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Research Article

STUDY THE RELATIONSHIP BETWEEN THE QUALITY AND EFFECTIVENESS OF AUDIT COMMITTEES WITH A FOCUS ON THE QUALITY OF FINANCIAL REPORTING (CASE STUDY: LISTED COMPANIES IN TEHRAN STOCK EXCHANGE)

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ABSTRACT
This study examines the association between the quality of audit committees on financial reporting quality and external audit fees in an environment where the formation of audit committees was unregulated. The study uses a sample of 87 Listed Companies in Tehran Stock Exchange in 2012 when no regulations or listing rules existed for audit committees. The results show no significant association between the quality of an audit committee and the quality of financial reporting. These results are robust to alternative measures of earnings quality. Similarly, the quality of audit committees has little impact on the level of fees paid to external auditors. The results suggest that the benefits of 'best practice' audit committees may be less than anticipated by regulators and policymakers.

Keywords*: audit committees, effectiveness of audit committees, quality of financial reporting, Listed Companies in Tehran Stock Exchange*.

INTRODUCTION
We examine firms that voluntarily adopt a high quality audit committee in an environment, Listed Companies in Tehran Stock Exchange, where prior to 2003, the formation of audit committees was completely unregulated. Thus, compared to other countries such as the US where New York Stock Exchange (NYSE) listing requirements have long required audit committees and the UK where the high profile Cadbury Code published in 1992 strongly recommends audit committees with 'at least three non-executive directors', prior to 2003, Listed Companies in Tehran Stock Exchange companies had considerable leeway in deciding whether an audit committee should be formed and its composition if one was formed. Thus, in the pre-2003 environment, the existence and composition of audit committees in Listed Companies in Tehran Stock Exchange varied widely, providing a unique opportunity to examine the benefits that might accrue to firms that adopted what now would be considered 'best practice' audit committees. Since audit committee formation was voluntary, the strength of the audit committee should be closely related to the expected benefits associated with the audit committee as a firm would have no incentive to create a best practice audit committee unless it was the optimal choice. As a result, our setting differs from the settings used in most prior studies where regulations or strong encouragement through corporate codes could force firms to adopt best practice audit committees as a second-best option. We examine whether Listed Companies in Tehran Stock Exchange with high quality audit committees in 2012 have higher financial reporting quality and lower external audit fees than Listed Companies in Tehran Stock Exchange with a lower quality audit committee or no audit committee. We measure audit committee quality based on the quality of its membership using guidelines that were issued by the Listed Companies in Tehran Stock Exchange Securities Commission (NZSC) in 2004. We find that, in our sample of Listed Companies in Tehran Stock Exchange listed companies, firms that had voluntarily adopted higher quality audit committees did not have higher quality earnings. We also find that having a higher quality audit committee did not have an impact on audit fees. Since we do not find better quality financial reporting or lower audit fees in a setting where firms were free to create a high quality audit committee, our results suggest that the benefits of requiring firms to adopt a 'best practice' audit

committee may be less than anticipated by policymakers and regulators. This study contributes to the extensive literature on the effects of audit committee quality in two important ways. First, rather than examine a market where audit committees have long been regulated (e.g., via listing rules in the US since 1978) or included in corporate governance codes (e.g., in the UK's Cadbury Code since 1992), we examine an environment where firms faced little pressure to form audit committees. Thus, we can assume all firms choose their optimal audit committee (which could be no audit committee) which is different from the US or UK where the audit committee choice could reflect a second-best option. This allows us to provide a cleaner test of the benefits of high quality audit committees. Second, we adopt Fields et al.'s (2012) recommendation, and in measuring financial reporting quality, we resort to a back-to-basic measure of earnings management similar to that used by Zmijewski and Hagerman (1981). Our results are useful for informing policymakers. Even though we focus on an environment where only those firms with the greatest benefits would be expected to voluntarily adopt the best practice guidelines, we find that high quality audit committees do not constrain aggressive accounting choices and do not reduce fees paid to external auditors. This suggests that the best practice guidelines are too simplistic to lead to real improvement or that the effectiveness of the audit committee is contingent on other corporate governance features, e.g., a high quality audit committee might only be effective in the presence of a high quality board of directors. Alternatively, the effectiveness of audit committees may actually be a function of their visibility in the public arena. In other words, having the importance of audit committees highlighted in corporate codes or regulations such as the Sarbanes-Oxley Act (SOX Act) (2002) may increase the pressure on these committees to perform. This may explain why some US and UK studies (e.g., Beasley et al., 2000; Peasnell et al., 2012; Klein, 2002a; Farber, 2005) find that audit committees can be beneficial. The remainder of the study is organized as follows: Section 2 discusses prior empirical literature on the impact of audit committee quality on financial reporting quality and audit fees. Section 3 discusses the variables, models, and data. Section 4 reports results for our analyses based on financial reporting quality. Section 5 reports our audit fee results. Section 6 provides a conclusion.

Prior empirical literature

In this section, we examine the literature related to (1) the relation between audit committee quality and financial reporting quality, and (2) the relation between audit committee quality and audit fees.

Relation between audit committee quality and financial reporting quality

Research suggests that audit committees can strengthen the quality of financial reporting. Firms involved in fraudulent financial reporting are less likely to have an audit committee (Dechow et al., 1996; McMullen, 1996). Fraudulent reporting firms are also less likely to have audit committees that are active and independent (Beasley et al., 2000) or audit committees that are active and have financial expertise (Farber, 2005). Firms with audit committees that are independent and active are also less likely to experience other accounting irregularities (Dechow et al., 1996; McMullen and Raghunandan, 1996; Abbott and Parker, 2000b; Peasnell et al., 2012). There is also evidence that audit committees with a majority of independent directors reduce earnings management (Klein, 2002a; Jenkins, 2003), and DeFond and Jiambalvo (1991) find that firms which overstate their earnings are less likely to have an audit committee. Thus, prior research suggests that audit committee quality can improve financial reporting quality by reducing the incidence of fraudulent reporting, accounting irregularities, and earnings management. Therefore, we hypothesize that high quality audit committees will lead to less aggressive accounting choices.

Relation between audit committee quality on the audit function and audit fees

Some studies suggest that independent and active audit committees with accounting expertise undertake activities that enhance the audit function. High quality audit committees are more likely to support the internal audit function (Raghunandan et al., 2012), appoint industry specialist auditors (Abbott and Parker, 2000a), and are more likely to appoint high quality auditors when switching between auditors (Abbott and Parker, 2002). They are also less likely to have internal control problems (Krishnan, 2005), and in accounting disputes with management, audit committee members with business backgrounds are

more likely to support the independent auditor (Knapp, 1987). Furthermore, DeZoort and Salterio (2012) find audit committees with independent members and audit knowledge are more likely to support an independent auditor in a substance-over-form dispute with management. While a positive relation between higher quality audit committees and an enhanced audit function is widely supported by prior studies, the relation between high quality audit committees and audit fees is less clear. From their meta-analysis, Hay et al. (2006) conclude that evidence on the relation between corporate governance and audit fees is limited and the evidence is mixed. For example, Carcello et al. (2002) find that board independence, diligence and expertise are positively correlated with the level of audit fees for 258 Fortune 100 firms. Audit committee independence and expertise are also positively correlated with the level of audit fees but not when the board independence and expertise variables are included. They argue that the results are consistent with board of directors demanding a higher quality audit to protect their own interests (i.e., to maintain their reputational capital, avoid legal liability) and to promote shareholder interests. Similarly, in a UK based study, Goddard and Masters (2000) find that audit committees meeting the Cadbury Report recommendations have no impact on audit fees. In contrast, Abbott et al. (2003) find that audit committees with independence and expertise are positively associated with audit fees in the US, and Collier and Gregory (1996) find a positive association between audit fee and audit committees for a sample of firms in the UK. In summary, prior research on the relation between audit committee quality and audit fees is mixed. However, if audit committees are successful in reducing aggressive financial reporting as prior research suggests, we hypothesize that firms with higher quality audit committees will have lower inherent risk and lower audit fees.

Variables, models and data

In this section, we describe how we measure audit committee quality, financial reporting quality, and audit fees. We also describe the models and our sample.

Audit committee quality

Internationally, there is consensus that audit committees should comprise a majority of independent directors and have at least one member with financial expertise (Commonwealth of Australia, 2002; European Commission, 2002; Financial Reporting Council (FRC), 2003). Until 2003, Listed Companies in Tehran Stock Exchange had a regime where listed companies voluntarily formed audit committees and selected the membership that was appropriate for the firm unlike the US and UK where the stock exchange listing rules and taskforce committees (e.g., the Public Oversight Board and Blue Ribbon Committee in the US and the Cadbury Committee in the UK) have long provided strong recommendations about audit committees. Following the overseas lead, in late 2003, the Listed Companies in Tehran Stock Exchange stock exchange (NZX) introduced requirements for audit committee membership.1 In 2004, NZSC developed a set of corporate governance principles (NZSC, 2004). The NZSC's principles (which are more stringent than the NZX's requirements) recommend that (1) audit committees comprise all non-executive directors, (2) have a majority of independent directors, and (3) have a member who is an accounting expert. We refer to audit committees that satisfy these recommendations as 'best practice' audit committees. Based on these guidelines, we determine whether each firm had a best practice audit committee in 2012. In other words, we use the NZSC principles to define a best practice audit committee, but we are interested in firms that voluntarily formed audit committees meeting these criteria before the principles became known. That is, some firms would have created audit committees that had no executive directors, a majority of independent directors, and had accounting expertise because they required an effective audit oversight function. While these firms may have been aware of the overseas guidelines (e.g., the Cadbury Code, Blue Ribbon Committee report), they were under no obligation to comply with these.

Thus, we use three membership variables to identify best practice audit committees. The first variable captures whether the firm has a best practice audit committee (ACBP). ACBP is coded 1 if it comprises solely non-executive directors, the majority are independent directors, and it includes an accounting expert. Otherwise, ACBP is coded 0. This definition is consistent with the NZSC (2004) and Australian Stock Exchange Corporate Governance Council (2003) requirements but is more stringent than the

NZX's (2003) best practice code and less rigorous than the SOX Act (2002) and FRC (2003) requirements. The second audit committee variable, ACIND, measures audit committee independence. ACIND is coded 1 if the committee has 51% or more independent directors and 0 otherwise. An independent director is defined as one who is not employed or closely affiliated with the company. This definition excludes a non-executive director who is a past employee of the company and/or has significant or business relationships with the firm. A director with a substantial equity holding is not considered an independent director even if not active in the management of the company. The definition of an independent director is consistent with that recommended by the NYSE and NASD (1999). We use annual report disclosures, in particular the related party disclosures in the notes to the financial statements, to identify affiliated directors. The third audit committee variable measures accounting expertise. The variable, ACEXP, is coded 1 if the audit committee includes a member who is a qualified chartered accountant (i.e., a member of a professional accounting body). The definition of accounting expertise is largely consistent with the NZSC (2004), but is narrower than that legislated in the SOX Act. In the SOX Act, the definition of financial expertise was widened to include presidents and chief executive officers in response to criticism that a narrow definition of financial expertise would limit the pool of qualified directors able to be appointed as experts (DeFond et al., 2005). A narrow definition of an accounting expert is adopted in this study because of a lack of consistency in the disclosures of directors' backgrounds in company annual reports in Listed Companies in Tehran Stock Exchange.

Financial reporting quality

A number of the studies evaluating the effectiveness of audit committees have focused on non-typical situations, such as fraudulent reporting, where evidence of poor quality reporting is very clear. Evidence on fraud cases is not publicly available in Listed Companies in Tehran Stock Exchange, and therefore, we restrict our examination to a cross-sectional analysis of non-fraudulent cases. In studies of non-fraudulent reporting, the empirical measure of earnings quality most often adopted is the sign or level of discretionary accruals, measured using various models (e.g., Jones, 1991; Dechow et al., 1995; Kothari et al., 2005). However, questions have been raised about the low power of discretionary accruals models (Dechow et al., 1995; Thomas and Zhang, 2000). Fields et al. (2012) suggest that researchers avoid the limitations of discretionary accruals models and adopt either new statistical techniques or revert to a back-to-basics approach such as that used by Zmijewski and Hagerman (1981). We adopt an approach similar to Zmijewski and Hagerman (1981), i.e., we first select five accounting choices and we then use these to create an accounting quality score.

Accounting choices

Regulatory bodies have emphasized the importance of auditors reporting to audit committees on the degree of aggressiveness or conservatism of accounting choices (The Advisory Panel on Auditor Independence, 1994; NYSE and NASD, 1999.) For example, the SOX Act (2002) requires that auditors of issuers must report to audit committees on: (1) all critical accounting policies and practices to be used; (2) all alternative treatments of accounting information within generally accepted accounting principles that have been discussed with management officials of the issuer, (3) ramifications of the use of such alternative disclosures and treatments, and (4) the treatment preferred by the registered public accounting firm (section 204). Accounting policy choices that fall within GAAP, range somewhere along a continuum from conservative to aggressive. An aggressive accounting choice accelerates revenue recognition (e.g., accelerating the recognition of revenue in a multi-year contract) or delays expense recognition (e.g., understating provisions for bad debts and loan losses). A conservative accounting choice postpones revenue recognition or accelerates expense recognition. The short-term impact of these choices is that aggressive choices are income-increasing and conservative choices are income-decreasing.

At the date of our study, there were no Listed Companies in Tehran Stock Exchange accounting standards on revenue recognition, but several standards dealing with expense recognition.2 Therefore, we focus on accounting choices relating to expense recognition and ignore revenue recognition. For the purposes of this study, an accounting policy or estimate is aggressive (conservative) if it delays (accelerates) the recognition of expenses in comparison with other policies or estimates permitted within generally

accepted accounting practice. Three accounting estimates and two accounting policy choices are selected.3 The five choices are selected because their impact on earnings is clear-cut and information about the choice or estimate is routinely disclosed in financial statements (Hagerman and Zmijewski, 1979). This latter requirement severely limits the number of items to be tested. The three accounting estimates relate to the estimated useful lives of non-current assets, and the two accounting policy choices concern the recognition of deferred tax and inventory valuation.

The estimated useful life applied to buildings

Buildings are selected as they form a reasonably homogeneous group of assets. Listed Companies in Tehran Stock Exchange Financial Reporting Standard (FRS) 3 on accounting for property, plant, and equipment states that the depreciable amount of an item of property, plant, and equipment must be charged over the asset's useful life. The estimated useful life is defined as the 'period of time over which the future economic benefits embodied in an asset are expected to be consumed by the entity'. FRS 3 allows managers to choose the useful life of an asset class, but the number of years chosen must be disclosed in the financial statements. The tax code specifies a useful life of 50 years for non-specialized buildings with concrete, steel or timber framing (Inland Revenue, 2000). The 50-year useful life allowed for taxation purposes is used as a benchmark in this study to distinguish between aggressive and conservative accounting choices. A firm adopting a useful life of buildings greater than 50 years is considered to be selecting an aggressive accounting choice.

The estimated useful life applied to motor vehicles

Motor vehicles are selected as they also form a reasonably homogenous group of assets. For financial reporting purposes, the requirements of FRS 3 apply. Similarly, for taxation purposes, the Inland Revenue Department specifies an estimated useful life of five years for general motor vehicles (Inland Revenue, 2000). Once again, the useful life for tax purposes is used as a benchmark to differentiate between aggressive and conservative accounting choices. A firm disclosing in its financial statements a useful life exceeding five years for motor vehicles is considered to be using an aggressive estimate.

Table 1: Financial reporting quality scoring system

Accounting choice	Conservative accounting = 0	Neutral accounting = 0.5	Aggressive accounting = 1
Estimated useful life of buildings[a]	Useful life of 50 years or less	A range below and above 50 years is specified, e.g., 40–70 years	Useful life greater than 50 years
Estimated useful life of motor vehicles[a]	Useful life of 5 years or less	A range below and above 5 years is specified, e.g., 5–10 years	Useful life greater than 5 years
Goodwill amortization	Amortize over 10 years or less	–	Amortize over periods greater than 10 years
Tax effect accounting	Comprehensive basis	–	Partial basis
Assigning costs to inventory	Weighted average	Specific identification or combination of both FIFO and weighted average	First-in, first-out (FIFO)

A Some firms report the useful life as a range over several categories of assets (rather than separate categories such as buildings and motor vehicles). For these cases, if the range includes the threshold specified, i.e., 50 years for buildings and 5 years for motor vehicles, a score of 0.5 is given.

Goodwill amortization

Statement of Standard Accounting Practice (SSAP) 8 on accounting for business combinations requires goodwill to be recognized and amortized on a systematic basis. The standard specifies that the period of amortization should generally not exceed 10 years, but in no case should it exceed 20 years. For this study, a firm that writes off goodwill over a period of ten years or more is considered to be using an aggressive choice.

Tax effect accounting
SSAP 12 Accounting for Income Tax permits a choice between a comprehensive or partial basis to account for the effect of timing differences. Under the comprehensive method, tax expense includes tax payable for the period plus the estimated tax effects of all timing differences, whereas under the partial method, tax expense includes only those timing differences that are likely to become payable at a future date. Firms must provide evidence that any timing differences not recognized are unlikely to reverse. This requirement limits the number of companies eligible to apply the method. The partial method is defined as an aggressive accounting choice because it will tend to recognize less tax expense.

Assigning costs to inventory
When prices are rising, using a first-in, first-out (FIFO) cost flow assumption for inventory yields a higher reported income than the weighted average method.4 Because prices were rising during the period selected for the study, FIFO is considered an aggressive accounting choice and weighted average is considered a conservative choice.5

Financial reporting quality score
Our measure of financial reporting quality is the aggregate accounting choice score (FRQUAL) of the individual accounting choice scores for each firm. The scoring system used to assess a company's accounting choices is reported in Table 1. A firm receives a score of 1 for each aggressive accounting choice (policy or estimate). A policy or estimate that is conservative receives a score of 0. A score of 0.5 is given when the useful life of non-current assets spans both aggressive and conservative ranges. For example, a score of 0.5 is given when the useful life of buildings is specified as a range of 40–70 years, which is both above and below the 50 years benchmark used to distinguish between aggressive and conservative estimates. Similarly, for inventory valuation where a firm selects the specific identification method and/or a combination of FIFO and weighted average valuation methods, a score of 0.5 is given. If a financial reporting standard or estimate is not applicable to a firm, no score is given. The accounting choice scores are aggregated for each firm and divided by the maximum aggressive accounting choice score possible. For example, if a company applies three out of the five estimates or policy choices, the maximum score possible for aggressive choices is three. If two of the three choices are aggressive, the overall score is 0.67. Thus, our measure of accounting quality (FRQUAL) ranges from 0 to 1. Zmijewski and Hagerman (1981) develop a reporting strategy using various weightings of individual accounting scores. They note, however, that this approach is ad hoc. Our approach is to develop a continuous dependent variable that aggregates the individual accounting choice scores. Accounting policies and estimates are weighted equally in calculating FRQUAL. This approach is consistent with studies applying annual report disclosure indices. An unweighted approach is used to reduce subjectivity in determining the appropriate weights to apply (Ahmed and Courtis, 1999).

The financial reporting quality model
The following regression model is used to test the relation between audit committee quality and financial reporting quality:

$$\mathrm{FRQUAL}_{it} = \beta_0 + \beta_1 \mathrm{ACQUAL}_{it} + \beta_2 \mathrm{MTB}_{it} + \beta_3 \mathrm{LEV}_{it} + \beta_4 \mathrm{BONUS}_{it} + \beta_5 \mathrm{LOSS}_{it} + \beta_6 \mathrm{EXTFIN}_{it} + \beta_7 \mathrm{SIZE}_{it}$$

FRQUAL is a measure of financial reporting quality. It is the aggregate accounting choice score for firm i at time t, as described in Section 3.4. ACQUAL is a measure of audit committee quality, i.e., ACBP, ACIND or ACEXP as described in Section

The remaining variables are included to control for factors that may also impact financial reporting quality. We describe the control variables below.

Growth opportunities (MTB)
Skinner (1993) finds that firms with lower market-to-book ratios (i.e., firms with more assets-in-place) have bonus and debt contracts that are more directly related to accounting earnings. As such, the lower

growth firms have a greater incentive to select aggressive (income-increasing) accounting choices relative to other firms. Based on the expectation that the level of growth opportunities affects the nature of a firm's contracts, and thus the incentives to behave opportunistically, a negative relation is expected between a firm's market-to-book ratio (MTB) and the selection of aggressive accounting choices.

Leverage (LEV)

Agency costs are higher for firms with more debt. When debt exists, managers may shift resources away from debtholders by increasing dividend payments, by issuing more debt, by under-investing, and by substituting high-risk assets for low-risk assets after debt is issued. Debt issuers use debt covenants to monitor and limit such behavior. Because debt covenants are often written in accounting terms and violating them is costly, managers have incentives to make accounting choices that reduce the likelihood of debt covenant breaches (Watts and Zimmerman, 1986). Therefore, managers of firms with higher debt-to-equity ratios will select aggressive accounting choices that shift reported earnings from the future to the present. This is generally supported by prior research (e.g., Skinner, 1993; DeFond and Jiambalvo, 1994; Sweeney, 1994; Beatty and Weber, 2002). In summary, a positive association between the ratio of debt to total assets (LEV) and the selection of aggressive accounting choices is expected.

Management bonuses (BONUS)

Healy (1985) provides evidence that managers use income-decreasing accruals when earnings are above or well below bonus thresholds. This behavior is considered consistent with the hypothesis of shifting income to future accounting periods. In contrast, where expected earnings are within bonus thresholds, managers use income-increasing accruals. Holthausen et al. (1995) provide evidence consistent with Healy (1985) that managers manipulate earnings downwards when their bonuses are at a maximum. However, they do not find evidence that managers manipulate earnings downwards when earnings are below the threshold. In contrast, Guidry et al. (1999) examine the earnings management behavior of business-unit managers of a large company and find evidence consistent with Healy (1985). Therefore, a positive association between income falling within management bonus thresholds and aggressive accounting choices is expected. Because information on bonus plans is not available in the annual reports of Listed Companies in Tehran Stock Exchange, the pre-tax return on assets is used to proxy for managers' bonuses, consistent with approaches used in other studies (see, e.g., McNicholls and Wilson, 1988; Bowen et al., 1995; Bradbury et al., 2003). The pre-tax return on assets ratio is calculated for each firm and ranked from highest to lowest. Firms with high ratios in decile 10 are expected to exceed bonus thresholds and firms with low ratios in decile 1 are considered to be below bonus thresholds. Firms in the highest and lowest deciles are coded 0 as they are considered to have incentives to select conservative accounting choices in order to reduce current earnings. Conversely, firms in deciles 2–9 are assumed to be within bonus thresholds. Managers of these firms have incentives to select relatively aggressive accounting choices to increase reported earnings in a current period. These firms are coded 1. This variable is labeled BONUS.

Performance (LOSS)

Accounting research has reported a discontinuity in the distribution of earnings around certain thresholds. Burgstahler and Dichev (1997) use US data and find discontinuities in the distribution of earnings around losses and earnings decreases. These findings suggest that firms manage earnings to avoid these psychological thresholds. In a later study, DeGeorge et al. (1999) provide evidence supporting an analysts' forecast threshold. A survey of 401 US executives confirms this evidence. Executives report that meeting or beating benchmarks is important as it reduces uncertainty and maintains credibility in the market place, which helps to maintain or improve share prices (Graham et al., 2005). For the purposes of this study, consecutive firm losses proxy for incentives for firms to manage earnings to improve reported financial performance and avoid losses.6 That is, LOSS is an indicator variable equal to 1 if the firm had

consecutive losses and 0 otherwise. It is expected that firms with consecutive losses are more likely to make aggressive accounting choices.

Raising external finance (EXTFIN)
Dechow and Skinner (2000) argue that managers have incentives to increase earnings to improve the terms on which shares are sold to the public and thus provide benefits to themselves and the firm. Thus, a positive association between raising external finance (EXTFIN) and aggressive accounting policy choices and estimates is expected where EXTFIN is an indicator variable, equal to 1 if the firm issued equity or debt securities during the period.

Firm size (SIZE)
Large firms are subject to greater analyst following (Bhushan, 1999), and greater scrutiny can put pressure on managers to manipulate earnings in order to meet analysts' forecasts. Skinner and Sloan (2002) show that firms that do not beat analysts' predictions experience severe negative share price reactions. Given this pressure, it suggests a positive relation between firm size (SIZE) and aggressive accounting choices.

The audit fee model
Simunic (1980) models audit fees as a function of size, audit risk, and complexity of the audit client. In a meta-analysis, Hay et al. (2006) show that these variables are consistently significant in a large number of studies reflecting different countries and different contexts. The association between audit committee characteristics and audit fees is tested using an audit fee model similar to the models used by Abbott et al. (2003) and Carcello et al. (2002):

$$\mathrm{AFEE}_{it} = \beta_0 + \beta_1 \mathrm{ACQUAL}_{it} + \beta_2 \mathrm{TA}_{it} + \beta_3 \mathrm{RECINV}_{it} + \beta_4 \mathrm{SEG}_{it} + \beta_5 \mathrm{FORGN}_{it} + \beta_6 \mathrm{PROFIT}_{it} + \beta_7 \mathrm{LOSS}_{it} + \beta_8 \mathrm{BIG4}_{it}$$

where AFEE is the audit fee for firm i at time t, ACQUAL is audit committee quality as described in Section 3.1, TA is total assets (a proxy for client size), RECINV is the sum of accounts receivable and inventory scaled by total assets (a proxy for the client's inherent risk), SEG is the number of business segments and FORGN is the number of geographic segments (both proxies for client complexity), PROFIT is earnings before interest and tax scaled by total assets and LOSS is an indicator equal to 1 if the client had three consecutive loss years (both proxies for profitability), and BIG4 is an indicator equal to 1 if the client had a Big 4 auditor (a proxy for auditor quality).

Sample and data
The population of interest is all NZ companies listed on the NZX main trading board in the 2012 Datex Investment Guide (Datex Services Ltd., 2012). As discussed previously, we use data from 2012because we want a period in which formation of an audit committee was unconstrained so we can focus on firms that voluntarily adopted high quality audit committees. Thus, while we use the NZSC (2004) guidelines to identify the parameters of a high quality audit committee, we are interested in firms that adopted these parameters before they became recommendations. We expect the early movers will be the firms that derive the most benefits as they have a greater demand for the monitoring and control that a high quality audit committee might provide. Similar to other countries where audit committees are more regulated (e.g., the US, UK), once the NZSC recommendations were released in 2004, firms may have adopted the recommendations for high quality audit committees in order to conform with industry peers or to avoid sending a signal that might be construed as a sign of weak corporate governance. Thus, focusing on early movers eliminates firms that adopted high quality audit committees as a second-best option. Table 2 describes the effect of the sample selection procedure. The initial sample is 109 firms. We omit seven firms that delisted, 14 firms that have insufficient audit committee details, and a unit trust since its financial structure and corporate governance structure differs from other firms in the sample. This leaves a final sample of 87 firms. Financial and audit committee membership data are hand collected from the 2012 annual reports of the sample firms. A template was used to score the accounting choices described

in Section 3.3. A second rater scored a subset of 23 firms (26.6% of the sample) independently. Any differences in scores between the primary scorer and second rater were discussed and amended once the two raters reached an agreement on how to handle the item. The qualifications of directors are not always provided in company annual reports. In these cases, external sources such as company press releases, internet searches, as well as searches of business newspaper and magazine databases, were used to obtain the data. The NZICA website was used to determine if individuals were members of the national professional

Table 2- The effect of sample selection procedures.

	Number of firms
All NZ firms on NZX in 2001	109
Less unit trust	1
Less delisted	7
Less firms with audit committees but no details on composition	14
Final sample	87

Table 3- Descriptive statistics of financial reporting quality scores.

Accounting choices[a]	*N*	Mean	Std dev	Median	Conservative score = 0 # (%)	Neutral score = 0.5 # (%)	Aggressive score = 1 # (%)	No policy
Panel A: Aggregate and individual accounting choice scores								
Aggregate score (FRQUAL)	87	0.38	0.28	0.33				
Buildings useful life	65	0.19	0.36	0.00	49 (56.4)	7 (8.0)	9 (10.3)	22 (25.3)
Motor vehicles useful life	58	0.47	0.48	0.50	28 (32.2)	5 (5.7)	25 (28.8)	29 (33.3)
Goodwill useful life	54	0.43	0.50	0.00	31 (35.7)	–	23 (28.4)	33 (37.9)
Tax effect accounting	87	0.26	0.44	0.00	64 (73.6)	–	23 (26.4)	0 (0.0)
Assigning costs to inventory	64	0.60	0.46	1.00	22 (25.4)	7 (8.0)	35 (40.2)	23 (26.4)
Panel B: Distribution of aggregate accounting choice score (FRQUAL)								
FRQUAL				Number				%
0.00–0.25				35				40.2
0.26–0.50				33				38.0
0.51–0.75				11				12.6
0.76–1.00				8				9.2
Total				87				100.0

[a] Not all firms applied all accounting choices. In these cases, no score was given. The aggregate score for each firm (FRQUAL) is the sum of the individual scores, scaled by the number of applicable accounting policies for that firm. See Table 1 for scoring system. accounting body. However, this process excludes any accounting certification received by directors from overseas professional accounting bodies. Where information on audit committee members was incomplete, a letter was sent to the listed company requesting the information.

Results for financial reporting quality

Univariate analyses

Table 3 shows the descriptive statistics of the aggregate and individual scores for accounting choices. Recall that the accounting choice score ranges from 0 to 1. Panel A shows the mean (median) aggregate accounting score, across the five accounting choices, is 0.38 (0.33). Panel B shows the distribution of the aggregate score, FRQUAL. Around 78% of the sample have a score lower of 0.5. This reflects that most firms make accounting choices that are conservative. Based on Panel A, the most conservative accounting choices are made when estimating the useful life of buildings and selecting tax effect accounting. The most aggressive accounting choices are made with respect to inventory valuation. Estimates of the useful life of motor vehicles and goodwill amortization are more evenly spread between conservative and aggressive estimates.

Table 4 reports the descriptive statistics and univariate tests for the explanatory variables in the financial reporting quality model (Eq. (1)). Of the final sample of 87 firms, 29 firms (33%) meet the best practice criteria (ACBP). Forty-six firms (53%) have audit committees with at least a majority of independent directors (ACIND). This percentage is much lower than in Klein's (2002b) study where 88.7% of the sample of 808 US firm-years had audit committees with a majority of independent directors which shows the Listed Companies in Tehran Stock Exchange environment is much less constrained than in the US, i.e., Listed Companies in Tehran Stock Exchange in our sample had much more latitude in forming audit committees as expected. Fifty-three firms (61% of the sample) have a chartered accountant as an audit committee member (ACEXP). The average market-to-book ratio is one-and-a-half times the book value of total assets. Total liabilities average 29% of firm size. Twenty percent of the sample (17 firms) had two years of consecutive losses. In 2012, 34% of the firms (30 firms) raised debt or equity finance from the public. The mean firm size is $862.4 million. Table 4 also reports univariate tests of the relation between the explanatory variables and financial reporting quality. For univariate tests only, we transform the financial reporting quality variable (FRQUAL) into a binary variable equal to 1 if FRQUAL is greater than the median and zero otherwise. We label this binary variable as CHOICE. We examine the null hypothesis that for each explanatory variable there is no difference between the sample of firms that adopt aggressive accounting choices (i.e., CHOICE = 1) and those that adopt conservative accounting choices (CHOICE = 0). The means and medians of the explanatory variables indicate that nonparametric tests are appropriate. We use a Mann–Whitney U test where the variable is continuous and a chi-square test where the variable is a dummy variable. The univariate tests indicate that LEV, BONUS, and SIZE are significantly related to CHOICE at the 0.10 level. This supports the view that firms with higher leverage, firms within bonus thresholds, and large firms select relatively aggressive choices, which is consistent with expectations.

Table 4- Descriptive statistics and univariate tests of explanatory variables for the financial reporting quality model.

		Mean	Std dev	Median	Minimum	Maximum	Test[a]	*p*-Value[a]
Accounting choices	CHOICE	0.56	0.50	1.00	0.00	1.00		
Best practice audit committee	ACBP	0.33	0.47	0.00	0.00	1.00	χ^2	0.44
Audit committee independence	ACIND	0.53	0.50	1.00	0.00	1.00	χ^2	0.32
Audit committee expertise	ACEXP	0.61	0.49	1.00	0.00	1.00	χ^2	0.20
Growth opportunities	MTB	1.55	1.25	1.09	0.29	7.86	MWU	0.16
Leverage	LEV	0.29	0.37	0.23	0.00	3.11	MWU	0.00
Bonus	BONUS	0.59	0.50	1.00	0.00	1.00	χ^2	0.08
Consecutive losses	LOSS	0.20	0.40	0.00	0.00	1.00	χ^2	0.20
External finance	EXTFIN	0.34	0.48	0.00	0.00	1.00	χ^2	0.48
Firm size ($million)	SIZE	862.4	2,241.3	182.2	2.6	17,422.8	MWU	0.08

[a] These columns report one-tailed p-values from either a Mann–Whitney U test (MWU) and chi-square test (v2). These tests examine the null hypothesis of no relation between the explanatory variables and financial reporting quality. For the purpose of these univariate tests, the financial reporting quality variable (CHOICE) is coded 1 if it is above the median FRQUAL and 0 otherwise.

Table 5- Spearman correlation coefficients.

	FRQUAL	ACBP	ACIND	ACEXP	MTB	LEV	BONUS	LOSS	EXTFIN
ACBP	–0.06								
ACIND	0.02	**0.67**							
ACEXP	–0.11	**0.52**	**0.38**						
MTB	–0.18	0.02	0.09	0.00					
LEV	**0.32**	–0.00	–0.04	–0.06	–0.05				
BONUS	0.12	0.05	0.10	0.09	0.07	0.01			
LOSS	–0.02	–0.10	–0.17	–0.02	–0.00	–0.03	**–0.53**		
EXTFIN	–0.04	0.10	0.10	**0.33**	0.11	0.18	–0.08	0.07	
SIZE	0.20	0.21	**0.31**	**0.22**	0.08	**0.34**	0.16	**–0.43**	**0.28**

Bold denotes significance at the 0.05 level.

Table 6- OLS Regressions of financial reporting quality (FRQUAL) on audit committee quality and control variables.

			Coefficient (*p*-value)		
			Model 1	Model 2	Model 3
Intercept			−0.52 (0.16)	−0.50 (0.18)	−0.51 (0.17)
Best practice audit committee	ACBP	−	−0.07 (0.14)		
Audit committee independence	ACIND	−		−0.04 (0.28)	
Audit committee expertise	ACEXP	−			−0.08 (0.11)
Log growth opportunities	logMTB	−	−0.09 (0.05)	−0.08 (0.05)	−0.09 (0.05)
Log leverage	logLEV	+	0.05 (0.07)	0.05 (0.05)	0.04 (0.08)
Bonus	BONUS	+	0.04 (0.25)	0.05 (0.25)	0.06 (0.20)
Consecutive losses	LOSS	+	0.13 (0.11)	0.12 (0.12)	0.14 (0.09)
External finance	EXTFIN	+	−0.07 (0.15)	−0.07 (0.14)	−0.05 (0.25)
Log firm size	logSIZE	+	0.05 (0.00)	0.05 (0.00)	0.05 (0.00)
F-statistic (*p*-value)			1.87 (0.08)	1.73 (0.11)	1.93 (0.08)
Adjusted R^2 (%)			6.6	5.6	7.0
Range of VIF values			1.1–1.9	1.1–1.9	1.2–1.6
N			87	87	87

Spearman correlations are reported in Table 5. As expected, there is a high correlation between the best practice audit committees (ACBP) and audit committees meeting both independence (ACIND) and expertise (ACEXP) membership criteria. Audit committee expertise (ACEXP) is positively correlated with external financing (EXTFIN). This suggests that additional monitoring is employed when firms raise debt. As expected, there is a negative correlation between bonuses (BONUS) and consecutive losses (LOSS). SIZE is positively correlated with independent and expert audit committees (ACIND and ACEXP), leverage (LEV), and external financing (EXTFIN) and negatively correlated with consecutive losses (LOSS).

Multivariate analysis

In Table 6, we report OLS regressions for the financial reporting quality variable (FRQUAL) with each of the audit committee quality variables (ACBP, ACIND, ACEXP) and control variables. Variables for growth opportunities (MTB), leverage (LEV), and firm size (SIZE) are log transformed to improve the distributional properties of the variables. Results across the three regressions are consistent. The F-statistic indicates the models are weakly significant around the 0.10 level with adjusted R2s ranging from 5.6% to 7.0% which is close to the explanatory power reported by Zmijewski and Hagerman (1981). While all of the coefficients are all in the direction predicted, none of the audit quality coefficients are significant. Size, growth opportunities, and leverage are significant at the 0.10 level or better with the expected signs. Bonus, consecutive losses, and external finance are not significant at conventional levels. In summary, the results Table 6 provide no support for the hypothesis that audit committee quality limits aggressive accounting choices. Additional tests were undertaken controlling for industry fixed effects with no change in the results. We also repeated the test with audit committee variables relating to activity (the number of meetings) and audit committee size. Again, the results are unchanged.

Sensitivity analysis

Alternative earnings quality measures

The weak results in Table 6 may be due to inherent limitations of the accounting choices selected. One limitation is that they can have a long-term rather than a short-term effect on earnings quality. For example, the useful life of property, plant and equipment is required to be reassessed annually, but the relevant accounting standard (FRS 3) notes that it is unlikely that changes in useful lives would be made each year. To overcome this long horizon limitation, we also adopt a financial reporting quality measure that better reflects shortterm accounting choices. We develop a composite measure of six earnings quality measures based on Francis et al. (2004). Three of the earnings quality measures (timeliness, conservatism, and value relevance) are market-based measures and three are accounting-based measures (smoothness, persistence, and accrual quality). A definition of each of the six measures along with a brief explanation of why the attribute is considered desirable for reporting earnings is provided in the Appendix. The

composite earnings quality measure is calculated by ranking firms from the highest to the lowest value for each earnings quality measure with the exception of accruals quality where the ranking is in reverse order. The firms are then classified into deciles. Firms with the highest earnings quality are ranked in the top decile.8 The composite measure is calculated by summing the ranks for each earnings quality measure and then taking the deciles of the overall ranking. The earnings quality measures are calculated for firm-specific years from 2009–2012. At least five years of data are required to estimate the firmspecific regressions.9 Regressions are run for each of the audit committee quality variables (ACPB, ACIND, ACEXP) with the composite earnings quality measure as the dependent variable. The results (untabulated) indicate that the models are weakly significant. The adjusted R2s are lower compared with the accounting choice models in Table 6. None of the audit committee variables are statistically significant at the 0.10 level.

Simultaneity

A potential issue with the research design we employ is that audit committee membership and accounting policy choice may be determined simultaneously. In statistical terms, this means that the independent variable for best practice audit committees may be correlated with the error term of the financial reporting quality model. If this is the case, the coefficient of the best practice audit committee variable may be over- or under-estimated. The Hausman test (Gujarati, 2003) is applied to assess simultaneity. In the first regression, the best practice audit committee variable is regressed on the control variables as shown in Eq. (3):

$$\mathrm{ACBP}_{it} = \beta_0 + \beta_1 \mathrm{MTB}_{it} + \beta_2 \mathrm{LEV}_{it} + \beta_3 \mathrm{BONUS}_{it} + \beta_4 \mathrm{EXTFIN}_{it} + \beta_5 \mathrm{LOSS}_{it} + \beta_6 \mathrm{SIZE}_{it} + \varepsilon_{it}$$

In the second regression, accounting choice is regressed on the residual from Eq. (3) and other variables as shown in Eq. (4):

$$\mathrm{FRQUAL}_{it} = \beta_0 + \beta_1 \mathrm{ACBP}_{it} + \beta_2 \mathrm{MTB}_{it} + \beta_3 \mathrm{LEV}_{it} + \beta_4 \mathrm{BONUS}_{it} + \beta_5 \mathrm{EXTFIN}_{it} + \beta_6 \mathrm{LOSS}_{it} + \beta_7 \mathrm{SIZE}_{it} + \hat{e}_{it} + \upsilon_{it}$$

If there is no simultaneity, the coefficient of the error term ê should not be different significant from zero (Gujarati, 2003).The results of the Hausman test (untabulated) show that the coefficient of the estimated residual is not statistically significant, suggesting that simultaneity is not a problem.

Results for audit fees

In this section, we examine the relation between audit committee quality and audit fees. The results are reported in Table 7. Consistent with prior research, audit fees are positively associated with total assets, accounts receivable/inventory, the number of business and geographic segments. However, the coefficients for the audit committee quality variables (ACBP, ACIND, and ACEXP) are not significant. This suggests the characteristics associated with audit committee quality have no impact on the level of audit fees. Griffin et al., 2008 argue that the models employed in prior studies to examine the relation between governance strength and audit fees do not take into account the how auditing affects governance and vice versa. They extend Simunic's (1980) audit fee model by regressing audit fees on governance and audit risk, and include interaction variables to capture possible joint governance-auditing effects. They report that audit fees increase with improved corporate governance as a result of more resources being invested in auditing. They also report a negative governance-audit risk interaction supporting the argument that improved corporate governance enhances financial reporting leading to a reduction in audit risk and a decrease in audit fees. Consequently, following Griffin et al., 2008, we also test for a possible negative interaction between the corporate governance and audit risk variables:

$$\mathrm{AFEE}_{it} = \beta_0 + \beta_1 \mathrm{ACQUAL}_{it} + \beta_2 \mathrm{TA}_{it} + \beta_3 \mathrm{RECINV}_{it} + \beta_4 \mathrm{ACQUALxRECINV}_{it} + \beta_5 \mathrm{SEG}_{it} + \beta_6 \mathrm{FORGN}_{it} + \beta_7 \mathrm{PROFIT}_{it} + \beta_8 \mathrm{LOSS}_{it} + \beta_9 \mathrm{BIG4}_{it}$$

Table 7- OLS regression of audit fees on audit committee quality and control variables.

			Coefficient (*p*-value)		
			Model 1	Model 2	Model 3
Constant			1.35 (0.13)	1.27 (0.14)	1.24 (0.15)
Best practice audit committee	ACBP	+	0.17 (0.17)		
Audit committee independence	ACIND	+		0.12 (0.24)	
Audit committee expertise	ACEXP	+			0.06 (0.36)
Log total assets	logTA	+	0.57 (0.00)	0.57 (0.00)	0.57 (0.00)
Accounts receivable and inventory scaled by total assets	logRECINV	+	0.33 (0.00)	0.32 (0.00)	0.33 (0.00)
Number of business segments	logSEG	+	0.86 (0.06)	0.81 (0.07)	0.74 (0.10)
Number of geographic segments	logFORGN	+	0.38 (0.04)	0.37 (0.05)	0.40 (0.04)
Earnings before interest and tax scaled by total assets	logPROFIT	+	0.07 (0.26)	0.05 (0.33)	0.04 (0.34)
Consecutive losses	LOSS	+	−0.51 (0.20)	−0.46 (0.23)	−0.54 (0.17)
Big 5 auditor	BIG5	+	−0.17 (0.23)	−0.14 (0.27)	−0.12 (0.27)
F-statistic (*p*-value)			25.44 (0.00)	29.06 (0.00)	28.68 (0.00)
Adjusted R^2			84.1	83.9	83.7
N			87	87	87

Our results (untabulated) show the interaction variable is not significant for any of the audit committee variables. In each case, the explanatory power of the audit fee model is lower than the models in Table 7, although TA, RECINV, SEG, and FORGN remain significant.

CONCLUSION

The corporate collapses in the early 2000s prompted regulators to improve the quality and oversight of financial reporting by improving the effectiveness of audit committees. For example, best practice recommendations issued by the NZSC in 2004 affirm that audit committees should be structured with all non-executive directors, a majority of them being independent, and include a director with financial expertise. However, before these recommendations were released, some Listed Companies in Tehran Stock Exchange already had audit committees that satisfied these best practice guidelines. The purpose of this study is to examine the financial reporting quality and audit fees for firms that voluntarily formed high quality audit committees. Using a sample of 87 Listed Companies in Tehran Stock Exchange, including 29 that had adopted a high quality audit committee, we find no evidence that best practice audit committees improved financial reporting quality. We also find no evidence that best practice audit committees were associated with lower audit fees. Our results are somewhat surprising as we expect the early movers to be the firms that would gain the greatest benefits from a high quality audit committee. Our results suggest that the benefits of high quality audit committees may be less than anticipated by regulators and policymakers. If so, imposing 'best practice' membership requirements on all firms is unlikely to lead to a significant improvement in financial reporting while, at the same time, imposing unnecessary compliance costs. ,Our results are also in contrast to prior studies in the US and UK that have shown independent audit committee can reduce earnings management (Klein, 2002a; Jenkins, 2003) and accounting irregularities (Dechow et al., 1996; Peasnell et al., 2012), and that audit committees with financial expertise can reduce fraud (Farber, 2005). We offer two possible explanations for the conflicting results. First, it is possible that prior studies in the US and UK are detecting a general corporate governance effect. Specifically, regulations and corporate codes in those countries are aimed at improving corporate governance generally so audit committee quality may be a proxy for the firm's overall corporate governance strength. If so, this would suggest that audit committee quality has to be part of a broader corporate governance package in order for the firm to realize detectable benefits. Second, it is possible that having audit committee quality highlighted in regulations (e.g., stock exchange listing rules, the SOX Act) or corporate codes (e.g., the Cadbury Code, Blue Ribbon Committee report) may put pressure on audit committees to improve their performance. Like all studies, this study has its own limitations. The study focuses on audit committee membership in terms of independence and expertise, but a number of other audit committee attributes such as the business backgrounds of the audit committee members and the number of years they have served on the audit committee have not been tested. The study has focused on monitoring financial reporting quality and the cost of the external audit, but audit

committees have a number of roles and responsibilities which have expanded over the years. There may be significant benefits from the formation of best practice audit committees from these other roles.

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Appendix. Earnings quality attributes included in composite earnings quality measure.

	Description	Measure applied	Indicator of earning quality
Accounting based			
Accrual quality	The ability of earnings to map closely into cash flows	A regression of current accruals (scaled by average total assets) on prior period, current period and future cash flows from operations (scaled by average total assets) (Dechow and Dichev, 2002, model)	High standard deviation of the error term indicates low earnings quality
Earnings persistence	The ability of earnings to continue, i.e., sustainable or core earnings	The slope coefficient of a regression of current earnings (scaled by average total assets) on prior period earnings (scaled by average total assets)	Low coefficient for prior period earnings indicates low earnings quality
Smoothness	The variation in earnings changes	The ratio of the standard deviation of net profit (after taxation scaled by average assets) to the standard deviation of cash flow from operations (after tax scaled by average assets)	Low ratio indicates low earnings quality
Capital market based			
Value relevance	The ability of earnings to explain variation in returns	The explanatory power of a regression of returns (the 15-month stock return ending three months after balance date) on earnings (before interest and tax scaled by average total assets)	A low R^2 indicates low quality of earnings
Timeliness	The extent to which earnings measure changes in the market value of equity	The explanatory power of a regression of earnings (before interest and tax scaled by average total assets) on returns (the 15-month stock return ending three months after balance date)	A low R^2 indicates low quality of earnings
Conservatism	The ability of earnings to explain economic losses (negative returns) as compared with economic gains (positives returns)	In a regression of earnings (before interest and tax scaled by average total assets) on returns (15-month return 3 months after balance date), the slope coefficient of negative returns (bad news) to the slope coefficient on positive returns (good news)	Low ratio indicates low earnings quality

Sources: Schipper and Vincent, 2003 and Francis et al., 2004.

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