

# Non-audit service fees and financial reporting quality: A meta-analysis

## 1. Introduction

The purpose of this paper is to present a meta-analysis of the association between fees for non-audit services or non-audit fees (hereafter NAF) and financial reporting quality (hereafter FRQ). The classic agency problem between shareholders and managers gives rise to the hiring of auditors who provide independent assurance to corporate stakeholders that financial statements prepared by corporate managers comply with generally accepted accounting principles (GAAP) (Watts and Zimmerman, 1983). Auditing also plays a significant role in enforcing and protecting investors' rights by detecting expropriation by insiders (Newman, Patterson and Smith, 2005) and benefits management by providing a signalling mechanism regarding the reliability of management-provided financial information. However, the discharge of such responsibilities requires auditors to be independent, both in fact and in appearance<sup>1</sup>. Over the years, however, the independence of auditors has come under increased scrutiny because of their joint provision of both audit and non-audit services.<sup>2</sup> A theoretical model proposes that such non-audit services impair auditor independence because of the existence of client-specific future quasi rents, proxied by the NAF provided to the incumbent auditors (DeAngelo, 1981). The recent spate of corporate collapses around the world, particularly in the USA, has provided evidence for such a proposition, and has forced regulators to ban certain kinds of non-audit services with the expectation that such prohibition will increase financial reporting quality and, ultimately, investor confidence in the financial reporting process. Section 201 of the Sarbanes-Oxley Act 2002, for example, prohibits nine broad types of non-audit services.

The provision of non-audit services, however, provides considerable economies of scope. These economies of scope are broadly categorized into knowledge spillover benefits (benefits from transferring information and knowledge), and contractual economies (making better use of assets and/or safeguards already developed when contracting and ensuring quality in auditing) (Simunic, 1984; Beck, Frecka and Solomon, 1988; Arrunada, 1999). These two competing hypotheses have spawned a sizable volume of research investigating the association between NAF and FRQ. Empirical evidence from this body of research, however, remains inconclusive primarily because of the heterogeneity of the FRQ proxies used.

A couple of narrative literature reviews on the determinants and consequences of non-audit services have been conducted by Beattie and Fearnley (2002) and Schneider, Church and Ely (2006). These authors reviewed empirical studies of (i) the nature and magnitude of non-audit services fees; (ii) the determinants of non-audit services purchasing decisions; (iii) the impact of joint services provision from survey and experimental studies; (iv) the association

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<sup>1</sup> It is virtually impossible to prove independence in fact because only auditors could determine whether independence has been compromised. This meta-analysis therefore includes research which focuses on independence in appearance.

<sup>2</sup> Non-audit services are also referred to as management advisory services or consulting, but have a broader scope, in that non-audit services also include compliance-related services (such as taxation and accounting advice) and assurance-related services (such as due diligence and internal audit) (Beattie and Fearnley, 2002).

between joint provision, pricing and audit tenure; (v) the impact of non-audit services on auditor reporting decisions and (vi) the association between NAF and earnings quality. Francis (2004) and DeFond and Francis (2005) take a broader view of audit quality and come to pretty similar conclusions. Defond and Francis (2005) conclude that "...the overwhelming majority of research on non-audit fees fails to find compelling evidence that they impair audit independence" (p.14), which is also echoed by Francis (2004): "...at this stage one would have to say the evidence...is inconclusive, *but there is at least the possibility that high levels of non-audit services may impair audit quality*" (p. 357, emphasis added). Although narrative literature reviews may include a large number of studies on particular research themes, such reviews can be misleading and often inconclusive (Hunter and Schmidt 1990). In some cases there may be several studies with varying results that are subject to variations in sample size, time period, and setting of the study. As a result, different researchers may reach different conclusions about a set of individual studies. A narrative literature review will report these as apparently inconsistent results and call for further research, which may also produce inconsistent results and further cloud the issue. By contrast, meta-analysis statistically aggregates results across individual studies and corrects for statistical artefacts like sampling and measurement error and, thereby, provides much greater precision with respect to the findings compared with narrative reviews (Hay et al. 2006). Meta-analysis is particularly effective in reconciling results that are inconsistent across studies like the effect of NAF on FRQ.

The present meta-analysis is expected to contribute to the debate concerning whether regulation restricting the provision of non-audit services is justifiable. The recent most comprehensive corporate governance law in the form of the Sarbanes-Oxley Act 2002 (hereafter SOX 2002) prohibited certain kinds of non-audit services. The drafters of this regulation relied on an important piece of academic research<sup>3</sup> conducted by Frankel, Johnson and Nelson (2002) who document that firms paying higher levels of NAF report more income-increasing abnormal accruals and are more likely to meet or beat analyst forecasts. However, subsequent studies using different research methodologies fail to support Frankel et al.'s findings. These contradictory findings call for an overall assessment of the state of the current research on the association between NAF and FRQ. Such an assessment is expected to inform regulators who are in the process of considering whether to impose sanctions on the provision of non-audit services. As Francis (2006, 748) notes, "...it is clear that the appropriateness of auditor-provided NAS [non-audit services] continues to be controversial and viewed with skepticism by regulators. For this reason, it is important that there be ongoing research to facilitate well informed policy making by regulators with respect to the costs and benefits of restricting the scope of NAS to audit clients." Prospective investors can use reliable meta-analysis results to assess the risk of making investment decisions based on accounting information audited by auditors who may have compromised their independence and, hence, the integrity of the financial statements because of the joint provision of audit and non-audit services. The importance of conducting meta-analysis

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<sup>3</sup>Whether academic research in general and archival research in particular aids accounting regulators remains debatable. Holthausen and Watts (2001) criticize the vast body of value-relevance studies for failing to provide any insights for accounting standard-setters. Barth, Beaver and Landsman (2001), however, do not share this view. Healy and Wahlen (1999) are clearly pessimistic in their review of earnings management research for standard setting purposes. Defond and Francis (2005) identify significant gaps in the contemporary auditing research designed to influence audit regulation.

is further justified because there has been less such research in the accounting discipline. Pomeroy and Thornton (2007) identify 14 previous meta-analyses in the accounting discipline on internal control judgment (Trotman and Wood, 1991), accountants' job satisfaction (Brierley, 1999), corporate characteristics and disclosure levels (Ahmed and Courtis, 1999), corporate social and financial performance (Orlitzky, Schmidt and Rynes, 2003), and audit fees (Hay, Knechel and Wong, 2006).

Following the meta-analysis procedure outlined in Lipsey and Wilson (2001), this study provides statistical evidence that high NAF reduce FRQ, although the correlation between the two is quite low at 0.02. The poor correlation is attributed to the heterogeneous FRQ proxies used in the extant literature. Further analysis decomposing the FRQ proxies into five individual components reveals that high NAF result in low quality FRQ in the form of higher earnings management, less propensity for auditors to issue going-concern audit opinions and negative capital market effect of reported earnings. Tests of homogeneity among FRQ proxies clearly reveal that extant archival research has used heterogeneous FRQ proxies, making it difficult to draw reliable inferences about the impact of NAF on FRQ. These findings indicate that operationalizing FRQ is a daunting task and poses a significant challenge for academic research designed to assist regulators in dealing with NAS issues. The paper proceeds as follows: the next section provides a theoretical underpinning of the impact of NAF on FRQ; section three critically evaluates the FRQ constructs used in the extant academic literature; the following section outlines the benefits of meta-analysis and describes the procedure; section five provides the meta-analysis results; section six outlines the implications of the meta-analysis findings and the final section concludes.

## **2. Non audit service fees and auditor independence**

An important theoretical rationale for the impairment of auditor independence caused by joint provision of audit and non-audit services was provided by DeAngelo (1981). She coined the term 'quasi rent' in the context of audit fee-setting and used this concept to theorize auditor independence. Incumbent auditors enjoy a comparative cost advantage over new auditors because the latter group must incur technological start-up costs with each audit. Clients also incur auditor switching costs. Both the technological and switching cost advantages allow the incumbent auditor to set the audit fees in a manner that generates future quasi rents for the incumbent auditors. Both the client and the incumbent auditor can impose real costs on the other. For example, the auditor could demand higher audit fees and the client could ask for clean audit opinion. The existence of future quasi rents, therefore, weakens the auditors' incentives to be independent (DeAngelo, 1981). Subsequent empirical research relied on this theoretical notion to test the effect on FRQ of this quasi rent in the form of NAF.

However, opponents of DeAngelo's (1981) theory argue that the provision of non-audit services actually increases audit efficiency. This argument is derived from the conjecture that providing both audit and non-audit services provides considerable economies of scope. These economies of scope are broadly categorized into knowledge spillover benefits (benefits from transferring information and knowledge); and contractual economies (making better use of assets

and/or safeguards already developed when contracting and ensuring quality in auditing) (Simunic, 1984; Beck et al., 1988; Arrunada, 1999; Beattie and Fearnley, 2002). Simunic (1984), however, cautions that efficiencies from joint production of audit and non-audit services can be partially appropriated as rents to the CPA firm supplier, and create a threat to independence. Beck et al. (1988) distinguish non-audit services into recurring and non-recurring services and propose that recurring non-audit services give rise to knowledge spillovers and reduce the threat to independence, while the opposite effect is experienced with non-recurring non-audit services. Another argument for non-impairment of independence is advanced by Arrunada (1999) who suggests that the provision of non-audit services can also increase the auditor's investment in reputational capital, which the auditor is not likely to jeopardize to satisfy the demand of one particular client (Arrunada, 1999). Overall, these competing hypotheses have encouraged researchers to test for the presence of one effect over another.

Whether the mere provision of non-audit services irrespective of the amount of service fees obtained by the auditors will always cause impairment of independence is not clear. The then auditor of Enron, Arthur Andersen, pocketed about the same dollar amount of audit and NAF. Defond and Francis (2005, 14) take this into consideration, and argue that "While the dollar amount was large (\$26 million), there is no evidence whatsoever that non-audit fees and services were a source of Andersen's problems in the audit of Enron". The Frankel et al. (2002) study which was relied upon by the drafter of the SOX 2002 uses fee ratio (NAF divided by sum of audit and NAF) as the primary independent variable capturing the possibility of financial dependence by the incumbent auditor on the client. However, if such financial dependence is the source of concern then the appropriate fee measure should be "total fees" paid to the auditor rather than the non-audit component of total fees.

Figure 1 provides a schematic representation of the consequences of non-audit services, categorized primarily into knowledge spillover and impairment of independence effects, as hypothesized in the preceding discussion<sup>4</sup>. Researchers adopted three primary research methodologies, namely survey-based, experimental and large-sample archival research approaches to investigate the consequences of non-audit services.<sup>5</sup> Archival research methodology has the advantage of "...incorporating all the richness of a capital market and its participants' actual behavior; however, a general weakness of archival studies is that the richness of the environment frequently makes it difficult, if not impossible, to pinpoint specific characteristics or situations" (Snhneider et al. 2006, 205). Archival research has used a number of FRQ proxies like earnings management, earnings conservatism, earnings restatement and going-concern opinion decisions to investigate the relationship between NAF and FRQ. Some

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<sup>4</sup> Figure 1 also includes determinants of non-audit services although academic research investigating this question is rather limited compared with the audit fee literature.

<sup>5</sup> The earliest known survey-based research was conducted by Schulte (1965) in the USA who surveyed financial executives about their perception of the impairment of auditor independence in the presence of management advisory service provisions and reported a significant negative influence of such services. Subsequent studies expanded the subjects surveyed as well as the type of management advisory services within and outside the USA (for an elaborate list of such studies, refer to Quick and Warming-Rasmussen, 2005). Dopuch, King and Schwartz (2003) provide experimental evidence that the disclosures of NAF help investors reassess auditor independence.

studies also disaggregated NAF into different components, e.g., audit-related NAF, tax-related NAF, and other NAF.

### [FIGURE 1 ABOUT HERE]

Archival research uses an agency theory explanation for investigating the effect of NAF on FRQ and argues that auditors are rational wealth maximizers who would be intentionally biased towards compromising audit quality in order to generate wealth for themselves. Behavioural literature, on the other hand, suggests that psychological heuristics unconsciously lead auditors to make biased judgments. Although the cause of auditor bias differs in these two streams of literature, the ultimate effect remains the same: "...auditors are more likely to acquiesce to client pressure, including pressure to allow earnings management, when the provision of nonaudit services generates economic rents" (Frankel et al. 2002, 75). Frankel et al. (2002) report a positive association between higher NAF and greater earnings management consistent with that hypothesis. Their finding, however, has been challenged by at least three other subsequent papers. Francis (2004) offers a possible explanation for this replicated research:

"The Frankel et al. (2002) paper hints at some political dimensions to accounting research. The accounting establishment was upset by the Frankel et al. study, and I believe there was some sympathy within the academic community to publish papers refuting their findings. Top-level accounting research journals do not generally publish replications or 'no results' studies, yet that is what has occurred in the non-audit service areas" (p. 357).

Another FRQ proxy that received significant research attention is the impact of NAF on audit opinion decisions. If the joint provision of audit and non-audit services impairs auditor independence then it is likely that auditors would end up issuing far more unqualified audit reports than were warranted. In an early study, Wines (1994) reports that NAF is negatively associated with audit qualification. Craswell (1997), however, fails to find any such effect. But Sharma and Sidhu (2001) support Wines (1994) by focusing on a sample of distressed firms. Subsequent research expanded the domain of FRQ by incorporating additional FRQ measures like earnings conservatism, earnings restatement and capital market effects. Use of alternative FRQ measures is desirable because there is no consensus in the academic literature as to what constitutes FRQ yet such heterogeneity creates a challenge for conducting meaningful meta-analysis.

### **3. Critical evaluation of the FRQ proxies**

Although FRQ occupies the central role in the information provision to outsiders, the precise definition of FRQ remains elusive. Different groups define financial accounting quality in different ways. The Financial Analysts Federation (FAF), a branch of the Association for Investment Management and Research (AIMR), provides summary evaluations of disclosure practices for a sample of companies, based on their aggregate disclosure efforts over a fiscal year. Analysts score respective companies on the basis of the timeliness, detail, and clarity of the information presented. Financial Accounting Standards Board (FASB) Concepts Statement 2, *Qualitative Characteristics of Accounting Information*, defined quality as a hierarchy of accounting qualities, with relevance and reliability considered the primary ones. In addition, the

statement has a set of criteria, such as representational faithfulness, verifiability, neutrality, predictive value, feedback, comparability, consistency, and timeliness. The 1994 American Institute of Certified Public Accountants (AICPA) Special Committee on Financial Reporting (the Jenkins Committee) used “quality of reported earnings” rather than the “quality of financial reporting” by focusing on user needs such as understanding the nature of a company’s businesses and performance, changes affecting the company, management’s perspective, and others (George, 2003). Financial reporting quality captures quality as embodied in actual accounting practices rather than quality of reporting standards. Ball, Kothari and Robin (2000) argue that this is desirable because much accounting practice is not determined by standards, since practice is more detailed than standards and standards often fail to keep pace with development in accounting practices. Furthermore, regulatory initiatives to increase financial reporting quality, capture only the mandated reporting quality, while financial reporting quality is also influenced by managers’ or shareholders’ incentives.

In considering financial reporting quality, the overwhelming majority of research has focused on earnings quality. Earnings are widely used as a key performance indicator of business success, commonly employed in compensation and debt arrangements. A recent comprehensive survey of Chief Financial Officers (CFO) by Graham, Harvey and Rajgopal (2005) show the GAAP earnings number, especially the earnings per share (EPS), is the key metric upon which the market focuses. This is mainly because, for evaluating a firm’s performance, investors need a simple benchmark, like EPS, that reduces the costs of information processing (Graham et al., 2005, p. 21). Also, valuation theory has long posited a relationship between earnings and the value of common stock (Miller & Modigliani 1966, Graham, Dodd and Cottle 1962). The most widely used earnings quality measure is some form of abnormal accruals measure as estimated by popular models like Jones (1991) and extended by Dechow, Sloan and Sweeney (1995). Following the agency-theory relationship developed earlier, auditors are more likely to acquiesce to client pressure, including pressure to allow earnings management, when the provision of non-audit services generates economic rents.<sup>6</sup> Therefore, the following hypothesis is formulated:

*H<sub>1</sub>*: Firms paying high NAF will report more income-increasing abnormal accruals than their low NAF counterparts.

However the reliability of the abnormal accruals models used in the extant literature is questionable. Unfortunately there is no best accruals model available in the extant literature and researchers usually validate the robustness of the findings by using alternative accruals models (Dechow, Richardson and Tuna, 2003). Another major problem with using abnormal accruals as a proxy for opportunistic earnings management is that managers could also use discretionary accruals as an efficient contracting device to provide credible signals to the marketplace about the future growth prospects of the organizations. However, earnings management-based accounting literature generally theorizes opportunistic motives for using abnormal accruals.

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<sup>6</sup> Becker, DeFond, Jiambalvo, and Subramanyam (1998) find that high quality audits proxied by Big 5 auditors constrain managerial opportunistic earnings management behaviour. However, they do not investigate the moderating effect of fee ratio.

Furthermore managers could manipulate accounting information using a combination of accruals management, real activities manipulation (Roychowdhury 2006), and classification shifting (McVay 2006) mechanisms.

Another earnings quality measure that has attracted significant research attention is earnings conservatism. Researchers use the notion of conservatism to imply conditional conservatism which requires a higher degree of verification for recognizing good news than bad news in financial statements (Basu, 1997). This timely loss recognition property mitigates agency problems between shareholders and managers (Kothari, Ramanna and Skinner, 2009). The choice of conditional conservatism as an earnings quality measure is appropriate in an audit setting because auditors are expected to influence timely recognition of bad news choices. Because published financial statements are a joint product of managers' representations and the audit process, earnings quality represented by the conditional conservatism property would also be expected to reflect audit quality (Ruddock, Taylor and Taylor, 2006). Because NAF are widely believed to contain higher profit margins than traditional audit services, auditors receiving high NAF may therefore be less inclined to issue conditionally conservative financial statements and hence compromise the integrity of financial statements. Therefore the following hypothesis is formulated:

*H<sub>2</sub>*: Firms paying high NAF will produce less conditionally conservative financial statements compared with their low NAF counterparts.

The conditional conservatism measure, however, has been challenged from different quarters. One common argument against this measure is that it proxies for some other properties of firms and/or financial reporting because of a negative relation between the conservatism measure and the market-to-book ratio and, hence, biases the asymmetric timeliness coefficient. Another serious concern is raised by Dietrich, Muller and Reidl (2007) who argue that the model is mis-specified, and produces biased coefficients because causality runs from earnings to returns and not the other way as modelled in Basu (1997). However, Ball, Kothari and Nikolaev (2009) provide an econometric analysis of the Basu (1997) conservatism measure and conclude that these challenges are misconstrued.

Going-concern audit opinion has been used as another proxy for the FRQ. Unlike earnings management and earnings conservatism which reflect actual reported numbers, going-concern opinion is provided by the auditors by taking into consideration a large number of factors including quality of earnings before issuing such opinions. Issuance of a going-concern opinion is a matter of considerable importance to the auditors because such opinions could lead to company bankruptcy (the so-called self-fulfilling prophecy feature). With respect to the effect of NAF on the auditors' propensity to issue going-concern audit reports, it is hypothesized that high levels of NAF could make the auditors financially dependent on the client and, hence, prevent them from issuing such opinions. This leads to the following hypothesis:

*H<sub>3</sub>*: Auditors receiving high NAF will be less inclined to issue going-concern audit opinions compared with their low NAF counterparts, after controlling for firm and audit specific characteristics.

Another financial reporting quality proxy that has recently become a matter of considerable concern for financial reporting regulators is earnings restatement. The US General Accounting Office (GAO, 2003) documents a total of 919 restatements from January 1997 to June 2002. Academic research reveals that restating firms lose about 10% of the market value on the day of such announcements (Palmrore, Richardson and Scholz, 2004). Efendi, Srivastava and Swanson (2007) report a positive association between stock-based compensation arrangements and subsequent earnings restatements. In the audit context, regulators and legislators presume that non-audit services compromise auditor independence, lead to lower quality audits and reviews, and increase the likelihood of financial reporting that violates the GAAP. Some of these violations are likely to be revealed through restatements of financial statements (Kinney et al., 2002). The following hypothesis is, therefore, developed:

*H4*: Firms paying high NAF are more likely to restate their financial statements compared with their low NAF counterparts.

Another FRQ proxy that has been used in the extant literature is the capital market perception of the reported earnings information. The underlying premise is that if investors perceive audit independence to be impaired in the face of extensive NAF, "...[they] will place less reliance on the auditors' attestation of it's client's financial statements, and perceive greater noise in the client's reported earnings" (Krishnan, Sami and Zhang, 2005). Consequently the earnings response coefficient (ERC) of such firms will be lower than for firms who pay less NAF to incumbent auditors. The following hypothesis tests this conjecture:

*H5*: ERC will be lower for firms paying high NAF compared with their low NAF counterparts.

## **4. Methods**

### **4.1 Search for relevant studies**

I performed an exhaustive search via ABN-INFO, SSRN, existing literature reviews, and internet sources to identify potential studies to be included for this meta-analysis. One important consideration for any meta-analysis is whether unpublished working papers should be included along with published studies. Pomeroy and Thornton (2008) included unpublished working papers arguing that, "...aggregating both published and unpublished results adumbrates potential implications of statistically non-significant results, mitigating publication and replication bias" (p.312). I, however, excluded unpublished working papers before 2006 because those working papers are unlikely to get published, and are also less comparable with recent findings.

### **[TABLE 1 ABOUT HERE]**

The combined search resulted in 47 papers including 4 unpublished papers and nearly 89,300 sample observations. The bulk of the papers included in the present meta-analysis addresses the effect of NAF on earnings management (fourteen studies including one unpublished working papers), going-concern audit opinion (fourteen studies including one unpublished working paper)



and capital market perception of reported earnings studies (eight studies including one unpublished working paper).

## 4.2 Criteria for relevance

The studies included for this meta-analysis had the following characteristics. First, the studies examined the relationship between NAF and FRQ quantitatively. The reported statistics did not have to be a Pearson's product-moment correlation  $r$ , but could also be a t-statistic or p-value. Second, the studies specified which component of the FRQ they were trying to measure unambiguously. Third, two relevant studies for this meta-analysis by Srinidhi and Gul (2007) and Gul, Jaggi and Krishnan (2007) could not be included because they provided significance levels but neither p-values nor t-statistics. An additional study excluded was Lim and Tan (2008)'s, because their study appeared twice under both the earnings management and going-concern categories of the FRQ and the authors used *PRNAU* as the independent variable: defined as the percentile rank of a particular client's NAF given all NAF received by the audit firm. Two other studies by Basioudis et al. (2008) and Geiger and Rama (2003) in the going-concern opinion and NAF category were also excluded because of different NAF proxies used. A final sample of 42 studies is included in the meta-analysis.

## 4.3 Meta-analysis procedures

The purpose of this meta-analysis is to determine (i) the net effect of NAF on FRQ; and (ii) whether there is homogeneity in the FRQ proxies used in the extant literature. The following standard meta-analysis procedures as suggested by Lipsey and Wilson (2001) are performed to fulfill these objectives.

**Step 1:** Convert test statistics, such as p-values or t-statistics reported in different studies to a standard correlation measure called effect size. The majority of the studies canvassed for meta-analysis in this paper reported p-values. Reported p-values are converted into t-statistics, and effect size then is calculated as follows:

$$ES = \frac{t}{\sqrt{t^2 + df}}$$

**Step 2:** Compute mean effect size using weighting factors based on assumptions regarding the homogeneity of variances across studies.

**Step 3:** Test the homogeneity hypothesis in 2 above.

While conducting this meta-analysis a number of adjustments had to be made. First, the independent variable, auditor independence, is proxied in the published studies by a number of alternative fee constructs. The most widely used proxy is the fee ratio defined as NAF divided by sum of audit and non audit fees. Other proxies include log of NAF, total fee (sum of audit and NAF), and components of NAF, e.g. audit-related fee ratio, tax ratio, and other fee ratios. Given the popularity of fee ratios, the present meta-analysis includes all studies that adopted this construct as the primary independent variable to proxy auditor independence. However,

Ashbaugh et al. (2003) argued that the fee ratio does not capture the economic importance of the client when total client fees are immaterial to the audit firms. Therefore, as a supplementary analysis, meta-analysis results using total fee as the independence proxy has also been provided. With respect to the components of NAF, tax ratio has been selected as the primary construct for auditor independence because the Public Company Accounting Oversight Board (PCAOB) is of the opinion that provision of tax services would be viewed most negatively by the market participants.

Another difficulty associated with conducting meaningful meta-analysis relates to the heterogeneity of the FRQ proxies used. For example, when considering earnings management, some researchers used discretionary accruals in the primary analysis and the propensity of managers to meet or beat earnings targets (benchmark beating phenomena) in the supplementary analysis as proxies for FRQ (Frankel et al., 2002; Ashbaugh et al, 2003; Dee et al. 2006). I included discretionary accruals results only because of their extensive use in the academic literature as the earnings management proxy and the concern that benchmark beating does not represent actual earnings management but rather is a manifestation of statistical artifact (Dechow, Richardson and Tuna, 2003; Durtschi and Easton, 2005, 2009).

## 5. Results

Table 2 reports the effect size measures of the selected studies and Figure 2 graphs such effect size for three broad FRQ proxies. The effect size measure is an essential feature of meta-analysis which "...produces a statistical standardization of the study findings such that the resulting numerical values are interpretable in a consistent fashion across all the variables and measures involved" (Lipsey and Wilson, 2001, p.4). Effect size calculations for studies that reported t-statistics was straightforward using the procedure outlined in section 3 above. The majority of the selected studies, however, reported p-values, and those values therefore had to be converted into t-statistics. To do that I used two-tailed t-values from the t-distribution table in Lipsey and Wilson (2001). Table 2 also reports *effect size<sub>zr</sub>* which is the transformed correlation and standard error (SE) of the distribution using the following formula:

$$ES_{zr} = 0.5 \log \left[ \frac{1 + ES_r}{1 - ES_r} \right]$$

I coded every study effect size as positive if it supported the expectation that NAF are negatively associated with FRQ. For example, studies documenting a positive association between earnings management and NAF imply low quality FRQ. On the other hand, studies documenting a negative association between NAF and unexpected earnings also imply low quality FRQ. If I had taken the original signs reported in the study then it would fail to capture the fact that both these groups of studies provide evidence that high NAF reduce FRQ. Therefore, to be consistent with the underlying interpretation, I coded every effect size as positive if it supported the hypothesis that high NAF reduce FRQ, even though the actual coefficient signs reported in the original studies could show otherwise. Reported results in table 2 reveal that there is a positive association between NAF and FRQ, implying that high NAF reduce FRQ. The correlation, however, is quite low at 0.02 with a standard error of 0.0033. The test of statistical significance reveals that the Z-statistic is 6.06 which is significant at better than the 1% level.

**[TABLE 2 and FIGURE 2 ABOUT HERE]**

Looking at the confidence interval of the effect size distribution, it is concluded that there is a 0.95 probability that the true association between NAF and FRQ is between 0.014 and 0.026. Cohen (1977, 1978, cited in Lipsey and Wilson, 2001) reported a general rule of thumb statistic for interpreting effect size values with effect size less than or equal to 0.20 representing the small range (analogous values for the correlation effect size is 0.10). The very low correlation reported in the present meta-analysis supports the conjecture that the association between NAF and FRQ is inconclusive. Pomeroy and Thornton (2008) reported an average effect size of -0.08 in their meta-analysis of the effect of audit committee independence on FRQ. This, too, is rather low according to Cohen's statistics. In the present meta-analysis, the effect size associated with the impact of NAF on earnings management is generally positive (eight out of the fourteen studies report positive effect size statistics). All the USA studies investigating the association between NAF and earnings management except the one by Koh, Rajgopal and Srinivasan (2009) use data from the post 2000 period when the Securities & Exchange Commission (SEC) mandated disclosures of NAF data. Koh et al. (2009) argue that this may have weakened such an association because of time-period specific confounding effects. The authors use NAF data disclosed during 1978-80 period to provide a cleaner test of the impact of NAF on earnings management. They fail to find any evidence that NAF compromise FRQ.

Eight out of the fourteen studies on the association between NAF and audit opinion report a negative effect size. Earlier research on the impact of NAF on audit opinion decisions supported the impairment of independence hypothesis because auditors receiving high NAF provide clean reports even in cases when going-concern reports were warranted (Sharma and Shidhu, 2001). However, in a recent study in the USA, Callaghan et al. (2009) actually report that audit firms receiving higher tax-related NAF provide more accurate going-concern assessments. Only two studies investigate the effect of NAF on earnings conservatism using Basu (1997)-type conservatism measure, which is gaining popularity as an important earnings quality measure. Neither Ruddock et al. (2005) in Australia nor Zhang and Emanuel (2008) in New Zealand find any evidence that high NAF reduce earnings conservatism. Earnings restatement research is also very limited and again there is no evidence of impairment of independence. Cahan and Zhang (2006) investigate whether after the demise of Arthur Andersen, successor auditors required more conservative accounting for their ex-Andersen clients to minimize litigation risk. However, they use abnormal accruals as a proxy for earnings conservatism and find a negative association between the fee ratio and abnormal accruals. More robust evidence has been obtained from studies that investigate capital market perception effect of firms receiving high NAF. For example, Krishnan et al. (2005) document a negative ERC for firms receiving high NAF, indicating that investors perceive such higher fees as a threat to independence. Similar evidence is provided by Gul et al. (2006) in the Australian market. With respect to market pricing of corporate debt, Brandon et al. (2004) find that the amount of NAF received by the external auditor negatively affects the corporate bond ratings. Dhaliwal et al. (2008) also provide evidence consistent with Brandon et al. (2004).

Figure 2 plots the effect size associated with earnings management, audit opinion and capital market effect components of FRQ. As is evident from the figure, effect size associated

with audit opinion studies are much more skewed (unevenly distributed) than the other two groups. One reason for such an uneven distribution is small sample sizes with high stat-values (e.g., Mishra et al., 2005).

### 5.1 Test of heterogeneity among FRQ proxies

An important consideration in conducting meta-analysis is to determine whether the various effect sizes that are averaged into a mean value, are estimating the same population effect size. According to Lipsey and Wilson (2001, 115), "...in a homogenous distribution an individual effect size differs from the population mean only by sampling error. A statistical test that rejects the null hypothesis of homogeneity indicates that the variability of the effect sizes is larger than would be expected from sampling error and, therefore, each effect size does not estimate a common population mean". The homogeneity of variance test is based on the Q statistic, which is distributed as a chi-square with  $k-1$  degrees of freedom where  $k$  is the number of effect sizes. The formula to calculate Q is given below:

$$Q = \sum w_i (ES_i - \overline{ES})^2,$$

Where *effect size<sub>i</sub>* (ES) is the individual effect size for  $i=1$  to  $k$ , and  $\overline{ES}$  is the weighted mean effect size over the  $k$  effect sizes, and  $w_i$  is the individual weight for *effect size<sub>i</sub>*. The reported Q statistic in Table 2 is 220.26 which is highly significant (the critical value is 74.75 at the  $p=0.001$  level, with 41 degrees of freedom) and strongly rejects the homogeneity hypothesis suggesting that that the FRQ proxies used in the extant literature do not measure the same underlying construct.

To further explore the source of such heterogeneity, I conduct an analysis of between-study variability as suggested by Pomeroy and Thornton (2008, 316):

- Group the financial reporting proxies into common categories (for example earnings management studies)
- Calculate an overall effect size for each FRQ group following the effect size calculation procedure outlined above.
- Calculate a Q-statistic for each group and test the homogeneity of variances assumption for each group.
- Sum the Q-values across all individual groups to obtain a within-group Q; then subtract the within-group Q from the overall Q-value obtained by the homogeneity of variances test to obtain a between-group Q measure.
- Observe whether the between-group Q (i.e. the variability due to differences in FRQ proxies across the literature) accounts for a significant proportion of the overall variability across studies.

Table 3 presents the between-study variability result for five groups, and allows for testing the hypotheses developed in section 3. The mean effect size of the studies investigating

**[TABLE 3 ABOUT HERE]**

the association between earnings management and NAF is 0.011 and is statistically significant, thereby supporting hypothesis 1. Looking at the confidence interval of the effect size distribution, it is concluded that there is 0.95 probability that the true association between earnings management and NAF is between -0.0012 and 0.022. The auditors' going-concern opinion-based FRQ proxy provides an overall effect size of 0.0325 which is statistically significant at better than the 1% level, thus, supports H<sub>2</sub>. The true association between NAF and this FRQ proxy is 0.015 and -0.15. Earnings conservatism and NAF research produces a negative effect size of -0.03 which is statistically significant at the 5% level. This negative effect size implies that NAF does not reduce FRQ as proxied by earnings conservatism. The true association is between -0.017 and 0.045. However, only two studies have investigated the association between NAF and the earnings conservatism-based FRQ proxy using Basu (1997)-type conservatism measure. Therefore, unlike earnings management and going-concern opinion-based FRQ proxies, earnings conservatism research needs further validation. Earnings restatement research does not support the proposition that high NAF results in increased earnings restatements. The overall effect size is -0.03 with the true association being between 0.02 and -0.08. Therefore both hypotheses 3 and 4 are rejected.

The most robust evidence regarding an association between NAF and an FRQ proxy comes from studies that investigate the stock market valuation of earnings conditional on auditors receiving higher NAF. Evidence strongly suggests that investors perceive higher NAF as a threat to independence, and penalizes earnings of such firms. The overall effect size is 0.04 (recall that a positive effect size implies compromise of audit independence) with a highly significant z-statistic of 7.70. The true association is between 0.03 and 0.05. Hypothesis five is therefore strongly supported. Of all the capital market-based studies only Nam (2006) concludes that high NAF do not compromise auditor independence and, if anything, actually decrease information risk because of the knowledge spillover effect. Consistent with this conjecture, Nam (2006) documents a negative association between NAF and the cost of capital after controlling for financial statement quality. Two studies investigate the bond market effect of higher NAF and reach the conclusion that bond investors also consider high NAF to be a threat to independence. However, they report coefficients which are opposite in sign. Dhaliwal et al. (2008) measure the costs of debt using yield on the first bond issue where the higher the yield the higher the cost of debt. On the other hand, Brandon et al. (2004) use Moody's bond rating as a proxy for cost of debt, where a higher score represents a stronger bond rating. What this suggests is not only heterogeneity among FRQ proxies but also intra-group-heterogeneity. The results indicate that assigning FRQ proxies to five groups accounts for roughly 10% of the variability in the overall effect size (based on a comparison between between-group Q and overall Q derived from the homogeneity test).

Table 3 also reports the Q statistics (homogeneity of variance test value) for each component of FRQ proxies. Test of homogeneity of variance for each group reveals that earnings management (reported Q stat of 44.39, is significantly larger than the critical chi square value at p=0.001 for 13 df of 34.53), audit opinion (reported Q stat of 90.02, is significantly larger than the critical chi square value at p=0.001 for 13 df of 34.53) and capital market effect (reported Q

stat of 46.63, is significantly larger than the critical chi square value at  $p=0.001$  for 7 df. of 24.32) of FRQ proxies violates the homogeneity of variance assumption. This finding is in contrast to Pomeroy and Thornton (2008, 316) analysis which "...yields a total of six groups that do not violate the homogeneity of variance assumption, ranging from the highest quality proxies such as cumulative abnormal returns to the lowest quality proxies such as earnings restatement." This implies that empirical research on the association between NAF and FRQ proxies give rise to significant *intra-group heterogeneity* with respect to the actual findings. Because of the significant intra-group heterogeneity, between group Q (30.1) derived by subtracting within-group Q (sum of Q values reported in Table 3 which is 190.16) from the overall Q value reported in Table 2 (homogeneity test value of 220.26) explains only 14% of the variability (30.1/220.26) in the overall effect size.

Finally as a sensitivity analysis, Table 4 reports the effect size results from using total fee rather than fee ratio as the fee construct. As mentioned earlier, Ashbaugh et al. (2003) criticize fee ratio as the valid proxy for auditor independence because this measure fails to consider the economic significance of total fees. Table 4 reports that the overall effect size is only 0.0088 and is statistically insignificant.

#### [TABLE 4 ABOUT HERE]

The test of homogeneity again suggests that there is significant heterogeneity of variances across the measurements employed to proxy for FRQ (component analysis used three proxies). Within and between group-Q analysis suggests that between group Q explains about 34% of the overall variability.

## 6. Implications

### 6.1 Implications for the regulators

How does this meta-analysis inform regulators regarding the desirability of restricting auditor-provided non-audit services to the clients? Regulators, particularly in the USA, seem convinced that the provision of non-audit services impairs auditor independence, and therefore the SEC went on to restrict certain kinds of non-audit services through the enactment of the SOX-2002. However, this meta-analysis contradicts such drastic regulatory action by revealing that the overall impact of NAF on FRQ is negligible. This seems consistent with the concerns expressed by Holmstorm and Kaplan (2003) that the bigger risk facing the US governance system is the possibility of over-regulation in response to the spate of corporate collapses occurred in 2001. Romano (2005) argues that regulation of non-audit services was pushed as a political agenda, even though the academic evidence suggests that non-audit services did not compromise auditor independence. However, the robust evidence obtained from capital market studies that document a significant negative association between NAF and unexpected earnings lends support to the SEC's concern about the adverse consequences of high NAF. However, as mentioned previously, heterogeneous use of FRQ proxies does undermine the importance of such research in informing regulators.

## 6.2 Implications for future research

The earnings quality metrics used in the extant research are all justifiable. However, the reliability of such measures needs to be subjected to additional tests. Future research could examine the association between NAF and balance sheet-based FRQ measures as proposed by Barton and Simko (2002). With the availability of disaggregated NAF data, an exciting avenue for future research would be to link different categories of NAF with FRQ measures based on a careful theorization of the possible impact of such disaggregated NAF.

Heterogeneity in FRQ proxies has been identified as the primary driver behind the poor correlation observed between NAF and FRQ proxies. Future research should investigate whether such heterogeneity is desirable. Hunter and Schmidt (1990), argue that broad constructs like FRQ can and should be operationalized in a number of ways, as long as they are informed by rigorous theoretical underpinnings. Why does this heterogeneity exist with respect to the operationalization of the FRQ construct? Pomeroy and Thornton (2008) identify publication bias and accounting researcher incentives as the two most important drivers of diversity and inconsistency in selecting the dependent variable, FRQ in this case. The authors state that (2008, 319), "...even when we include all known studies of AC [audit committee] effectiveness to date, both published and unpublished, we cannot reliably aggregate across all of them because of significant inconsistencies in defining the construct 'financial reporting quality' and *a relative absence of studies designed to replicate*, and thereby enhance confidence in, the results of previous studies" (emphasis added). However, replication bias is less pronounced in NAF and FRQ literature. An example is a number of replication studies (at least three) documenting no association between NAF and FRQ in response to Frankel et al.'s (2002) original study which documented that auditors receiving higher NAF allow managers to engage in earnings manipulation practices. Another example of the absence of such publication bias relates to the effect of NAF on auditor reporting decisions. This stream of research generally provides evidence supporting the hypothesis that high NAF compromises auditor independence by making auditors more inclined to issue clean audit reports even when a qualified audit report is justified. Researcher incentives, on the other hand, seem to constrain successful meta-analysis in the NAF and FRQ domains as is consistent with Pomeroy and Thornton (2008). Successful researchers need to differentiate themselves by proposing and testing novel and innovative measures of FRQ proxies. However, in doing so, they run the risk of moving away from the mainstream, even though the reliability of the findings from the mainstream could have been questioned (Bamber, Christensen, and Gaver, 2000).

Meaningful interpretation of the present meta-analysis is further complicated by the fact that there is yet to be any consensus on which fee variable truly captures compromise of audit independence. The popular fee construct has been the fee ratio, which measures NAF as a percentage of total fees. This ratio, however, fails to consider the economic significance of total fees and has, therefore, been criticized as a valid measure of the economic bond between the auditor and the client. Further research should be undertaken to explore the theoretical rationales for using one fee measure over the other.

Another shortcoming of the studies included for meta-analysis is the piecemeal approach adopted by researchers for addressing the relationship between NAF and FRQ. For example,

capital market effect studies investigated the market reaction to unexpected earnings as conditional on NAF level. The underlying theory is that the market considers such earnings as tainted and penalizes accordingly. However, this assumption will be supported only when the discretionary accruals component of earnings is negatively priced for firms with high NAF. But earnings management research does not provide overwhelming evidence of firms with high NAF engaging in more earnings manipulation. Additionally, managers could use discretionary accruals for both opportunistic as well as efficient contracting purposes. Income increasing discretionary accruals allowed by audit firms with high NAF do not necessarily imply dysfunctional behaviour by corporate managers. Market reaction would be a nice setting to test these propositions.

## **7. Concluding remarks**

It has been well documented that auditing serves as an effective corporate governance mechanism. However, audit quality has come under serious scrutiny because of the joint provision of audit and non-audit services, and regulators consider such services to be a threat to auditor independence. A sizable volume of archival research has developed over the years to address whether such a presumption is supported by actual data. The purpose of this paper was to conduct a systematic meta-analysis to provide a statistical assessment of the association between NAF and FRQ. Meta-analysis is superior to narrative literature review, because the former aggregates results across individual studies statistically and corrects for statistical artefacts like sampling and measurement error, thereby providing much greater precision with respect to the findings compared with narrative reviews. Meta-analysis results reveal that there is some justification for regulators' concern over increasing NAF, as high NAF are perceived to be a threat to auditor independence from capital market participants. The overall correlation between NAF and FRQ, however, is found to be very low and is primarily attributed to heterogeneous FRQ proxy use in the extant literature. Of the five FRQ proxies, capital market effect exhibited the strongest correlation with the NAF measure. The earnings management proxy routinely used as the primary indicator of independence impairment due to NAF, exhibits a much lower association. This meta-analysis is expected to inform regulators about the desirability of restricting the provision of non-audit services by auditors. The findings imply that regulators may have put undue importance on restricting non-audit services, and in so doing may have limited potential benefits derived from the knowledge spillover effects associated with such services.



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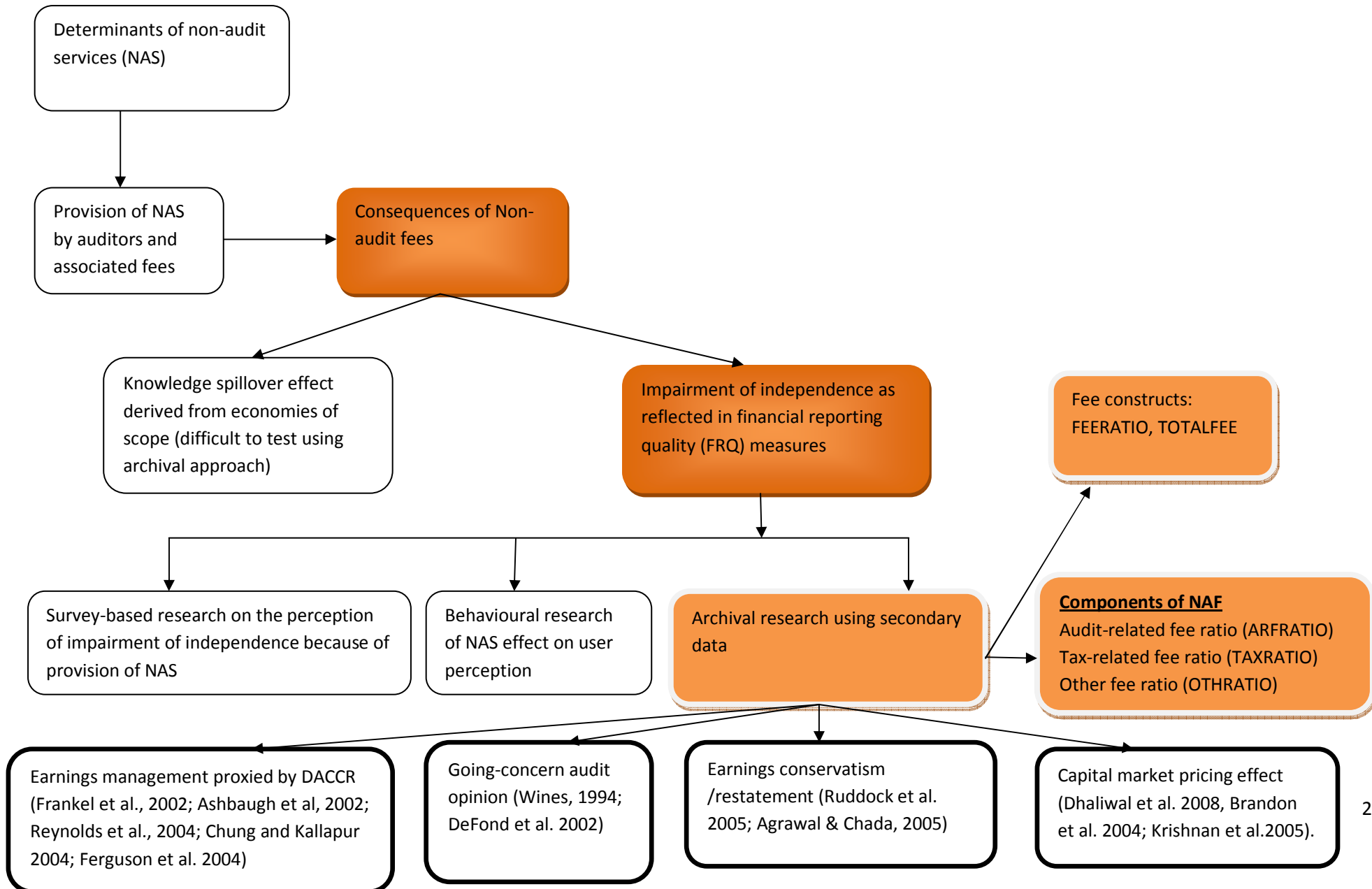
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**Figure 1: Domain of meta-analysis**



**Table 1: Studies included in the meta-analysis**

Author & year	Sample size	Country	Dependent variable	Independent variable	Statistics	Findings
<b>NAF and earnings management (common proxy DACCR)</b>						
Frankel et al. (2002)	2,472 firm-years	USA	<i>DACCR</i> <sup>a</sup>	<i>FEERATIO</i>	0.01	Positive and significant
Ashbaugh et al. (2003)	3,069 firm-years	USA	Performance adjusted <i>DCACCR</i> <sup>b</sup>	<i>FEERATIO</i>	0.02	Positive and significant
Chung and Kallapur (2004)	1,853 firm-years	USA	<i>DCACCR</i>	<i>FEERATIO</i>	1.52	Positive but insignificant
Larcker & Richardson (2004)	5,103 firm-years	USA	<i>DCACCR</i>	<i>FEERATIO</i>	<b>1.69</b>	Positive and marginally significant
Reynolds et al. (2004) <sup>c</sup>	2,507 companies	USA	<i>DCACCR</i>	<i>FEERATIO</i>	0.23	Negative and insignificant
Ferguson et al. (2004)	610 firm-years	United Kingdom	<i>DCACCR</i> <sup>d</sup>	<i>FEERATIO</i>	0.001	Positive and significant.
Antle et al. (2006)	2294 firm-years	United Kingdom	<i>DCACCR</i>	<i>FEERATIO</i>	<b>2.47</b>	Positive and significant
Magdy (2006) <sup>e</sup>	996 firm-years	USA	<i>DCACCR</i>	<i>FEERATIO</i>	0.002	Positive and significant
Dee et al. (2006) <sup>f</sup>	384 firms	USA	Performance adjusted <i>DCACCR</i>	<i>FEERATIO</i>	0.60	Negative and insignificant
Huang et al. (2007) <sup>g</sup>	6,891 firm-years	USA	Performance adjusted <i>CAACR</i> <sup>+</sup>	<i>TAXRATIO</i> <sup>e</sup>	0.12	Negative and insignificant
Coulton et al. (2007)	4,021 firm-year	Australia	<i>DCACCR</i>	<i>FEERATIO</i>	<b>0.85</b>	Negative and insignificant
Habib & Islam (2007)	530 firm-years	Bangladesh	<i>DACCR</i> <sup>f</sup>	<i>FEERATIO</i>	0.47	Negative and insignificant
Mitra (2007)	71 firms	USA	<i>DCACCR</i>	<i>FEERATIO</i>	0.24	Positive but insignificant
Koh, Rajgopal and Srinivasan (2009)	1260 firm-years	USA	<i>DCACCR</i>	<i>FEERATIO</i>	-0.76	Negative and insignificant

<b>Audit opinion/ Auditor ratification decisions</b>						
Wines (1994)	76 listed firms	Australia	Audit qualifications	<i>FEERATIO</i>	<b>-1.83</b>	Negative and significant
Craswell (1997)	3,441 firm-years	Australia	An indicator variable for going-concern opinion	<i>FEERATIO</i>	<b>0.79</b>	Positive but insignificant
Lennox (1999)	2,266 firm-years	UK	An indicator variable for qualified opinion	<i>FEERATIO</i>	<b>2.15</b>	Positive and significant
Sharma & Shidhu (2001)	49 bankrupt firms	Australia	An indicator variable for going-concern opinion	<i>FEERATIO</i>	0.049	Negative and significant
DeFond et al. (2002)	1,158 financially distressed firms	USA	An indicator variable for going-concern opinion	<i>FEERATIO</i>	0.49	Negative and insignificant
Firth (2002)	1,112 firm-years	UK	An indicator variable for qualified opinion	<i>FEERATIO</i>	<b>-1.96</b>	Negative and significant
Raghunandan (2003)	172 firm-years	USA	Proportion of shares voted against and abstained from the selection of the auditor.	<i>FEERATIO</i>	<b>3.92</b>	Positive and significant
Mishra et al. (2005)	248 firms	USA	Vote: Percent of votes against auditor	<i>TAXRATIO</i>	7.78	Positive and significant
Hay et al. (2006)	643 firm-years	New Zealand	Audit qualifications	<i>FEERATIO</i>	0.52	Negative and insignificant
Pe et al. (2006)	627 firm-years	Australia	GC opinion	<i>FEERATIO</i>	<b>-1.67</b>	Negative and significant
Robinson (2008)	209 bankruptcy filing firms	USA	An indicator variable for going concern opinion	<i>TAXRATIO</i>	0.05	Positive and significant
Fargher and Jiang (2008)	5,113 firm-years	Australia	GCIPGC= indicator variable coded 1 if a client receives actual GC given a PGC	<i>FEERATIO</i>	0.003	Negative and significant
Callaghan et al. (2009)	92 firms	USA	An indicator variable coded 1 if the firm receives a GC opinion, zero otherwise.	<i>FEERATIO</i>	0.51	Positive and insignificant
Liu et al. (2009)	194 firm-years	USA	Proportion of shares voted against and abstained from the selection of the auditor.	<i>FEERATIO</i>	3.60	Positive and significant



<b>Earnings conservatism<sup>h</sup></b>						
Ruddock et al. (2005)	3,746 firm-years	Australia	News-dependent conservatism measure of Basu (1997).	<i>FEERATIO</i>	<b>1.23</b>	Positive but not significant
Cahan and Zhang (2006)	1,639 firm-years	USA	Unadjusted abnormal accruals	<i>FEERATIO</i>	<b>-2.26</b>	Negative and significant
Zhang and Emanuel (2008)	352 firm-years	New Zealand	News-dependent conservatism measure of Basu (1997).	<i>FEERATIO</i>	<b>-0.95</b>	Negative but insignificant
<b>Earnings restatement</b>						
Kinney et al. (2004)	934 firm years	USA	<i>RESTATE</i> equals 1 if restated, 0 otherwise.	<i>TAXRATIO</i>	0.04	Negative and significant
Agrawal & Chada (2005)	318 firm-years	USA	<i>RESTATE</i> equals 1 if restated, 0 otherwise.	<i>FEERATIO</i>	0.15	Positive but not significant
Bloomfield & Shackman (2008)	500 firm-years	USA	Restatement probability	<i>FEERATIO</i>	<b>-0.56</b>	Negative but insignificant
<b>Capital market perception studies</b>						
Brandon et al. (2004)	333 bond issuers	USA	Polychotomous Moody's bond rating	<i>FEERATIO</i>	0.023	Negative and significant
Dhaliwal et al. (2008)	560 bond issues	USA	<i>TSPREAD</i> : the yield on the first bond issue	<i>FEERATIO</i>	<b>2.11</b>	Positive and significant
Krishnan et al. (2005)	2,816 firm-years	USA	Three-day market-adjusted abnormal returns (CAR)	<i>FEERATIO</i>	<b>-3.22</b>	Negative and significant.
Gul et al. (2006)	840 firm-years	Australia	<i>RTN</i> : Holding returns from 9 months before the balance sheet date to 3 months after.	<i>FEERATIO</i>	<b>-2.46</b>	Negative and significant.
Nam (2006)	4,129 firm-years	USA	Cost of capital	<i>FEERATIO</i>	<b>-3.11</b>	Negative and significant
Francis and Ke (2006)	16,243 firm-years	USA	<i>CAR</i>	<i>FEERATIO</i>	<b>-3.96</b>	Negative and significant
Chin et al. (2007)	254 firm-years	Taiwan	Forecast bias Forecast accuracy	<i>FEERATIO</i>	<b>2.46</b>	<i>FEERATIO</i> is positively associated with optimistic and
Ghosh et al. (2008)	8,938 firm-years	USA	<i>CAR</i>	<i>FEERATIO</i>	<b>-5.93</b>	Negative and significant

**Notes:**

Bold and italicized reported statistics are t-values while the remaining are p-values.

<sup>a</sup> I use absolute DACCR (IDACCRI) as the relevant FRQ proxy. The reason for such an exercise is that companies could engage in both upward as well as downward earnings management and therefore IDACCRI seems to be the right proxy. Frankel et al. (2002) and many other studies also reported coefficient and stat values for income-increasing as well as income-decreasing accruals separately (e.g., Table 6, panel B in Frankel et al). In addition to the DACCR, many studies also included “loss avoidance” and “small increase in earnings” as two other earnings management proxies. I exclude these two earnings benchmark thresholds from meta analysis because DACCR is considered to be the primary earnings management proxy.

<sup>b</sup> Ashbaugh et al. (2003) replicate Frankel et al. (2002) but model IDACCRI as performance-adjusted DACCR. .

<sup>c</sup> Reynolds et al. control for asset growth and fail to find any effect of NAF on DACCR.

<sup>d</sup> Ferguson et al. (2006) also include two other proxies for earnings management besides IDACCRI. Firstly, they use a variable *CRIT* coded as 1 if client accounting practices were subject to regulatory investigation; and the variables *RSTA*, coded 1 if the client financial statements were restated; and zero otherwise.

<sup>e</sup> Magdy (2007) reports moderating effect of earnings persistence and fee ratio on earnings management and finds a positive and significant effect of such variable on earnings management proxy.

<sup>f</sup> Dee et al. (2006) include S&P500 as the moderating variable and find a negative but insignificant relationship between DACCR and the interaction variable.

<sup>g</sup> Huang et al. (2007) break down FEERATIO into audit-related fee ratio (AFRATIO), tax ratio (TAXRATIO) and other fee ratio (OTHRATIO). I include only TAXRATIO as the appropriate fee construct because descriptive statistics in Huang et al (2007) Table 1 reveals that TAXRATIO is the largest component of FEERATIO. Furthermore, the PCAOB is of the opinion that provision of tax services would be viewed most negatively by the market participants.

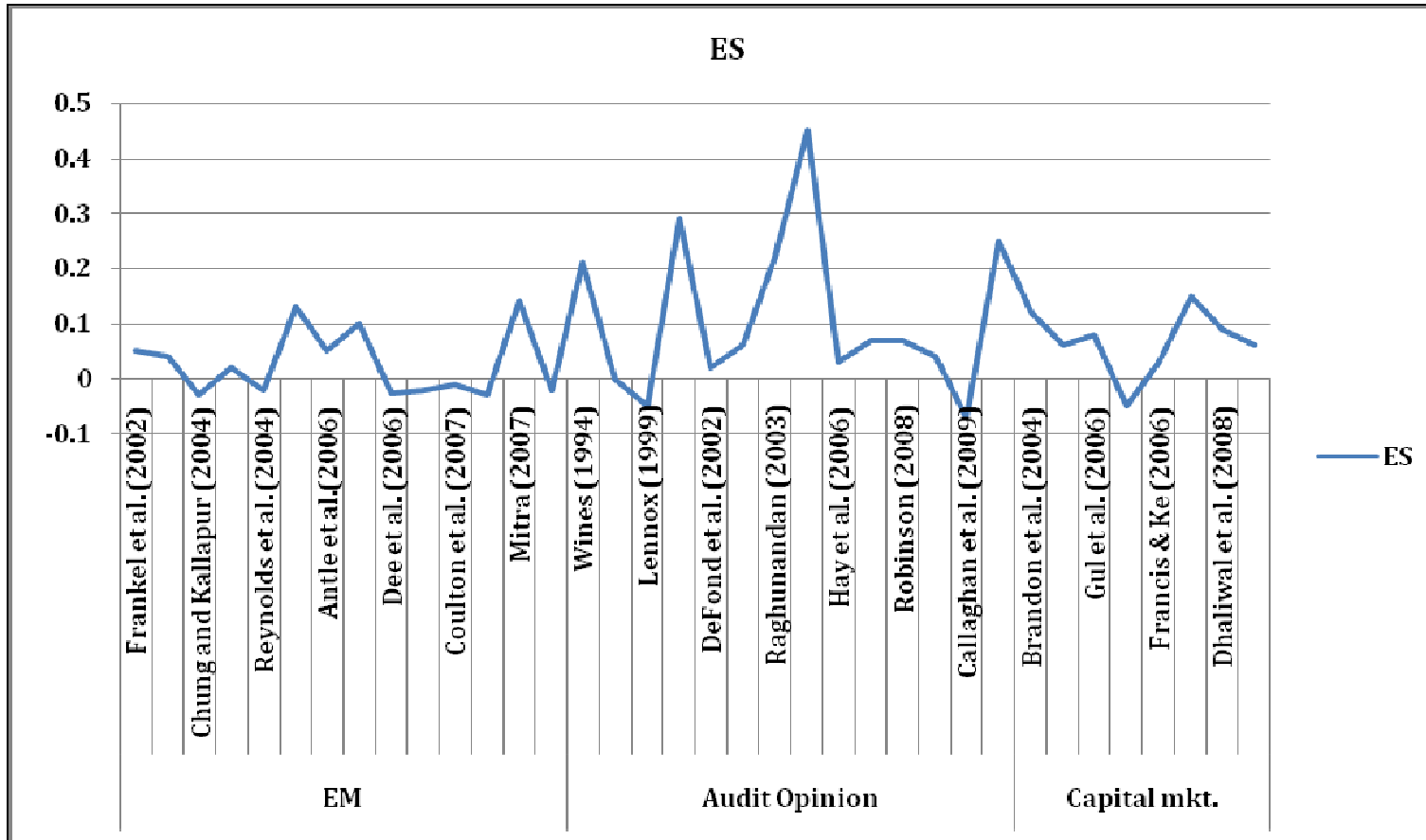
<sup>h</sup> Two approaches to measuring conservatism are popular in extant accounting research. Reversal of earnings-based conservatism measures and Basu (1997)-type reverse regression measures. The Basu (1997) approach is the dominant model and, hence, I report stat values derived from this model.

**Table 2: Calculation of effect size (FEERATIO as the primary independent variable)**

<i>FRQ</i>	<i>Author</i>	<i>Stat value</i>	<i>N</i>	<i>ES</i>	<i>ES<sub>z</sub></i>	<i>W (df)</i>	<i>SE</i>	<i>W*ES</i>	<i>W*ES<sup>2</sup></i>	
<i>EM</i>	Frankel et al. (2002)	0.01	2472	0.05	0.05	2469	0.02	123.45	6.17	
	Ashbaugh et al. (2003)	0.02	3069	0.04	0.04	3066	0.02	122.64	4.91	
	Chung and Kallapur (2004)	0.17	1871	-0.03	-0.03	1868	0.02	-56.04	1.68	
	Larcker & Richardson (2004)	1.69	5103	0.02	0.02	5100	0.01	102	2.04	
	Reynolds et al. (2004)	0.233	2507	-0.02	-0.02	2504	0.02	-50.08	1.00	
	Ferguson et al. (2004)	0.001	610	0.13	0.13	607	0.04	78.91	10.26	
	Antle et al.(2006)	2.47	2,294	0.05	0.05	2291	0.02	114.55	5.73	
	Magdy (2006)	0.002	996	0.10	0.10	993	0.03	99.30	9.93	
	Dee et al. (2006)	0.60	384	-0.027	-0.03	381	0.05	-11.43	0.28	
	Huang et al. (2007)	0.12	6,891	-0.02	-0.02	6888	0.01	-137.76	2.76	
	Coulton et al. (2007)	-0.85	4,021	-0.01	-0.01	4018	0.02	-40.18	0.40	
	Habib & Islam (2007)	0.47	530	-0.03	-0.03	527	0.04	-15.81	0.47	
	Mitra (2007)	0.24	71	0.14	0.14	68	0.12	9.52	1.33	
	Koh et al. (2009)	-0.76	1260	-0.02	-0.02	1257	0.03	-25.14	0.51	
	<i>Audit Opinion</i>	Wines (1994)	-1.83	76	0.21	0.21	73	0.12	15.33	3.22
		Craswell (1997)	0.79	3,441	-0.0002	-0.0002	3438	-0.02	-0.69	0.00
Lennox (1999)		2.15	2,266	-0.05	-0.05	2263	0.02	-113.15	5.66	
Sharma & Shidhu (2001)		0.049	49	0.29	0.30	46	0.15	13.34	3.87	
DeFond et al. (2002)		0.49	1,158	0.02	0.02	1155	0.03	23.1	0.46	
Firth (2002)		-1.96	1,112	0.06	0.06	1109	0.03	66.54	3.99	
Raghunandan (2003)		3.92	300	0.22	0.22	297	0.06	65.34	14.37	
Mishra et al. (2005)		7.78	248	0.45	0.48	245	0.06	110.25	49.61	
Hay et al. (2006)		0.52	643	0.03	0.03	640	0.04	19.2	0.58	
Pe et al. (2006)		-1.67	627	0.07	0.07	624	0.04	43.68	3.06	
Robinson (2008)		0.05	209	0.07	0.07	206	0.07	14.42	1.01	
Fargher and Jiang (2008)		0.003	5,113	0.04	0.04	5110	0.01	204.4	8.18	
Callaghan et al. (2009)		0.68	92	-0.07	-0.07	89	0.07	-6.23	0.44	
Liu et al. (2009)		3.60	194	0.25	0.26	191	0.04	47.75	11.94	

<b>Conservatism</b>	Ruddock et al. (2005)	1.23	3,746	-0.02	-0.02	3743	0.02	-74.86	1.50
	Zhang and Emanuel (2008)	-0.956	352	0.05	0.05	349	0.05	17.45	0.87
	Cahan and Zhang (2006)	-2.26	1639	-0.058	-0.06	1636	0.02	-94.88	5.50
<b>Restatement</b>	Kinney et al. (2004)	0.04	934	-0.07	-0.07	931	0.03	-65.17	4.56
	Agrawal & Chada (2005)	0.15	318	0.08	0.08	315	0.06	25.2	2.02
	Bloomfield & Shackman (2008)	-0.56	500	-0.03	-0.03	497	0.04	-14.91	0.45
<b>Capital mkt.</b>	Brandon et al. (2004)	0.02	333	0.12	0.13	330	0.06	39.6	4.75
	Krishnan et al. (2005)	-3.22	2,816	0.06	0.06	2813	0.02	168.78	10.13
	Gul et al. (2006)	-2.46	840	0.08	0.08	837	0.03	66.96	5.36
	Nam (2006)	-3.11	4,129	-0.05	-0.05	4126	0.02	-206.3	10.32
	Francis & Ke (2006)	-3.96	16243	0.03	0.03	16240	0.03	487.2	14.62
	Chin et al. (2007)	2.46	254	0.15	0.15	251	0.06	37.65	5.65
	Dhaliwal et al. (2008)	2.11	560	0.09	0.09	557	0.04	50.13	4.51
	Ghosh et al. (2008)	-5.93	8,938	0.06	0.06	8935	0.01	536.1	32.17
			<b>89,209</b>			<b>89,083</b>		<b>1791.12</b>	<b>256.27</b>
	Mean effect size							0.02	
	S.E.							0.0033	
	Z-stat							6.06*	
	Lower bound							0.014	
	Upper bound							0.026	
	Homogeneity test							220.26	
	Within group Q ( Table 3)							190.16	
	Between group Q†							30.1	
	Between group Q explains							14%	

†Group-specific Q (within group) values from Table 3 are added together  $[44.39+90.02+3.82+5.30+46.63] = 190.16$ . Q values derived from homogeneity test is then subtracted from this value  $[220.26-190.16]$  giving a between group Q value of 30.1



**Figure 2:** Effect size distribution across studies selected for meta-analysis. Distribution of effect sizes are much more skewed for audit opinion component of FRQ compared to earnings management and capital market effect component of FRQ.

**Table 3**  
**Component of FRQ proxies and effect size analysis (within-group variability)**

<b>FRQ</b>	<b>Earnings management (14 studies)</b>	<b>Audit opinion/auditor ratification (14 studies)</b>	<b>Earnings conservatism (3 studies)</b>	<b>Earnings restatement (3 studies)</b>	<b>Capital market effect (8 studies)</b>
Mean E.S.	0.0098	0.0325	-0.027	-0.03	0.034
S.E.	0.0056	0.0080	0.013	0.024	0.0054
Z-Score	1.75	4.06*	-2.05**	1.25	7.70*
Upper limit	0.02	0.05	-0.0015	0.02	0.03
Lower limit	-0.0012	0.02	-0.052	-0.08	0.05
Q values	44.39	90.02	3.82	5.30	46.63

Table 3 reports weighted effect size of each FRQ proxy group to determine whether there are any quantitative or qualitative differences in the association between NAF and FRQ across the groups. The analysis reported in Table 3 shows that the mean effect size is significant for earnings management and capital market groups. These two categories constitute fifty four percent of the selected studies.

\*,\*\* denotes statistical significance at 1% and 5% level respectively (two-tailed test).

**Table 4**  
**Calculation of effect size and associated statistics using total fee as the fee proxy**  
**Panel A**

<i>FRQ</i>	<i>Author</i>	<i>Stat value</i>	<i>N</i>	<i>ES</i>	<i>ES<sub>z</sub></i>	<i>W (df)</i>	<i>SE</i>	<i>W*ES</i>	<i>W*ES<sup>2</sup></i>
<i>EM</i>	Frankel et al. (2002)	0.16	2472	0.03	0.03	2469	0.02	74	2.22
	Ashbaugh et al. (2003)	0.59	3069	0.01	0.01	3066	0.02	31	0.31
	Chung and Kallapur (2004)	0.381	1871	-0.02	-0.02	1868	0.02	-37	0.75
	Larcker & Richardson	-6.21	5103	-0.09	-0.09	5100	0.01	-459	41.31
	Reynolds et al. (2004)	0.35	2507	0.02	0.02	2504	0.02	50.08	1.00
	Dee et al. (2006)	0.022	384	0.12	0.12	381	0.05	45.72	5.49
	Coulton et al. (2007)	-1.48	4,021	-0.02	-0.02	4018	0.02	-80.36	1.61
	Habib & Islam (2007)	0.14	530	0.07	0.07	527	0.04	37	2.58
	Mitra (2007)	0.31	71	0.13	0.13	68	0.12	8.84	1.15
<i>Audit opinion</i>	DeFond et al. (2002)	0.12	1,158	0.05	0.05	1155	0.03	57.75	2.89
	Callaghan et al. (2009)	0.83	92	0.03	0.03	89	0.03	2.67	0.08
<i>Capital market</i>	Brandon et al. (2004)	0.001	333	0.18	0.182	330	0.06	59.4	10.69
	Krishnan et al. (2005)	-1.68	2,816	0.03	0.03	2813	0.02	84.39	2.53
	Chin et al. (2007)	0.96	254	0.06	0.06	251	0.06	15.06	0.90
	Dhaliwal et al. (2008)	2.45	560	0.10	0.10	557	0.04	56	5.57
	Ghosh et al. (2008)	-4.19	8,938	0.04	0.04	8935	0.01	357.4	14.30
						<b>34131</b>		<b>301.91</b>	<b>93.37</b>
	Mean ES							0.0088	
	S.E.							0.0054	
	Z-stat							1.63	
	Lower bound							-0.0018	
	Upper bound							0.0193	
	Homogeneity test							90.71	
	Within-Group Q							59.59	
	Between group Q							31.12	
	Between group Q explains							34%	

**Panel B**

**Component of FRQ proxies and effect size analysis (total fee as the fee proxy)**

<b>FRQ proxies</b>	<b>Mean effect size</b>	<b>S.E.</b>	<b>Z-statistics</b>	<b>Upper limit</b>	<b>Lower limit</b>	<b>Q values</b>
Earnings management	-0.017	0.0071	2.39**	-0.0027	-0.03	50.95
Audit opinion/auditor ratification	0.05	0.02	1.71	0.010	-0.007	0.04
Capital market effect	0.04	0.0088	5.04*	0.06	0.03	8.6

**Note:**

Ashbaugh et al. (2003) argued that fee ratio does not capture the economic importance of the client when total client fees are immaterial to the audit firms. I also performed meta-analysis of the studies that included total fee rather than fee ratio as the primary independent variable to explain different FRQ outcomes.

\*,\*\*\* denotes statistical significance at 1% and 10% levels respectively (two-tailed test).



