

**Audit quality and the relationship between auditee's agency problems and  
financial information quality:  
Research proposal**

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**Abstract**

This study examines the role of audit quality on the relationship between auditee's agency problems and financial information quality. It contributes to the existing literature by considering agency theory and audit research concerned with audit quality. The following hypotheses are tested based on the underlying literature: 1) Auditee's agency problems are positively associated with audit quality, 2) Audit quality is positively associated with financial information quality, and 3) Audit quality mediates the relationship between auditee's agency problems and financial information quality. To provide insight on the above hypotheses a path analysis is employed for a sample of 932 S&P 1500 firms. Auditee's agency problems are measured by leverage, management ownership and free cash flow. Moreover, audit quality is measured by audit fees and non-audit services fees (i.e. total fees) paid to the incumbent auditor. Finally, financial information quality is measured by absolute discretionary accruals. The results reveal that auditee's agency problems are positively associated with audit quality. In addition, it is found that audit quality increases financial information quality. Finally, it is documented that audit quality is a potential mediator in the relationship between auditee's agency problems and financial information quality. These findings imply that auditees' agency problems explain the demand for a high quality auditor. Furthermore, these results suggest that high audit quality successfully fulfils its role as a monitoring mechanism which purpose is to assure financial information quality.

Keywords: audit quality, agency theory, leverage, management ownership, free cash flow.

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## **1. INTRODUCTION**

This study investigates the role of audit quality on the relationship between auditee's agency problems and financial information quality. Audit quality is one of the most important issues in audit practice today. The quality of the financial information is dependent, among other things, on audit quality (ISB 2000).

Several individuals and groups have an interest in the quality of audited financial information. External financial statement users, including current and potential investors, creditors, and others need reliable financial information on which to base their resource allocation decisions. Auditees, including management, audit committees, and boards of directors have an interest in quality audits, for example, to help to reduce the cost of capital. In addition, regulators and standard setters can increase the effectiveness of capital markets by promulgating rules and regulations that help ensure that audits improve financial information quality (ISB 2000).

However, there have been concerns about audit quality in the present audit environment, where severe audit failures have come to light. It has been found that the perceived reliability of audited financial information has declined. In contrast, the perceived relevance of audited financial information has increased (Hodge 2003). Thus, it is evident that there is a need for further research on audit quality and how it is related to financial information quality.

Audit quality has received considerable interest in both agency and audit research. According to agency literature one implication of agency problems is management propensity to produce substandard financial information (e.g. Warfield, Wild & Wild 1995; Chung, Firth & Kim 2005; Richardson 2006). Auditing provides assurance about the quality and credibility of company's financial information and thus, is considered a means to mitigate agency problems (Jensen & Meckling 1976). Consequently, studies on agency issues have focused on the demand side of auditing and examined how the level of auditee's agency problems affects the demand for audit quality (e.g. Jensen et al. 1976; DeFond 1992; Parkash & Venable 1993; Nikkinen & Sahlström 2004; Lennox 2005). On the other hand, audit research has concentrated on the supply side of audit quality and investigated how audit quality is

reflected in financial information quality (e.g. Frankel, Johnson & Nelson 2002; Geiger & Rama 2003; Larcker & Richardson 2004).

No previous research, however, has attempted to adapt both agency and audit research to investigate audit quality. Thus, the objective of this research is to combine the demand and supply side perspectives of audit quality. More specifically, this study produces an integrated model of the determinants of financial information quality which includes variables concerning agency problems and audit quality. The model depicts relationships between measures of auditee's agency problems, audit quality and financial information quality.<sup>2</sup>

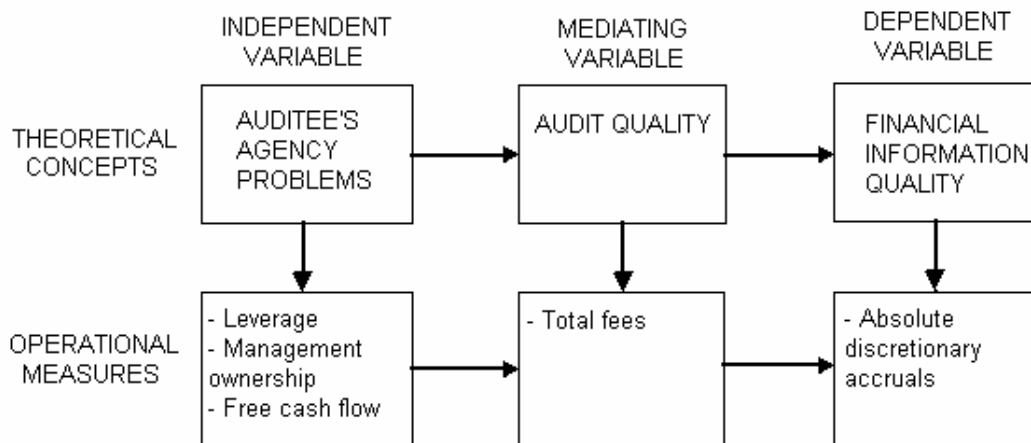
### **1.1. Research problem**

The purpose of this study is to examine the role audit quality plays on the relationship between agency problems and financial information quality. Although previous studies have uncovered important indicators of financial information quality, the paths between these indicators have not been explored. Accordingly, this research proposes and tests a model that establishes paths between auditee's agency problems and audit quality as well as audit quality and financial information quality. In the proposed model, audit quality is expected to have a mediating role on the relationship between auditee's agency problems and financial information quality. The mediating role maintains that audit quality is caused by agency problems and a cause of financial information quality.

The model is summarized in figure 1. The theoretical concepts of the model are illustrated at the top of the figure. These are agency problems, audit quality and financial information quality. Operational measures for the variables are illustrated at the bottom of figure 1.

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<sup>2</sup> This study responds to Jiambalvo's (1996) call for research on monitoring mechanisms, such as auditing, that potentially limit the ability of managers to manipulate accounting numbers.



**Figure 1.** The mediating role of audit quality on the relationship between auditee’s agency problems and financial information quality.

Auditee’s agency problem is the independent variable in the model. Agency problems relate to potential conflicts of interests between management and shareholders or management and debt-holders. It is suggested that certain company specific characteristics affect the magnitude of agency problems. In this research agency problems are measured by leverage, management ownership and free cash flow. The model suggests that a company faces more severe agency problems when it has high leverage, low management ownership and high free cash flow. It is suggested that agency problems increase the demand for audit quality.

Audit quality is the mediating variable in the model. Audit quality is measured by total fees (i.e. audit fees and non-audit services fees) paid to the incumbent auditor. High levels of relative audit fees are expected to indicate higher audit engagement effort and thus higher audit quality. Thus, audit quality determined by total fees, is expected to affect auditor’s ability to assure financial information quality positively. In addition, total fees are expected to mediate the relationship between agency problems and financial information quality.

Financial information quality is the dependent variable in the model. Financial information quality refers to how well financial statement information reflects the true economic circumstances of the company. Financial information quality is measured

by absolute discretionary accruals. It is proposed that low magnitude of absolute discretionary accruals represents high earnings quality and, hence implicates high financial information quality.

Collectively, the model is used to test following hypotheses:

H<sub>1</sub>: Auditee's agency problems are positively associated with audit quality.

H<sub>2</sub>: Audit quality is positively associated with financial information quality.

H<sub>3</sub>: Audit quality mediates the relationship between auditee's agency problems and financial information quality.

The hypotheses are examined by path analysis which involves estimating a series of regression models. The sample includes 932 S&P 1500 firms.<sup>3</sup> The results show that agency problems increase auditee's incentives to hire high quality auditor. More specifically, a significant positive relationship is found between leverage and total fees as well as free cash flow and total fees. Moreover, a significant negative relationship is found between management ownership and total fees. Thus, hypothesis 1 is supported.

In addition, results reveal that audit quality has a positive relationship with financial information quality. To be exact, a significant negative relationship is found between total fees and absolute discretionary accruals. This result confirms hypothesis 2.

The results also reveal that audit quality has the potential to function as a mediator in the relationship between auditee's agency problems and financial information quality. More specifically, it is found that total fees successfully mediate the relationship between leverage and absolute discretionary accruals as well as management ownership and absolute discretionary accruals. The ability of total fees to mediate the

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<sup>3</sup> Refers to the S&P (Standard & Poor's) 1500 Composite Index which encompasses all stocks in the S&P 500, S&P 400 and S&P 600 indices.

relationship between free cash flow and absolute discretionary accruals is, however, at the borderline. Thus, hypothesis 3 is partially supported.

## **1.2. Contribution**

The objective of this research is to investigate the effect of auditee's agency problems and audit quality on financial information quality. This study contributes to the existing research by combining agency literature and audit literature concerned with audit quality. So far, research has examined relationships between auditee's agency problems and audit quality (e.g. Jensen et al. 1976; DeFond 1992; Parkash et al. 1993; Nikkinen et al. 2004; Lennox 2005) as well as audit quality and financial information quality (e.g. Frankel et al. 2002; Geiger et al. 2003; Larcker et al. 2004). This research attempts to place these relationships into a more holistic model. More specifically, the proposed model suggests a mediating role of audit quality on the relationship between auditee's agency problems and financial information quality.

## **2. HYPOTHESIS DEVELOPMENT**

The prior agency and audit research has determined relationships between auditee's agency problems and audit quality as well as audit quality and financial information quality. These relationships will be discussed in this section. In the end of this section, a model combining the relationships will be introduced.

### **2.1. Agency problems and audit quality**

Agency literature suggests that certain company specific characteristics increase management incentives to act against shareholders' or debt-holders' interests. Agency problems can increase management propensity to produce substandard financial information in order to cover actions that have not been in the best interest of the shareholders or debt-holders (Jensen et al. 1976). Prior research has determined a variety of company specific variables which potentially cause agency problems. This research focuses on agency problems generated by leverage, management ownership and free cash flow.

Firstly, the agency problem of *leverage* postulates that managers (acting on behalf of shareholders) have incentives to transfer wealth from debt-holders by taking various actions such as paying dividends to shareholders at the expense of profitable projects or restructuring of debt (Jensen et al. 1976; Chow 1982; DeFond 1992; Parkash et al. 1993). Some of these actions can result in a decline in firm value because they involve suboptimal investment policies (Chow 1982). Moreover, the literature suggests that firms with high leverage are more likely to face bankruptcy and such firms are more likely to engage in earnings management since they are closer to debt covenant violations (Gul & Tsui 2001).

Secondly, agency literature recognizes that low *management ownership* gives rise to an asymmetric information problem meaning that very often the manager is better informed about the activities and payoffs of the firm than the owner (Ng 1978; Ng & Stoeckenius 1979). Separation of ownership from management creates monitoring difficulties giving the potential for management to take non-value-maximizing actions. Thus, low management ownership creates an increased demand for

accounting-based contractual constraints which are used to discourage managers from non-value-maximizing actions. Management may be motivated to mitigate these constraints by strategically choosing accounting policies and determining accounting accruals (Jensen et al. 1976). Accordingly it has been found that management ownership is positively associated with earnings explanatory power for returns and negatively related to the magnitude of discretionary accruals (Warfield et al. 1995).

Thirdly, the agency problem of *the free cash flow* postulates that in the presence of high free cash flow management has opportunities to make expenditures that have negative Net Present Values (NPVs) rather than pay dividends to shareholders or purchase stock. The free cash flow agency problem can be implicated by firm's poor financial performance and consequently poor stock market valuations. The free cash flow agency problem is also implicated by a relation between company's free cash flow and accrual activities. Managers in firms with high free cash flow may have incentives to smooth earnings in order to shirk the full impact of wasteful expenditures on earnings. Prior research has documented negative relation between free cash flow and the magnitude of discretionary accruals. These results can be explained by following rationale: income-decreasing accruals occur if managers wish to shift profits to future years when the full impact of expenditures hits earnings (Chung et al. 2005; Richardson 2006).

According to agency theory auditing services are required to reduce agency problems arising from conflict of interests between shareholders and managers or debt-holders and managers (Jensen et al. 1976). Studies focusing on agency issues predict that as agency problems become more severe management will demand higher audit quality in an effort to assure financial information credibility to shareholders, debt-holders or other investors (Chow 1982; Francis & Wilson 1988; DeFond 1992; Lennox 2005).

Early studies used auditor reputation (size or brand name) as a measure of audit quality and documented that companies facing agency problems hire auditors with better reputation (Francis et al. 1988; DeFond 1992; Lennox 2005). More recent research has used audit fees as a proxy for audit quality. For example Nikkinen et al. (2004) examined the relationship between agency problems and total fees paid to incumbent auditor. They found a positive relation between free cash flow and total

fees and a negative relation between management ownership and total fees. These results imply that management demands a higher quality audit as firm's agency problems increase.

The above reasoning leads to the first hypothesis:

H<sub>1</sub>: Auditee's agency problems are positively associated with audit quality.

## **2.2. Audit quality and financial information quality**

Audit quality is generally linked to auditor independence and auditor competence. Accordingly, DeAngelo (1981a; 1981b) defines audit quality as the market-assessed probability that, given that the financial statements contain material errors, they are discovered and reported. According to the definition the probability of discovery depends on the auditor's *competence* whereas the probability of reporting refers to the auditor's *independence* from the auditee. However, there is a widespread view in audit literature that audit quality cannot be directly observed by outside parties. Therefore, prior studies have used several surrogates for audit quality (DeAngelo 1981a; DeAngelo 1981b; Palmrose 1988).

*Audit firm size* is the most commonly used surrogate for audit quality.<sup>4</sup> It is widely perceived that large audit firms have high incentives to perform a high-quality audit. Audit quality is expected to increase with audit firm size because larger audit firms have more to lose from an audit failure in terms of their pre-established reputations (DeAngelo 1981a). Moreover, the loss of an auditee has less significant consequences for a large audit firm with a wide client base than for a small audit firm because a specific clients' fees will not form a large part of the revenue generated for a large firm. Thus, it is expected that large audit firms are better able to remain independent from an auditee (Goldman & Barlev 1974; Shockley 1981). Several empirical studies have supported these notions.

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<sup>4</sup> In this study, a majority of sample companies employed a Big 4 audit firm (95 %), thus leaving little possibility to evaluate audit quality in terms of audit firm size.

Audit fee studies have found that auditees are willing to pay a price premium for large audit firms due to their expected high quality service. Although Simunic (1980) found evidence of (then) a Big Six discount attributable to economies of scale, subsequent studies, such as Francis and Stokes (1986), Palmrose (1986b), and Simon and Francis (1988) detected a price premium for large audit firms likely arising from a higher quality of audit offered by these firms.

Research has also provided evidence that audit firm size is associated with financial information quality. Becker, DeFond, Jiambalvo and Subramanyam (1998) and Francis, Maydew and Sparks (1999) found that clients of (then) Big Six auditors reported lower discretionary accruals than clients of non-Big Six auditors. These results indicate that large audit firms are able to detect earnings management due to their superior knowledge and will object opportunistic earnings management to protect their reputation.

Prior studies have also addressed the relationship between audit firm size and auditor's opinion. Even though some studies have shown that the size of the audit firm does not influence the likelihood of a qualified audit report (Wines 1994; Sharma & Sidhu 2001; Craswell, Stokes & Laughton 2002), Lennox (1999) provided evidence of a positive relationship between auditor size and auditor accuracy. Lennox (1999) found that large auditors issue reports that are more accurate and include more informative signals of financial distress than audit reports issued by small auditors.

The results of earlier empirical studies also indicate that the market perceives large audit firm size as an indication of higher audit quality. For example, Beatty's (1989) results showed that the price paid by investors is higher for IPOs involving a large audit firm. Similarly, Teoh and Wong (1993) reported a positive association between audit firm size and the ERC.

In addition to audit firm size the audit literature suggests that *industry specialization* of an audit firm also contributes to audit quality. Several empirical studies have addressed this notion and provided supportive evidence. Prior research has identified a fee premium for industry specialist audit firms. Craswell, Francis and Taylor (1995) found that industry specialist (then) Big Eight auditors charged a 34 % premium over

non-specialist Big Eight auditors. However, more recent studies found only limited support for the industry specialist premiums (Ferguson & Stokes 2002) or did not find evidence that auditors specializing in a particular industry set audit fees differently from non-specialists (Menon & Williams 2001).

Research has also investigated whether industry specialisation of audit firms is associated with higher financial reporting quality. Balsam, Krishnan and Yang (2003) compared the discretionary accruals of clients of specialist and non-specialist auditors. Balsam et al. (2003) found that the discretionary accruals of clients of industry specialist auditors were lower than those of clients of non-specialist auditors, thereby supporting the notion that industry specialisation is associated with higher financial information quality.

Behavioural studies have provided evidence that there is an association between an auditor's industry knowledge and the quality of an auditor's performance. Solomon, Shields and Whittington (1999) and Owoso, Messier and Lynch (2002) provided some evidence that industry-experienced auditors detect errors more effectively within their industry specialisation than outside their specialisation.

Research has also indicated that an industry specialist auditor signals higher audit quality to the markets. Balsam et al. (2003) found evidence that clients of industry specialist auditors have higher ERCs than clients of non-specialist auditors. In addition, Shockley and Holt (1983) found that audit firms with the largest market share, which is a common measure for industry specialisation, are perceived as higher quality suppliers by the chief financial officers of banks.

*Audit fees* are also used as a measure of audit quality. The notion behind these studies is that audit fees reflect additional audit effort which leads to a higher level of audit quality (Carcello, Hermanson, Neal & Riley 2002; Abbott, Parker, Peters & Raghunandan 2003).<sup>5</sup> This notion is supported by empirical research which has

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<sup>5</sup> Early studies examined the association between audit fees and non-audit services fees in order to find evidence of "knowledge spillovers" which are transfers of knowledge from non-audit to audit services and vice versa. Several studies reported a significant positive association between audit services and non-audit services fees (Simunic 1984; Simon 1985; Palmrose 1986a; Turpen 1990; Davis et al. 1993; Butterworth et al. 1995; Craswell et al. 1995; Ezzamel 1996; Firth 1997; Firth 2002) which implies that

documented a positive relation between audit fees and financial information quality. For example Frankel et al. (2002) and Larcker et al. (2004) found that higher fees paid to auditors are associated with smaller accruals. In addition, Geiger et al. (2003) found a positive association between audit fees and qualified audit opinions, which implies that additional audit effort results in more accurate audit opinions. In summary, the results of the above studies imply that audit firms receiving higher fees also provide higher actual and perceived audit quality.

The above discussion leads to the second hypothesis:

H<sub>2</sub>: Audit quality is positively associated with financial information quality.

### **2.3. Summary**

As discussed above prior research provides evidence for relationships between auditee's agency problems and audit quality as well as audit quality and financial information quality. No previous research, however, has attempted to place these relationships into a more holistic model. Thus, the objective of this research is to incorporate these relationships and develop a model which provides a more comprehensive understanding of the underlying dynamics between the relationships. The model is introduced in figure 1.

The main focus of the model is on the role audit quality plays on the relationship between auditee's agency problems and financial information quality. More specifically, audit quality is expected to function as a mediator in this relationship. The mediation hypothesis maintains that auditee's agency problems will have a mediated (i.e. indirect) effect to financial information quality through audit quality.

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the benefits of knowledge spillovers are generally retained by the auditor as higher fees. In contrast, some studies find no evidence of a positive association between audit fees and non-audit services fees (Simon et al. 1988; Abdel-Khalik 1990; Barefield et al. 1993; O'Keefe et al. 1994; Whisenant et al. 2003). Recent research has examined the implications of financial dependence (i.e. audit fees, non-audit services fees or total fees) on auditor independence. These studies have, for example, investigated whether financial dependence enables earnings management (e.g. Reynolds et al. 2004), increases the amount of restated financial statements (e.g. Kinney et al. 2004), decreases auditors' propensity to issue qualified audit reports (e.g. Geiger et al. 2003 ) or increases the length of audit tenure (e.g. Barkess et al. 1994). Overall, this body of research indicates that auditor independence is not threatened by fees generated by auditees.

The model is consistent with audit literature which suggests that auditor's role is to restrict management discretion over disclosure of financial information and consequently assure its quality.

Based on the above proposition a third hypothesis is suggested:

H<sub>3</sub>: Audit quality mediates the relationship between auditee's agency problems and financial information quality.

### 3. METHODOLOGY

#### 3.1. Measurement of financial information quality

Absolute discretionary accruals are used as a measure of *financial information quality* in general and earnings quality in particular. The basic premise is that discretionary accruals capture earnings management and therefore provide an inverse measure of earnings quality. Low magnitude of absolute discretionary accruals is expected to indicate high earnings quality (e.g. Healy 1985; DeAngelo 1986; Jones 1991; Dechow, Sloan & Sweeney 1995).

Prior literature has proposed several methods for estimating discretionary accruals.<sup>6</sup> Early studies use the change in total accruals as a measure of discretionary accruals (Healy 1985; DeAngelo 1986) whereas more recent research decomposes accruals into discretionary and nondiscretionary components (Jones 1991; Dechow et al. 1995).

A cross-sectional modified Jones model is adopted in this study (Jones 1991; DeFond & Jiambalvo 1994; Dechow et al. 1995).<sup>7</sup> Discretionary accruals are estimated separately for each industry (two-digit SIC code) as the residuals from the following model (see e.g. Bartov, Gul & Tsui 2001)<sup>8</sup>:

$$TAC_j/TA_j = \beta_{30}(1/TA_j) + \beta_{31}[(\Delta REV_j/TA_j) - (\Delta REC_j/TA_j)] + \beta_{32}(PPE_j/TA_j) + \varepsilon_{3j}, \quad (1)$$

where,

$TAC_j$  = total accruals for firm j,

$\Delta REV_j$  = change in revenues for firm j,

$\Delta REC_j$  = change in net receivables for firm j,

$PPE_j$  = gross property, plant, and equipment for firm j,

$TA_j$  = total assets for firm j in previous year, and

$\varepsilon_{3j}$  = error term for firm j.

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<sup>6</sup> See e.g. Dechow et al. (1995) for a review of these models.

<sup>7</sup> According to Dechow et al. (1995) and Bartov et al. (2001) the modified Jones Model provides the most powerful test of earnings management.

<sup>8</sup> Industries with less than six observations were excluded from the sample.

### 3.2. Path analysis

Prior research has mainly used multiple regression analysis to investigate relationships between agency problems, audit quality and financial information quality. However, a major limitation of multiple regression analysis is that there can be only one dependent variable and a number of independent variables in a single model (Smith & Landgfield-Smith 2004). To overcome this limitation this study moves from multiple regression analysis to path analysis.<sup>9</sup> More specifically, it is suggested that paths exist between: 1) auditee's agency problems and audit quality and 2) audit quality and financial information quality. These paths are specified by the following two multiple regression models:

$$\text{TOTFEES}_j = \beta_{10} + \beta_{11}\text{LEVERAGE}_j + \beta_{12}\text{MANOWN}_j + \beta_{13}\text{FREECASH}_j + \varepsilon_{1j} \quad (2)$$

$$\text{DACC}_j = \beta_{20} + \beta_{21}\text{LEVERAGE}_j + \beta_{22}\text{MANOWN}_j + \beta_{23}\text{FREECASH}_j + \beta_{24}\text{TOTFEES}_j + \varepsilon_{2j} \quad (3)$$

where,

$\text{TOTFEES}_j$  = total audit and non-audit services fees for firm  $j$ ,

$\text{DACC}_j$  = absolute discretionary accruals for firm  $j$ ,

$\text{LEVERAGE}_j$  = total debt to total assets for firm  $j$ ,

$\text{MANOWN}_j$  = percentage of closely held shares for firm  $j$ ,

$\text{FREECASH}_j$  = free cash flow to total assets for firm  $j$ ,

$\varepsilon_{1j}$  and  $\varepsilon_{2j}$  = error term for firm  $j$ .

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<sup>9</sup> SEM (Structural Equation Modelling) could be used to further increase the sophistication of the analysis. However, Smith et al. (2004) note that time-series data should be used when attempting to draw causal inferences using SEM. According to Smith et al. (2004) multiple regression and path analysis are sufficient methods when cross-sectional data is used. Based on these arguments employing SEM is not warranted in this study.

### 3.3. Statistical mediation

In addition to the path analysis discussed above the mediating role of audit quality on the relationship between auditee's agency problems and financial information quality is tested. The mediation hypothesis suggests that mediator is responsible for the effect of independent variable on dependent variable. In general, a variable can be considered to be a successful mediator if it is caused by the independent variable and causes the dependent variable (e.g. Baron & Kenny 1986; Muller, Judd & Yzerbyt 2005). There are several methods for testing mediation. Three major approaches to statistical mediation analysis are: a) causal steps method, b) difference in coefficients method and c) product of coefficients method (MacKinnon, Fairchild & Fritz 2007)<sup>10</sup>.

In this study the product of coefficients method is used to test whether audit quality significantly mediates the relationship between auditee's agency problems and financial information quality. The product of coefficients method involves calculating the coefficient for the mediated effect (i.e. indirect effect)<sup>11</sup>. This is achieved by multiplying coefficients  $\hat{\beta}_{11}\hat{\beta}_{24}$ ,  $\hat{\beta}_{12}\hat{\beta}_{24}$  or  $\hat{\beta}_{13}\hat{\beta}_{24}$ , respectively. The coefficient of the mediated effect is further divided by its standard error  $se_{\hat{\beta}_{11}\hat{\beta}_{24}}$ ,  $se_{\hat{\beta}_{12}\hat{\beta}_{24}}$  or  $se_{\hat{\beta}_{13}\hat{\beta}_{24}}$ , respectively. This test value is compared to standard normal distribution. Thus, a following approximate significance test for the mediated effect is applied (i.e. Sobel test) (Baron et al. 1986):

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<sup>10</sup> See e.g. MacKinnon et al. (2007) and Mackinnon et al. (2002) for a review of these methods.

<sup>11</sup> Refer to regression models 2 and 3 for the notations.

$$\begin{cases} z_{\hat{\beta}_n \hat{\beta}_{24}} = \frac{\hat{\beta}_n \cdot \hat{\beta}_{24}}{se_{\hat{\beta}_n \hat{\beta}_{24}}} \\ se_{\hat{\beta}_n \hat{\beta}_{24}} = \sqrt{(\hat{\beta}_n^2 \cdot se_{\hat{\beta}_{24}}^2) + (\hat{\beta}_{24}^2 \cdot se_{\hat{\beta}_n}^2)} \end{cases} \quad (4) (5)$$

where,

$n= 11,12$  and  $13$

$\hat{\beta}_{24}$  = unstandardized regression coefficient for the association between the mediator and the dependent variable.

$\hat{\beta}_n$  = unstandardized regression coefficients for the association between independent variables and the mediator.

$se_{\hat{\beta}_{24}}$  = standard error of the mediator  $\hat{\beta}_{24}$ .

$se_{\hat{\beta}_n}$  = standard error of independent variables  $\hat{\beta}_{11}$ ,  $\hat{\beta}_{12}$  or  $\hat{\beta}_{13}$ .

### 3.4. Sample selection and descriptive statistics

The data for this study is obtained from Thomson Financial Database. Table 1 provides the selection criteria for the sample. The initial sample consists of S&P 1500 firms which had fiscal years ending anytime during calendar year 2005. Following prior research financial institutions (SIC codes 6000-6999) are excluded from the sample due to their special regulatory environment. Firms with insufficient data on Thomson Financial database to estimate discretionary accruals or on independent variables are also excluded. Finally, to reduce the impact of companies with no agency problems, the sample is restricted to firms that have debt. These sample selection criteria yield a final sample of 932 firms.

Panel A of Table 2 presents descriptive statistics for the initial variables. The mean leverage (Leverage<sub>*j*</sub>) is 22,963% of total assets. Management ownership (Manown<sub>*j*</sub>)

ranges from minimum of 0,025% and maximum of 99,291%. The mean management ownership ( $Manown_j$ ) is 15%. The mean free cash flow ( $Freecash_j$ ) is 0,040% of total assets. Total fees ( $Totfees_j$ ) have a large range in the data distribution with a minimum of \$59000 and maximum of \$93600000. The mean absolute discretionary accruals ( $AbsDacc_j$ ) are 0,040. Skewness statistics suggest that leverage ( $Leverage_j$ ), total fees ( $Totfees_j$ ) and absolute discretionary accruals ( $AbsDacc_j$ ) are positively (i.e. right) skewed. Leverage ( $Leverage_j$ ) is sqrt-transformed and total fees ( $Totfees_j$ ) as well as absolute discretionary accruals ( $AbsDacc_j$ ) are ln-transformed to correct skewness. Panel B of Table 2 presents descriptive statistics for variables that are employed in the empirical tests. Skewness statistics in panel B show that the variables are closer to normal distribution after transformations discussed above are conducted.

Table 3 presents correlation matrix for the variables used in the empirical tests. Correlations show that firms pay higher total fees when they have higher leverage and lower management ownership. In addition, firms which have debt tend to have less free cash flow. Finally, leverage and total fees are negatively correlated with absolute discretionary accruals.

#### 4. PRELIMINARY RESULTS

To examine paths between auditee's agency problems and audit quality as well as audit quality and financial information quality two regression analyses are conducted. The results of these regressions are presented in Table 4.

Model 1 is concerned with the first hypothesis and tests whether there is a positive association between auditee's agency problems and audit quality. Therefore, total fees ( $TOTFEES_j$ ) are regressed on leverage ( $LEVERAGE_j$ ), management ownership ( $MANOWN_j$ ) and free cash flow ( $FREECASH_j$ ). Results show that leverage ( $LEVERAGE_j$ ) and free cash flow ( $FREECASH_j$ ) are significantly, positively related to total fees ( $TOTFEES_j$ ) and management ownership ( $MANOWN_j$ ) is significantly, negatively related to total fees ( $TOTFEES_j$ ). These results are consistent with the demand side argument of audit quality which postulates that in presence of agency problems auditee's have incentives to purchase high quality audit. Thus, hypothesis 1 is supported.

Model 2 is concerned with the second hypothesis and tests whether audit quality is positively associated with financial information quality. Thus, absolute discretionary accruals ( $DACC_j$ ) are regressed on total fees ( $TOTFEES_j$ ) controlling for leverage ( $LEVERAGE_j$ ), management ownership ( $MANOWN_j$ ) and free cash flow ( $FREECASH_j$ ). It is found that total fees ( $TOTFEES_j$ ) are significantly, negatively related to absolute discretionary accruals ( $DACC_j$ ). Leverage ( $LEVERAGE_j$ ) is significantly, negatively related to absolute discretionary accruals whereas management ownership ( $MANOWN_j$ ) and ( $FREECASH_j$ ) have insignificant relationships with absolute discretionary accruals ( $DACC_j$ ). These results indicate that earnings quality increases along with audit quality. Therefore, hypothesis 2 is confirmed.

Finally the third hypothesis, whether audit quality significantly mediates the relationship between auditee's agency problems and financial information quality, is tested. Thus, the significance test for the mediated effect (i.e. Sobel test) is employed. The results of the test are presented in Table 5. The results reveal that total fees ( $TOTFEES_j$ ) mediate significantly the relationship between leverage ( $LEVERAGE_j$ )

and discretionary accruals ( $DACC_j$ ) as well as management ownership ( $MANOWN_j$ ) and discretionary accruals ( $DACC_j$ ). The mediating effect of total fees ( $TOTFEES_j$ ) on the relationship between free cash flow ( $FREECASH_j$ ) and discretionary accruals ( $DACC_j$ ) is on the borderline. These results show that audit quality has potential to restrict accounting discretion exercised by managers to manage accruals in financial reporting. Thus, hypothesis 3 is partially supported.

## 5. CONCLUSIONS

The results of this study are based on a sample of 932 S&P 1500 firms. Firstly, it is found that auditee's pay more for audit and non-audit services as their agency problems increase. In other words, a significant positive association is found between leverage and total fees as well as free cash flow and total fees. In addition, a significant negative association is found between management ownership and total fees. These results can be attributed to management demand for the purchase of high quality audit service in order to ensure the credibility of its financial information at the presence of agency problems. This result is consistent with DeFond (1992), Parkash et al. (1993), Nikkinen et al. (2004), and Lennox (2005) findings.

Secondly, the results of this study provide evidence of a positive relationship between audit quality and financial information quality. More specifically, a negative relationship is found between audit fees and absolute discretionary accruals. This result implies that audit quality measured by total fees paid to the auditor is reflected in higher financial information quality. This evidence is in line with findings of Frankel et al. (2002), Geiger et al. (2003), and Larcker et al. (2004).

Finally, it is documented that audit quality has a potential to function as a mediator on the relationship between auditee's agency problems and financial information quality. In sum, total fees significantly mediate the relationship between leverage and absolute discretionary accruals as well as management ownership and absolute discretionary accruals. However, total fees' ability to mediate the relationship between free cash flow and absolute discretionary accruals is at a borderline. These findings respond to Jiambalvo's (1996) call for research on variables limiting management discretion over accounting issues. More specifically, this study provides evidence which indicates that auditing fulfills its role as an monitoring mechanism which limits management's ability to exercise discretion over accounting issues.

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**TABLE 1:****Sample selection criteria**

	<b>N</b>
<i>Initial sample</i>	
S&P 1500 firms (comprises of S&P 500, S&P MidCap 400 and S&P SmallCap 600 firms)	1500
<i>Less</i>	
Financial institutions (SIC codes 6000-6999)	242
Firms in industries with insufficient data for estimating discretionary accruals (a minimum of 6 observations/industry required)	54
Firms with missing (insufficient) data on Thomson Financial database to estimate dependent and independent variables	92
Firms with no debt	180
<i>Final sample</i>	932

**TABLE 2:****Descriptive statistics of variables****PANEL A: Descriptive statistics for the initial variables.**

	N	Minimum	Maximum	Mean	Std.Dev.	Skewness	Kurtosis
Leverage <sub>j</sub>	932	0,002	166,284	22,963	15,755	1,325	7,376
Manown <sub>j</sub>	932	0,025	99,291	15,233	15,546	1,526	3,295
Freecash <sub>j</sub>	932	-0,434	0,423	0,040	0,074	-0,608	5,600
Totfees <sub>j</sub>	932	59000,000	93600000,000	4890545,064	7872574,266	5,726	46,874
AbsDacc <sub>j</sub>	932	0,000	0,535	0,040	0,050	4,354	29,486

**Definition of variables:**

Leverage<sub>j</sub>= total debt to total assets for firm j,  
 Manown<sub>j</sub>= percentage of closely held shares for firm j,  
 Freecash<sub>j</sub>= free cash flow to total assets for firm j,  
 Totfees<sub>j</sub>= total audit and non-audit services fees for firm j, and  
 AbsDacc<sub>j</sub>= absolute discretionary accruals for firm j.

**PANEL B: Descriptive statistics for variables used in the empirical tests.**

	N	Minimum	Maximum	Mean	Std.Dev.	Skewness	Kurtosis
LEVERAGE <sub>j</sub>	932	0,050	12,895	4,431	1,827	-0,354	0,198
MANOWN <sub>j</sub>	932	0,025	99,291	15,233	15,546	1,526	3,295
FREECASH <sub>j</sub>	932	-0,434	0,423	0,040	0,074	-0,608	5,600
TOTFEES <sub>j</sub>	932	10,985	18,355	14,826	1,002	0,454	0,221
DACC <sub>j</sub>	932	-10,450	-0,625	-3,803	1,241	-1,010	2,314

**Definition of variables:**

LEVERAGE<sub>j</sub>= total debt to total assets for firm j (sqrt),  
 MANOWN<sub>j</sub>= percentage of closely held shares for firm j,  
 FREECASH<sub>j</sub>= free cash flow to total assets for firm j,  
 TOTFEES<sub>j</sub>= total audit and non-audit services fees for firm j (ln), and  
 DACC<sub>j</sub>= absolute discretionary accruals for firm j (ln).

**TABLE 3:****Correlation matrix**

	LEVERAGE <sub>j</sub>	MANOWN <sub>j</sub>	FREECASH <sub>j</sub>	TOTFEES <sub>j</sub>	DACC <sub>j</sub>
LEVERAGE <sub>j</sub>	1	-,027	-,290***	,157***	-,069**
MANOWN <sub>j</sub>		1	-,013	-,164***	-,001
FREECASH <sub>j</sub>			1	,044	-,004
TOTFEES <sub>j</sub>				1	-,095***
DACC <sub>j</sub>					1

\*\*\*, \*\*, \* denote significance at 1%, 5% and 10% level, respectively.

**Definition of variables:**

LEVERAGE<sub>j</sub>= total debt to total assets for firm j (sqrt),  
 MANOWN<sub>j</sub>= percentage of closely held shares for firm j,  
 FREECASH<sub>j</sub>= free cash flow to total assets for firm j, and  
 TOTFEES<sub>j</sub>= total audit and non-audit services fees for firm j (ln), and  
 DACC<sub>j</sub>= absolute discretionary accruals for firm j (ln).

**TABLE 4:****Regression of total audit and non-audit services fees (TOTFEES<sub>j</sub>) and absolute discretionary accruals (DACC<sub>j</sub>)****Model 1:**

$$\text{TOTFEES}_j = \beta_{10} + \beta_{11}\text{LEVERAGE}_j + \beta_{12}\text{MANOWN}_j + \beta_{13}\text{FREECASH}_j + \varepsilon_{1j}$$

**Model 2:**

$$\text{DACC}_j = \beta_{20} + \beta_{21}\text{LEVERAGE}_j + \beta_{22}\text{MANOWN}_j + \beta_{23}\text{FREECASH}_j + \beta_{24}\text{TOTFEES}_j + \varepsilon_{2j}$$

<i>Variable</i>	<b>Model 1 TOTFEES<sub>j</sub></b>	<b>Model 2 DACC<sub>j</sub></b>
<b>Intercept</b>	<b>14,493 ***</b>	<b>-1,977***</b>
se	0,100	0,617
t	145,473	-3,203
<b>LEVERAGE<sub>j</sub></b>	<b>0,099***</b>	<b>-0,041*</b>
se	0,018	0,024
t	5,403	-1,756
<b>MANOWN<sub>j</sub></b>	<b>-0,010 ***</b>	<b>-0,001</b>
se	0,002	0,003
t	-4,942	-0,526
<b>FREECASH<sub>j</sub></b>	<b>1,282 ***</b>	<b>-0,311</b>
se	0,453	0,578
t	2,830	-0,539
<b>TOTFEES<sub>j</sub></b>	-	<b>-0,109***</b>
se	-	0,042
t	-	-2,605
N	932	932
R <sup>2</sup>	0,058	0,013

\*\*\*, \*\*, \* denote significance at 1%, 5% and 10% levels, respectively.

**Definition of variables:**

LEVERAGE<sub>j</sub>= total debt to total assets for firm j (sqrt),  
 MANOWN<sub>j</sub>= percentage of closely held shares for firm j,  
 FREECASH<sub>j</sub>= free cash flow to total assets for firm j,  
 TOTFEES<sub>j</sub>= total audit and non-audit services fees for firm j (ln), and  
 DACC<sub>j</sub>= absolute discretionary accruals for firm j (ln).

**TABLE 5:****Sobel test for the significance of mediating effect of TOTFEES<sub>j</sub>.**

	<b>Sobel test statistic</b>
LEVERAGE <sub>j</sub>	-2,347**
MANOWN <sub>j</sub>	2,303**
FREECASH <sub>j</sub>	-1,912*

\*\*\*, \*\*, \* denote significance at 1%, 5% and 10% levels, respectively.

**Definition of variables:**

LEVERAGE<sub>j</sub>= total debt to total assets for firm j (sqrt),  
MANOWN<sub>j</sub>= percentage of closely held shares for firm j,  
FREECASH<sub>j</sub>= free cash flow to total assets for firm j, and  
TOTFEES<sub>j</sub>= total audit and non-audit services fees for firm j (ln),