|------------------|-------------------|---|--|--------------------|-------------------|------------------|--|--|
| <b><u>Management Ethical Tone</u></b>                      |                 |                  |                   |   |  |                    |                   |                  |  | Not Supported  |
| <i>IntegrityAndEthics</i>                                  | 0.24            | 0.20             | 0.30              | Supported                               | Not Supported                                  | 0.71               | 0.83              | 0.45             | Supported                                |  |
| <i>MgtExperienceDepth</i>                                  | 0.08            | -                | 0.10              | Supported                               | Not Supported                                  |                    |                   |                  |  |  |
| <i>AuditRelationship</i>                                   | 0.18            | -                | 0.22              | Supported                               | Not Supported                                  |                    |                   |                  |  |  |
| <b><u>Aggressive Accounting</u></b>                        |                 |                  |                   |   |  |                    |                   |                  |  |  |
| <i>RevenueRecognition</i>                                  | 0.12            | 0.08             | 0.10              | Supported                               | Not Supported                                  |                    |                   |                  |  |  |
| <i>AcctgEstimateReliability</i>                            | 0.12            | 0.08             | 0.12              | Supported                               | Not Supported                                  | 0.37               | -                 | 0.60             | Supported                                |  |
| <b>Management Ethical Tone<br/>* Aggressive Accounting</b> |                 |                  |                   |   |  | - 0.28             | - 0.47            | - 0.21           |  |  |
| $R^2$ :  | 0.33            | 0.06             | 0.23              |   |  | 0.82               | 0.26              | 0.77             |  |  |
| $\chi^2$ :   |                 |                  |                   |   |  | 66                 | 28                | 50               |  |  |



Results of the overall model confirm (Table 4; Figure 1) that the ethical conduct of senior management ( $\gamma^{\text{TOTAL}}$ : 0.71;  $p < 0.01$ ) is approximately two times more important than aggressive accounting practices ( $\gamma^{\text{TOTAL}}$ : 0.37;  $p < 0.01$ ), even after considering variable inter-relationships. The model is significant and acceptable (AGFI: 0.98; RMR: 0.01; TLI: 0.97; NFI: 0.99; all acceptable levels per the literature, particularly observations of Hu and Bentler 1999; construct reliability above 0.6).<sup>23</sup> In addition, the explanatory power of the model is significantly higher than regression (squared multiple correlation or  $R^2$ : 0.82).

It is important to note that the interaction of management ethical tone risk and aggressive accounting has a significant, negative direct relationship with fraud risk ( $\gamma^{\text{TOTAL}}$ : - 0.28;  $p < 0.01$ ). However, the total standard effect of all constructs on fraud risk is all positive, suggesting that the interaction effect is a compensating risk factor. To gain insight as to what may be causing such a negative effect, a general linear model (GLM) was run with all variables in the measurement model and including all main and interaction effects. This GLM model ( $F$ : 886;  $p < 0.01$ ;  $R^2$ : 0.95) demonstrates that all main and interaction effects are statistically significant at the 10% level. Upon close examination, the GLM shows five “conditions” or “dosages,” between management integrity/tone variables and aggressive accounting, which are negative and significant at the 5% level. In all of these situations, lower levels of managerial integrity risk interact with lower levels of

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<sup>23</sup> There is no consensus as to the set of indices which work best as each test statistic poses advantages and disadvantages, just as there is no consensus on the effect of factors such as sample size and normality violations on different fit indices. Kline (1998: 130) recommends at least four tests: (1) chi-square ( $\chi^2$ ); (2) goodness of fit (GFI), normed fit index (NFI), or comparative fit index (CFI); (3) the Tucker-Lewis Index (TLI), also called the NNFI (nonnormed fit index); and (4) root mean square residual (RMR). For the  $\chi^2$  statistic, obtaining a probability of greater than 0.05 indicates a good fit. The value of the  $\chi^2$  statistic is limited because it is very sensitive to sample size and distributional assumptions (Hu and Bentler 1999). For other statistics (GFI, NFI, CFI, TLI) a cut-off value of 0.9 is often used, however some argue that the cut-off value should be greater than 0.95 for TLI, IFI, and CFI (Hu and Bentler 1999). For the use of RMR, a cut-off value of 0.08 appears an adequate cut-off value and a value of 0.06 for root mean square residual statistic (RMSEA). McDonald and Ho (2002) have outlined four problems with fit indices which included an observation that there is no established mathematical basis for using them, no compelling ground for using absolute or relative indices, alternative measures may lead to inconsistent decisions, and a misfit can occur due to concentrated mis-specified parts of a model.

revenue recognition and accounting estimate reliability risk, producing a negative, significant effect on fraud risk.<sup>24</sup> In addition, in three situations, lower revenue recognition risks compound with lower accounting estimate risks, to produce a negative, significant effect.<sup>25</sup> In summary, risks appear to compound in a non-linear manner, specifically, better management integrity levels and lower levels of aggressive accounting appear to produce a decline in fraud risk, over-and-above that expected when considering first order variable relationships (main effects). And this is what can be seen from the negative interaction effect ( $\gamma^{\text{TOTAL}}$ : - 0.28).

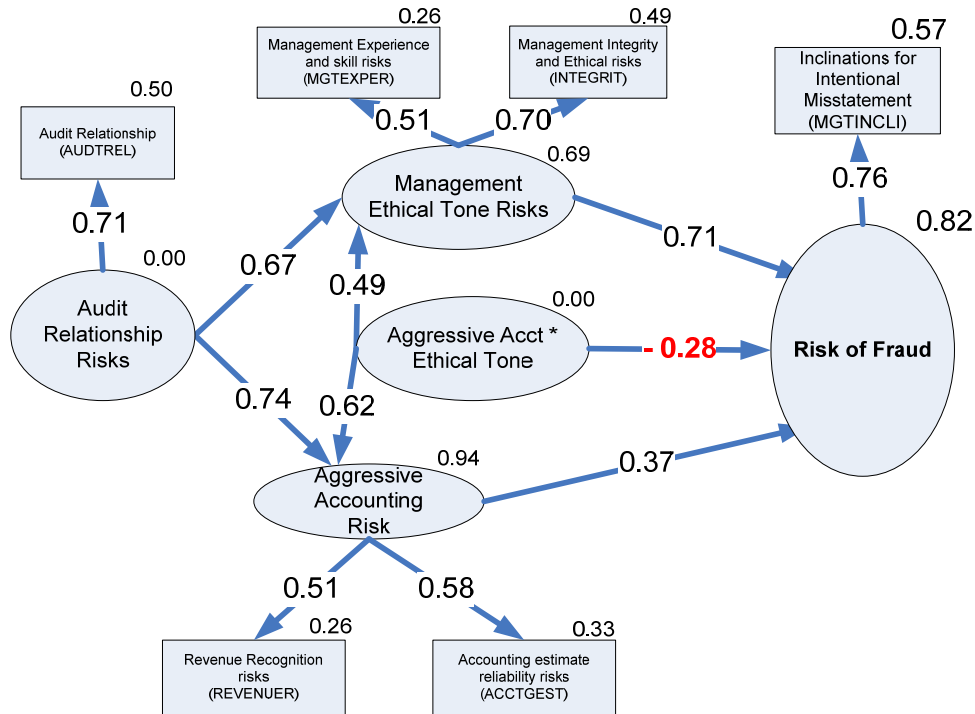
These findings are significant because they provide evidence of the importance of ethics and aggressive accounting practices in determining the risk of fraud. These findings are consistent with Loebbecke et al. (1989), Bell and Carcello (2000), and Baucus (1994), but extend that research by providing quantification of the relative importance of two, critical, risk areas and managerial attitudes affecting fraud. More specifically, the ethical conduct of senior management is approximately two times more important than aggressive accounting practices in determining the risk of fraud.

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<sup>24</sup> Note that all two-way interactions between *IntegrityAndEthics* (IE), *RevenueRecognition* (RR), and *AcctgEstimateReliability* (AE) were negative and significant – IE2\*AE3: -0.71; IE3\*AE1: -1.18; IE3\*AE2: -0.98; IE3\*AE3: -1.06; IE1\*RR2: -1.25. Note that the numbers associated with IE, RR, and AE, refer to risk levels, where ‘1’ denotes lowest risk and ‘3’ denotes some risk, as per Appendix I.

<sup>25</sup> The only three significant interactions (5% level) between *RevenueRecognition* (RR) and *AcctgEstimateReliability* (AE) were – RR2\*AE2: -0.85; RR2\*AE3: -0.78; RR3\*AE3: -0.72. Note that the numbers associated with RR and AE, refer to risk levels, where ‘1’ denotes lowest risk and ‘3’ denotes some risk, as per Appendix I.

**FIGURE 1: STRUCTURAL EQUATION MODEL FOR THE FULL SAMPLE (N: 5,603)**



**Figure 1:** Structural Model Results under Maximum Likelihood Method (MLE) for the full sample (N: 5,603).  $\chi^2=66$ , AGFI=0.98. Amounts between arrows indicate standardized regression weights (all amounts significant at 1% level).

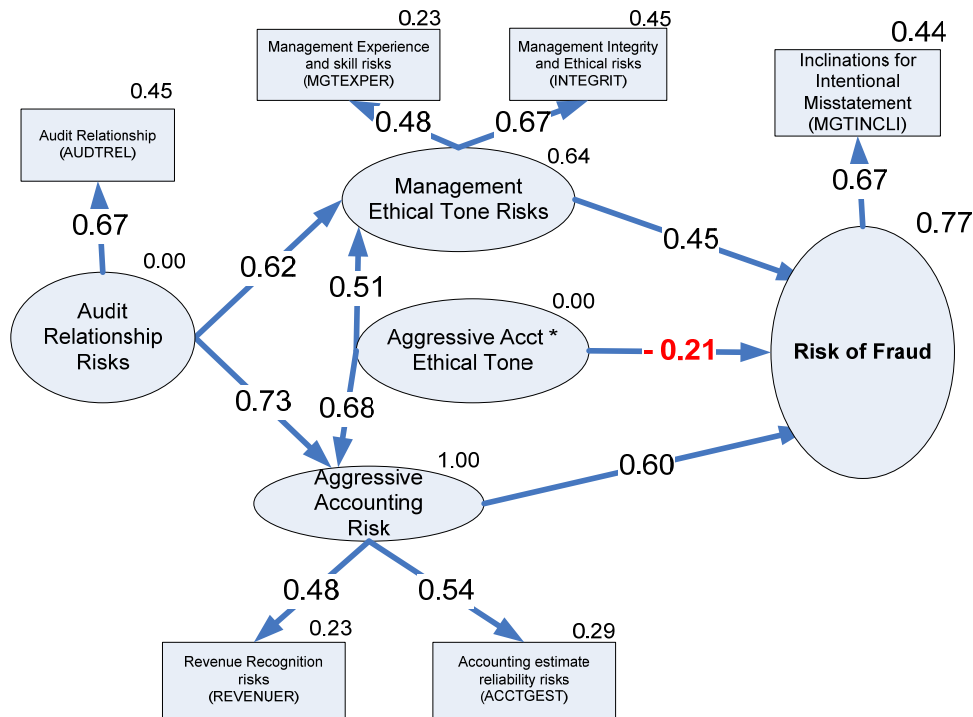
Results under MLE are consistent with other estimation methods (Generalized Least Squares, Asymptotic Distribution Free); no normality concerns. Model fit statistics. RMR: 0.01; NFI: 0.99; RFI: 0.96; IFI: 0.99; TL: 0.97; CFI: 0.99; RMSEA: 0.05. Standardized total effect of Audit Relationship construct on Risk of Fraud: 0.76; Aggressive Accounting on risk of fraud: 0.37; Ethical tone on risk of fraud: 0.30; Interaction of Aggressive Accounting and Ethical tone: 0.30.

Circled elements represent constructs, which are part of the structural model; variables in rectangles represent measurement variables. Numbers on top-right of measurement variables and constructs represent squared multiple correlations.

In order to go further in understanding auditor thinking, SEM was applied to a sub-sample of lower-risk assessments (refer to Figure 2; 5,038 or 90% of the sampled population). Interestingly, the strength of the ethical conduct of senior management construct ( $\gamma^{LOW}$ : 0.45;  $p < 0.01$ ; Table 4; Figure 2) is less important than the assessed importance of aggressive accounting practices ( $\gamma^{LOW}$ : 0.60;  $p < 0.01$ ); the interaction effect also remains negative ( $\gamma^{LOW}$ : -0.21;  $p < 0.01$ ). This model remains similarly significant, as in Figure 1. As the results are different from

the overall model, inference would indicate that – for higher risk clients – auditors place a lot more weight on the ethical conduct of managers than on aggressive accounting practices. This result is confirmed by the SEM model, run on the 565 higher-risk sub-sample (summarized in Table 4), although this model is marginally significant (AGFI: 0.95; RMR: 0.01; TLI: 0.79; NFI: 0.88 – not all acceptable levels; construct reliability were above 0.6).<sup>26</sup>

**FIGURE 2: STRUCTURAL EQUATION MODEL FOR THE LOWER RISK SUB-SAMPLE (N: 5,038)**



**Figure 2:** Structural Model Results under Maximum Likelihood Method (MLE) for the lower-risk sub-sample (N: 5,038).  $\chi^2=50$ , AGFI=0.99. Amounts between arrows indicate standardized regression weights (all amounts significant at 1% level).

Results under MLE are consistent with other estimation methods (Generalized Least Squares, Asymptotic Distribution Free); no normality concerns. Model fit statistics. RMR: 0.01; NFI: 0.98; RFI: 0.96; IFI: 0.99; TLI: 0.96; CFI: 0.99; RMSEA: 0.04. Standardized total effect of Audit Relationship construct on Risk of Fraud: 0.72; Aggressive Accounting on risk of fraud: 0.59; Ethical tone on risk of fraud: 0.45; Interaction of Aggressive Accounting and Ethical tone: 0.43.

Circled elements represent constructs, which are part of the structural model; variables in rectangles represent measurement variables. Numbers on top-right of measurement variables and constructs represent squared multiple correlations.

<sup>26</sup> Note that results of the General Linear Model for the higher-risk sub-sample were consistent with those of the full sample.

## CONCLUSION AND IMPLICATIONS

This study documents that managerial attitudes significantly affect auditor fraud-risk perspectives, accounting for 82% of the variability observed by auditors in assessing senior management inclinations for intentional misstatements in financial reporting (supporting Deshmukh and Talluru 1998). Managerial attitudes are represented in this study by managerial ethical misconduct indications, aggressiveness in accounting practices, and the auditor-management relationship quality. It would appear reasonable to infer that if auditors were to focus their fraud-risk procedures (in applying SAS 99 or ISA 240), they could mitigate 82% of their risk by seeking out indications of senior management misconduct and focusing on significant areas of accounting most prone to fraud (revenue recognition and accounting estimates). The former could be achieved through examination of misconduct allegations stemming from whistleblower lines, internal audit reports, or the press, and by reflecting on the sources of tension in the auditor-management relationship. The latter can be achieved by identifying the areas of accounting most susceptible to management manipulation. Information over management behaviour and attitudes which shape an organization's financial reporting culture have been studied in this paper using auditor observations, perceptions, and tangible evidence of heightened risk (recall) across a sample of 5,603 audit acceptance and continuance forms used by a Big Four accounting firm in the Netherlands.

The results indicate that the ethical conduct of senior managers is perceived as the single most important element associated with higher fraud risk assessment. Aggressive accounting practices, captured through assessments of revenue recognition and accounting estimates, are also perceived to significantly contribute to higher levels of fraud risk. The quality of the auditor-management relationship, measuring dimensions of trust and honesty, is found to be an important factor affecting the overall risk of fraud, but this element is only pronounced at lower,

fraud risk levels (not significant at higher fraud risk levels). A similar finding applies to the level of senior management experience and skill in the firms which were evaluated. These results are generally consistent with the suggestions from practitioner guidance (SAS 99; ISA 240), audit literature (Loebbecke et al. 1989; Bell and Carcello 2000), and corporate illegality studies (Baucus 1994), although the differences across fraud risk levels (and compounding, non-linear effects thereof) found in this study are unique.

This study has confirmed the importance of indications of mistrust, known to influence the risk of fraud (SAS 99; ISA 240; Loebbecke et al. 1989), through hypothesis 1A ( $\beta_j > 0$ ; Table 4). The study found no evidence to support the equal importance of indications of mistrust and managerial attitudes associated with fraud risk (H1B:  $\beta_j \neq \beta_{j+1}$ , was supported), thereby further supporting and extending the work of Bell and Carcello (2000). In testing hypotheses 2A and 2B, there is support for H2A ( $\gamma_j > 0$ ; Table 4) and for H2B, this study finds that ethical boundaries are perceived as more important than accounting boundaries in shaping the financial reporting culture within organizations to prevent fraud. In simple terms, fraud is perceived by auditors more as an ethical rather than an accounting breakdown. As of 2006, there are 37 different international standards, 9 interpretations, and many more publications defining the accounting principles that apply and providing guidance on how to apply them. Not one of these standards define the managerial attitudes (including ethical standards and principles) that should be embraced by organizations, nor guidance on how to specifically address breakdowns in trust.<sup>27</sup> Instead, the focus has been placed on general codes to be followed by accountants and auditors alone.

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<sup>27</sup> Audit standards generally call for increased professional scepticism, communication with those charged with governance, and auditor resignation as the main alternatives available to the auditor.

This study has analyzed auditor risk assessments in the Netherlands across a broad spectrum of audit clients who differ in industry, size, jurisdictional requirements (included US multi-national subsidiaries), and ownership structure. Due to data confidentiality and data limitations, such differences could not be fully reported, although the presence of certain regulated industries and institutional variables did not significantly affect the results. In addition, this study has extrapolated auditor views and perceptions of risk, as a proxy for control elements observed within organizations.<sup>28</sup> Thus, the results cannot be readily generalized to instances of fraud in various countries. Although, the general findings are that ethical conduct and aggressive accounting perceptions and observations are important for auditor fraud risk assessments, it is questionable whether an organizational focus on these elements will reduce instances of fraud. In addition, the non-linear weighing of risk factors cannot be necessarily attributable to auditor thinking, as the instrument's framed statements tap into various dimensions of auditor experiences, perceptions, observations, suspicious, and recall of past incidents. Lastly, the data used for this study relates to companies in one country only and may not necessarily be valid in other institutional settings.

One potential avenue for future research is to understand the non-linear weighting of trust indicators, within a fraud context to further explain the negative interaction effects across SEM models. Much more research needs to be performed to examine the different aspects of ethics, especially those involving how organizations and other stakeholders should address moral reasoning levels, locus of control, moral philosophy, and the influence of the external work environment. For aggressive accounting factors, a critical review of how judgments are formed and how companies apply accounting conventions is necessary. There currently is little research on how to deal with systematic or structured transactions on the edge

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<sup>28</sup> Note that auditors were found to be more conservative in their acceptance between 2003 and 2004. The justification is that this is the period after all the scandals in the United States and the Ahold accounting scandal in the Netherlands hit in 2003.

of accounting rules. Rather than wait for regulators to impose their views, directors and managers should proactively set a strategy addressing what they consider proper and improper behaviour, to avoid heading towards a slippery slope of inconsistencies, relativism, and, potentially, fraud. Little is known about how to shape ethical judgments and ethical concerns in a financial reporting context. This study is a first step towards understanding a different institutional setting than the United States on a topic which is difficult to research.

In order for modellers to conduct practical analyses and to make strategy recommendations, they need access to data that are often hard to collect. Information is often considered to be proprietary and withheld for select usage. Access to a large data base, at a Big Four accounting firm, provided the ideal situation for building a mathematical model on which to base predictions and gain insight into auditor thinking. The results of the investigation allowed for recommendations that will permit policy makers to correctly identify and emphasize those factors most critical in preventing fraud. Even though many auditors could have identified these risk factors, the mathematical model clarifies and adds precision. It allows for better decision making, opens up further questions, and confirms what was only believed or thought to be true, without the benefit of scientific confirmation. The research should help to establish a structure for dialogue between the academic community and practice, both of which will benefit.<sup>29</sup>

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<sup>29</sup> In an ideal world, policy would be based on data and models, where possible. Mathematics is a science based on accuracy, and herein lies a danger. Modellers need to understand the limitations of their work, but the investigator also needs to have access to large amounts of data in order to make predictions that are as precise as possible. Policy based on data is on a surer footing than policy that relies on belief or intuition or isolated observations made by individuals. It has been the purpose of this investigation to provide the accuracy which will confirm what was already known by auditors from their day-to-day work. This study provides empirical support to principles developed in the U.S. for Management Anti-Fraud Program and Controls (AICPA 2001) in a European setting.



It is known that most managers operate at lower levels of reasoning in business contexts than in non-business contexts, and that managers typically reason at the “conventional level” (Weber 1990). Therefore, organizations need to address the factors most important at this level. Moral reasoners at this level will intend to act to make the company look better in the eyes of investors and creditors (Uddin and Gillette 2002) and these managers will tend to support fixed rules and authority levels. Therefore, to prevent all forms of illegal and unethical actions, organizations need to codify their principles and values in rules (policies, procedures, and controls) and discourage all misconduct.

The inference drawn, from the empirical analysis of auditor perceptions and experiences, is that managerial attitudes are important in building trust in an organization’s financial reporting culture, which may be shaped through: (a) a “zero tolerance” organizational policy towards senior management misconduct, dishonesty, and aggressive accounting, overseen by a competent, well-informed and powerful Audit Committee; (b) well-functioning and structured Corporate functions overseeing and supporting accounting, legal, and ethical, compliance matters in a comprehensive and cohesive manner, under direct oversight senior management and non-executive directors; and (c) active oversight, monitoring, and open dialogue between the Audit Committee and the external and internal auditors, as well as other Compliance functions. This paper is intended to form a bridge between theory and practice, especially in highlighting the importance of “soft” areas involving managerial attitudes to auditor-assessed risk of fraud.

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## Appendix 1: Variable Definition

| #              | MODEL VARIABLE                  | FRAMING OF INSTRUMENT   |
|----------------|---------------------------------|---|
| Y              | <b>MgtInclin2IntentMisstate</b> | <p>Management inclination to intentionally misstate financial reporting:</p> <ul style="list-style-type: none"> <li>• Lowest Risk: Management attaches great importance to achieve fair and accurate financial statement presentation.</li> <li>• Low Risk: Management makes a reasonable effort to achieve fair and accurate statement presentation.</li> <li>• Some Risk: Management is not particularly interested in financial statement presentation but there has been no evidence of intentional misstatement.</li> <li>• High Risk: Management sometimes shows a disregard for fair and accurate financial statement presentation.</li> <li>• Highest Risk: Management has in the past attempted to distort or hide information relevant to the entity's financial condition or operating results.</li> </ul> |
| X <sub>1</sub> | <b>IntegrityAndEthics</b>       | <p>Integrity and Ethics:</p> <ul style="list-style-type: none"> <li>• Lowest Risk: Management has an excellent reputation for integrity and ethics. High ethical standards are evident –for example, a code of conduct exists and fully communicated and is enforced throughout the organization.</li> <li>• Low Risk: Management has a good reputation for integrity and ethics.</li> <li>• Some Risk: There is no reason to question management's integrity and ethics.</li> <li>• High Risk: Management's commitment to integrity and ethics is in some doubt.</li> <li>• Highest Risk: There are indications based on employee allegations, regulatory inquiries, adverse publicity, or other sources that management has engaged in unethical activity.</li> </ul>   |

| #              | MODEL VARIABLE           | FRAMING OF INSTRUMENT  |
|----------------|--------------------------|--|
| X <sub>2</sub> | MgtExperienceDepth       | <p>Management's Experience and Skill:</p> <ul style="list-style-type: none"> <li>• Lowest Risk: The management team is very experienced and has excellent functional skills in all key positions.</li> <li>• Low Risk: Good management team has good experience and is skilled in all key functions.</li> <li>• Some Risk: The management team has average experience and functional skills.</li> <li>• High Risk: The management skill lacks experience or functional skills in a key area.</li> <li>• Highest Risk: The management team lacks experience and functional skills in more than one key area.</li> </ul>   |
| X <sub>3</sub> | AcctgEstimateReliability | <p>Reliability of accounting estimates:</p> <ul style="list-style-type: none"> <li>• Lowest Risk: Consistent History of accurate estimates</li> <li>• Low Risk: Accounting estimates have usually been reasonable.</li> <li>• Some Risk: Accounting estimates have been conservative.</li> <li>• High Risk: Accounting estimates have usually been optimistic.</li> <li>• Highest Risk: Accounting estimates have often been unreasonable.</li> </ul>  |
| X <sub>4</sub> | RevenueRecognition       | <p>Revenue Recognition:</p> <ul style="list-style-type: none"> <li>• Lowest Risk: Revenue transactions have relatively standard terms and conditions and revenue recognition policies are applied consistently. The entity has few, if any, post-sale contingent obligations.</li> <li>• Low Risk: Significant non-standard revenue transactions occur occasionally but the entity is proactive in discussing with the auditors the transactions and their revenue recognition attributes.</li> <li>• Some Risk: Significant non-standard revenue transactions occur occasionally. The entity is not always proactive in discussing with the auditors the transactions and their revenue recognition attributes.</li> <li>• High Risk: Significant non-standard revenue transactions occur regularly. The entity is not proactive in discussing with the auditors the transactions and their revenue recognition attributes.</li> <li>• Highest Risk: Significant transactions are structured to achieve revenue recognition objectives that would otherwise not be achieved.</li> </ul> |

| #              | MODEL VARIABLE    | FRAMING OF INSTRUMENT   |
|----------------|-------------------|---|
| X <sub>5</sub> | AuditRelationship | <p data-bbox="732 352 987 384">Audit Relationship:</p> <ul data-bbox="781 394 1344 1885" style="list-style-type: none"> <li data-bbox="781 394 1344 594">• Lowest Risk: Management regularly initiates discussion with us on accounting issues. We have effective and candid communication with the board and, where applicable, the audit committee. Management does not question our audit scope. We have free access to people and information.</li> <li data-bbox="781 604 1344 877">• Low Risk: Management initiates discussion with us on accounting issues as they arise. Our communications with the board and audit committee are structured and substantive. Management occasionally questions our audit scope; Management sometimes requires discussion before allowing access to people and information; Management accepts audit findings.</li> <li data-bbox="781 888 1344 1161">• Some Risk: Management is open to our advice on accounting issues but does not initiate discussion. Our communication with the board and audit committee is somewhat limited in time and format; There have been some attempts by management to limit our audit scope; Access to people and information is closely monitored. Management accepts audit findings but tries to downplay their importance.</li> <li data-bbox="781 1171 1344 1518">• High Risk: Management sometimes disputes our advice on accounting issues and does not initiated discussion. We have very limited opportunity for substantive communication to the board and audit committee; Management attempts to reduce our audit scope; Access to people and information is granted but only after challenge and delay; Management often challenges audit findings and does not initiated discussion on accounting issues. Management typically disputes and it is very difficult to reach agreement with them.</li> <li data-bbox="781 1528 1344 1885">• Highest Risk: Management does not initiate discussion on accounting issues and when the issues arise, is less than forthright in describing the relevant facts patterns; we have no opportunity to substantive communication with the board and audit committee; There are sometimes attempts by management to dictate audit scope or intimidate us. There are formal or informal restrictions on access to people or information; Management typically disputes audit findings and disclosures and it is very difficult to reach agreement with them.</li> </ul> |

**FIGURE 3: DIMENSIONS CAPTURED BY AUDITOR RISK ASSESSMENTS**

| FRAMING STATEMENT IN MEASUREMENT INSTRUMENT |   | DIMENSIONS OF EVIDENCE USED BY AUDITORS IN ASSESSING RISK |               |                                    |           |              |
|---|---|---|---------------|------------------------------------|-----------|--------------|
|   |   | (1) Perception & Observation                              | (2) Suspicion | (3) Past incidents & Hard Evidence |           |              |
|   | <i>Risk level</i>   | Lowest Risk   | Low Risk      | Some Risk                          | High Risk | Highest Risk |
| $Y_i$                                       | Management inclination to intentionally misstate financial reporting: |   |               |                                    |           |              |
| $X_j$                                       | Integrity and Ethics:   |   |               |                                    |           |              |
| $X_j$                                       | Audit Relationship:   |   |               |                                    |           |              |
| $X_j$                                       | Management's Experience and Skill:                                    |   |               |                                    |           |              |
| $X_j$                                       | Reliability of accounting estimates:                                  |   |               |                                    |           |              |
| $X_j$                                       | Revenue Recognition:  |   |               |                                    |           |              |

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