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# Firm characteristics and audit committees complying with 'best practice' membership guidelines

Elizabeth A. Rainsbury, Michael E. Bradbury and Steven F. Cahan\*

**Abstract**—This study investigates demand and supply characteristics associated with firms that voluntarily established audit committees meeting 'best practice' membership guidelines. We focus on a set of best practice criteria rather than on the separate elements of the best practice criteria as in past studies. We conduct our tests using a sample of New Zealand listed companies that, relative to firms in other capital markets, are smaller and have more concentrated ownership. This setting differs from prior research because we expect the costs of voluntarily achieving best practice to be reasonably high. The results show that demand factors are not significantly related to the presence of an audit committee that conforms with best practice membership guidelines. However, supply factors (i.e. those firms with larger and more independent boards) are more likely to form audit committees that meet best practice. These results suggest that compliance costs will be greater for firms with smaller and less independent boards of directors if they are required to comply with best practice requirements.

**Keywords:** audit committee; best practice guidelines; independence

## 1. Introduction

Responding to concerns over high profile corporate collapses and aggressive earnings management, authorities have introduced regulations to improve the functioning of audit committees (e.g. Sarbanes-Oxley Act 2002 (SOX), Financial Reporting Council, 2003 (FRC), Australian Stock Exchange Corporate Governance Council, 2003 (ASX)). Membership is seen as a key factor to improve audit committee effectiveness. For example, some jurisdictions require all audit committees members to be independent, others require a majority to be independent, and many require at least one member who is a financial expert (e.g. SOX, 2002; FRC, 2003; European Commission, 2002; Commonwealth of Australia, 2002).

The purpose of this paper is to examine the characteristics of firms that voluntarily adopt best practice guidelines for audit committee membership. We examine the adoption of audit committee membership in a context (i.e. New Zealand) where there are best practice guidelines, but no regulations for membership. Identifying characteristics

of firms that voluntarily adopt best practice guidelines for audit committee membership will provide information for policy makers on the need for regulation and will identify the firms that will bear the greatest costs if best practice membership requirements are imposed.

Our study contributes to the literature on audit committees by focusing on a set of best practice membership guidelines that are multidimensional. Prior research typically focuses on specific aspects of audit committee membership. For example, Beasley and Salterio (2001: 550–551) examine board characteristics that are related to audit committee independence and financial expertise, but they examine independence and expertise in separate models. In contrast, we identify audit committees that meet all three New Zealand Securities Commission (NZSC, 2004: 20) guidelines (i.e. all non-executive directors, a majority of independent directors, and a member who is a financial expert). Thus, our approach assumes that audit committees will be more effective if they satisfy all three membership criteria.

We examine the effect of demand and supply variables on the formation of audit committees that meet best practice guidelines for membership. Similar to Beasley and Salterio (2001: 548), we focus on the board supply factors because the board is directly responsible for the composition of the audit committee and forms the pool of members from which it is drawn. For the demand factors, we focus on the impact of agency costs, because high agency costs may create a demand for high quality monitoring (e.g. a more effective

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audit committee).

Our findings indicate that as board size increases and the proportion of independent board members increases, the probability of having an audit committee that meets best practice guidelines for membership increases. On the other hand, we find little evidence that demand factors (such as leverage, growth opportunities) are related to the formation of audit committees that meet best practice guidelines. Assuming that the unconstrained firm will choose the best audit committee, given its board structure, our results suggest that firms with small boards and boards with more non-independent directors will bear the greatest costs if they are required to comply with best practice requirements. For example, we estimate that the cost of meeting the best practice audit committee membership guideline of at least one financial expert may increase the median director's fee by 80% while the recommendation for an audit committee with a majority of independent directors could increase the median director's fee by 19%.

The remainder of this study is structured as follows. We review and evaluate the prior literature on audit committee membership in Section 2. In Section 3, we develop the hypotheses, and in Section 4, we describe the research design. The results are presented in Section 5, and discussed in Section 6. In Section 7, the study is summarised and conclusions made.

## 2. Prior literature

The board of directors has primary responsibility for the financial statements which are prepared by the accounting function. The board of directors may delegate the responsibility for overview of the financial reporting process and the external and internal audit functions to an audit committee in which case there should be close communication between the audit committee and the internal and external auditors. Audit committees 'alleviate the agency problem by facilitating the timely release of unbiased accounting information by managers to shareholders, creditors and so on, thus reducing the information asymmetry between insiders and outsiders' (Klein, 1998: 279). Bradbury (1990: 22) also argues that audit committees reduce information asymmetry between executive and non-executive board members.

The responsibilities of an audit committee include the oversight of an organisation's financial reporting, risk management and internal and external audit functions; with the audit committee serving as the link between the board and these functions (e.g. Wolnizer, 1995: 47–49; Co-ordinating Group on Audit and Accounting Issues, 2003). Consistent with much of the prior research, we focus on the audit committee's role in monitoring the financial reporting process.

Recommendations for improving the effectiveness of audit committees have been made by a number of groups including directors (NACD, 1999), chief executive officers (Business Roundtable, 2002), professional accounting bodies (NZICA, 2003), stock exchanges (Joint Committee on Corporate Governance, 2001; NYSE and NASD, 1999), international accounting firms (PricewaterhouseCoopers, 2003) and government commissions (Ramsay, 2001). The recommendations often focus on improving the independence and expertise of audit committee members.

### 2.1. Audit committee independence

The board of directors is comprised of executive (inside) and independent (outside) directors. Fama and Jensen (1983: 314) explain that executive (inside) directors are internal managers who have specific information about the firm. The role of independent (outside) board members is to resolve disagreements between internal managers and to exercise independent judgment in situations where there are conflicts of interest between internal managers and shareholders such as appointing and compensating senior executives and reviewing financial statements. The OECD (2004: 25) supports firms appointing independent non-executive directors to deal with situations of conflicts of interest such as financial reporting, board nominations, and executive and board remuneration.

The NYSE and NASD (1999: 19) comment that non-executive directors that are independent of the firm will help to 'ensure the transparency and integrity of financial reporting' and maintain investor confidence in capital markets. The US Securities and Exchange Commission (SEC) (1999: 23) claims an independent audit committee will 'promote the quality and reliability of a company's financial statements'.

Audit committee independence is defined in various ways in listing requirements and best practice guides (see, for example, NYSE and NASD, 1999; SEC, 1999; ASX Corporate Governance Council, 2003). However, the general principle is that all or a majority of directors on the audit committee should be independent. Independent directors are non-executive directors (i.e. they are not part of management and they should not have any business interests or other relationships that could interfere with their ability to operate objectively).<sup>1</sup>

Researchers have examined the linkage between audit committee independence and audit committee functions of overseeing financial reporting quality, risk management and audit functions.

<sup>1</sup> 'Business interests' include substantial shareholdings, and 'other relationships' include previous employment, customer or supplier relationships or associations with management of the company.

These studies generally support the view of regulators that independent directors strengthen financial reporting by reducing the likelihood of fraudulent financial reporting and other financial reporting irregularities (e.g. DeFond and Jiambalvo, 1991: 651; Dechow et al., 1996: 21; Abbott and Parker 2000a: 60; Beasley et al., 2000a,b: 18, 450; Peasnell et al., 2001: 308; Abbott et al., 2004: 80). Audit committees that are more independent are also associated with lower levels of earnings management (e.g. Klein, 2002b: 389; Bedard et al., 2005: 29; Davidson et al., 2005: 256). Research evidence also suggests that independent audit committees can have a positive effect on external and internal audit functions by: appointing specialist external auditors (Abbott and Parker, 2000b: 59), reducing questionable external auditor switches (Abbott and Parker, 2002: 161; Carcello and Neal, 2003: 107), monitoring the independence of external auditors (Abbott et al., 2003: 226) and by interacting more with internal auditors (Raghunandan et al., 2001: 112; Scarbrough et al., 1998: 58).

Researchers have also investigated the characteristics of firms with independent audit committees. Audit committee independence is negatively associated with firm growth opportunities. The financial statements for firms with growth opportunities are considered to be less relevant to users so the demand for monitoring them is lower (Deli and Gillan, 2000: 430–431). Cotter and Silvester (2003: 224) find that audit committee independence is negatively related to firm leverage. However, leverage is not significant in other studies (Menon and Williams, 1994: 36, Deli and Gillan, 2000: 440, Klein, 2002a: 446, Beasley and Salterio, 2001: 559). Prior research also shows no significant association between audit committee independence and earnings performance, dividend payout, auditor type, industry regulation, or the number of segments within a firm or the firm's stock exchange listing (Cotter and Silvester, 2003: 226; Beasley and Salterio, 2001: 559; Deli and Gillan, 2000: 439).

In terms of board-related variables, audit committee independence is positively related to the percentage of independent directors on the board (e.g. Menon and Williams, 1994: 135–6; Beasley and Salterio, 2001: 556–562; Klein, 2002a: 446; Cotter and Silvester, 2003: 226) and to board size (Beasley and Salterio, 2001: 556–562, Klein, 2002a: 446). Blockholders on the board or on the audit committee are found to reduce the need for independent audit committees (e.g. Beasley and Salterio, 2001: 559; Klein, 2002a: 445). There is some evidence that audit committees are less independent if the CEO is the chair of the board (Beasley and Salterio, 2001: 559). Only one study has found a relationship between director owner-

ship and audit committee independence (Deli and Gillan, 2000: 439). A CEO on the compensation committee, which is a surrogate for the CEO's influence over the board, has no impact on audit committee independence (Klein, 2002a: 445).

## 2.2. Audit committee director financial expertise

An audit committee's monitoring role includes reviewing financial statements and assessing the degree of aggressiveness and conservatism of the accounting policies and accounting estimates. In the US, SOX (2002: section 204) requires auditors of issuers to report to the audit committee on 'all critical accounting policies and practices to be used, all alternative treatments of financial information within generally accepted accounting principles that have been discussed with management'.

Given the complexities of business and the responsibility of audit committees to monitor the integrity of the financial statements, regulatory bodies have raised concerns about the knowledge and experience of audit committee members. In 1994, the Advisory Panel on Auditor Independence (1994: 15) supported the findings of the Institute of Internal Auditors that 'the effectiveness of audit committees is affected first and foremost by the expertise of members of audit committees in the areas of accounting and financial reporting, internal controls and auditing'. Arthur Levitt (1998: 7), former SEC chairman, recognised the need for audit committee members to have appropriate backgrounds, stating that 'qualified, committed, independent and tough-minded audit committees represent the most reliable guardians for the public interest'. The BRC (NYSE and NASD 1999: 12) recommended that independent audit committee directors should be financially literate and have at least one director with accounting or related financial management expertise. These recommendations are incorporated into legislation in the US (SOX, section 407) and by elsewhere (e.g. FRC, ASX).

The importance of financial expertise in monitoring financial reporting is supported in research by Kalbers and Fogarty (1993: 37). Firms with audit committee members who have financial expertise are less likely to be subject to censure for poor financial reporting (Agrawal and Chadha, 2004: 19; Farber, 2005: 551; McMullen and Raghunandan, 1996: 80), more likely to have higher quality earnings (Qin, 2007: 18) and more likely to reduce earnings management for firms with weaker corporate governance mechanisms (Carcello et al., 2006: 23). In addition, audit committees with financial experts are more likely to promote more conservative financial reporting when the overall board corporate governance is strong (Krishnan and Visvanathan, 2008: 24), and financial experts, with audit knowledge, are more



likely to support the external auditor in disputes with management relating to ‘substance over form’ issues (DeZoort and Salterio, 2001: 41).

Nonetheless, there is limited research on the characteristics of firms that have audit committees with financial expertise and those that do not. Beasley and Salterio (2001: 562) show that independent directors with financial reporting and audit committee knowledge are more likely to be appointed by firms with larger boards, and by those with a higher proportion of independent directors, but are less likely to be appointed by firms where the board is chaired by the CEO. DeFond et al. (2004: 176) find that the US capital market reacts favourably when individuals with accounting expertise are appointed to audit committees.<sup>2</sup> However, the reaction is only positive if the experts are independent and the firm has strong corporate governance in place before the new directors are appointed. This suggests that accounting expertise on audit committees may only add value if other firm characteristics facilitate its use.

### 2.3. Best practice guidelines in New Zealand

Following overseas jurisdictions, in late 2003 the New Zealand stock exchange (NZX) introduced recommendations for audit committee membership. In 2004, the NZSC developed a set of corporate governance principles (NZSC, 2004: 11). The NZSC’s principles (which are more stringent than the NZX’s) recommend that audit committees comprise all non-executive directors, have a majority of independent directors, and have a member who is an accounting expert.<sup>3</sup> We refer to audit committees that satisfy all three of these recommendations as ‘best practice’ audit committees.

## 3. Hypotheses

In developing hypotheses for the voluntary adoption of best practice audit committees, we consider both demand and supply factors. It is hypothesised that firms with potentially high agency costs are more likely to voluntarily form best practice audit committees for monitoring purposes. That is, if audit committees are formed to enhance the credibility of financial statements, they will be more useful when financial statements are used for monitoring purposes. Supply factors include board size and the proportion of independent directors on the board, which reflects the ability of the firm to appoint directors who possess the required audit committee member characteristics. Thus, our main objective is to determine whether the demand or supply factors dominate in determining the composition of the audit committee – or whether the demand and supply factors have similar effects. If demand factors dominate, this would suggest that the market will force firms to

adopt best practice membership guidelines. However, if supply factors dominate, firms are unlikely to adopt such guidelines as doing so would require that the firm alters other aspects of its governance structure (e.g. enlarge its board, increase the proportion of independent directors on the board).

### 3.1. Demand factors

#### *Leverage*

Agency costs arise with the use of debt as there are potential conflicts between shareholders and debtholders (Jensen and Meckling, 1976: 333–343). To mitigate these conflicts, covenants are typically written into debt contracts requiring firms to supply audited financial statements and a certificate confirming compliance with the covenants (e.g. Smith and Warner, 1979: 125). As violating debt covenants can be costly for a firm, managers have incentives to avoid breaking them (e.g. Watts and Zimmerman, 1986: 210–217). Empirical research suggests that managers make accounting choices to affect the calculations used to determine compliance with debt covenants (e.g. Healey and Whalen, 1999: 376). Such accounting choices include making income-increasing changes around the time of default (Sweeney, 1994: 293) and changing accounting policies (Beatty and Weber, 2002: 134).

Directors have a responsibility to ensure the integrity of the financial statements provided to debtholders and to monitor compliance with debt covenant provisions. The demand for this type of monitoring should increase as the level of debt and the risk of managers manipulating accounting choices to ensure compliance with debt covenants increases. When debt levels are high, we expect that boards will voluntarily establish independent audit committees with financial expertise to reassure debtholders that the audit committee is effectively monitoring the reporting process. Based on the argument that effective monitoring by audit committees can reduce agency costs for firms with high debt levels, it is hypothesised that:

**H1** Firms with higher levels of debt are more likely to voluntarily appoint audit committees that meet best practice membership guidelines.

#### *Executive director shareholding*

Another need to monitor management arises from the separation of ownership and management (Jensen and Meckling, 1976: 309). As executive

<sup>2</sup> An accounting expert is a director with experience as a public accountant, auditor, chief financial officer, controller, principal or chief accounting officer.

<sup>3</sup> The NZX’s Best Practice Code requires issuers to establish audit committees consisting solely of non-executive directors. It does not refer to independent directors or financial expertise.

director share ownership increases, managers' and shareholders' incentives are more closely aligned, thus reducing agency costs and the level of monitoring required (e.g. Rosenstein and Wyatt, 1997: 240). Empirical research shows that at lower levels of ownership, managers may become involved in activities that do not add value to shareholders such as time-wasting and diverting resources to unprofitable projects (e.g. Morck et al., 1988; Hermalin and Weisbach, 1991: 106; Holderness et al., 1999: 459).<sup>4</sup> It is hypothesised that:

- H2** Firms where executive directors have a higher share ownership are less likely to voluntarily appoint audit committees that meet best practice membership guidelines.

#### *Blockholders*

Blockholders, who own substantial amounts of a firm's shares (defined in this study at 5% or more of the issued shares), have sufficient financial incentives to monitor the performance of management. They also have voting power that, if required, can be used to take action (e.g. Jensen, 1993: 867, Shleifer and Vishny, 1997: 754–755).

Prior research indicates that blockholders have a positive influence on the formation of an audit committee (Bradbury, 1990: 23). Blockholders on audit committees are likely to mitigate earnings management (Bedard et al., 2005: 25). Furthermore, firms subject to SEC enforcement actions are less likely to have blockholders (Dechow et al., 1996: 21) while firms that overstate earnings have more diffuse ownership (DeFond and Jiambalvo, 1991: 653). Beasley and Salterio (2001: 559) find blockholders on the board are negatively associated with audit committee independence. Similarly, Klein (2002a: 445) finds audit committee independence declines when blockholders are represented on the audit committee.

On the basis that substantial blockholders are considered substitute monitoring mechanisms for audit committee independence and financial expertise, it is hypothesised that:

- H3** Firms with blockholders on the board of directors are less likely to voluntarily appoint audit committees that meet best practice membership guidelines.

#### *Big Five auditors*

Use of a Big Five auditor is likely to reflect higher agency costs and a greater demand for high quality financial statements (e.g. Watts and Zimmerman, 1986). Eichenseher and Shields (1985: 25–27) provide evidence that newly hired

small audit firms are reluctant to encourage audit committee formation because audit committees have a preference for large audit firms. It is likely that large audit firms will also promote best audit committee practice. Hence:

- H4** Firms with large audit firms are more likely to voluntarily appoint audit committees that meet best practice membership guidelines.

#### *Market to book*

Deli and Gillan (2000: 440) and Klein (2002a: 445) find that growth opportunities are significantly and negatively related to audit committee independence. A potential reason for this is that financial statements are a more important monitoring mechanism for firms with assets-in-place relative to growth opportunities. Given that a major function of an audit committee is to increase the credibility of financial statements, it follows that best practice audit committees will be more (less) useful for firms with higher assets-in-place (lower growth opportunities).

- H5** Firms with a higher proportion of growth opportunities are less likely to voluntarily appoint audit committees that meet best practice membership guidelines.

### *3.2. Supply factors*

#### *Board size*

Small boards are easy to manage and free riders are more easily identified compared to large boards. Jensen (1993: 865) advocates appointing small boards because boards with more than seven or eight members are not effective and are easier for the CEO to control. For example, as board size increases, the likelihood of financial statement fraud increases (Beasley, 1996: 462).

Large boards may be a sign of more complex governance issues that require delegation to specialist committees such as a high quality audit committee to improve the board's responsiveness and improve oversight. Similarly, independent directors are more likely to demand high quality monitoring of financial reporting to enhance their own reputations (Fama, 1980: 294).

Establishing separate committees enables a board to focus on specific areas of responsibility where the skills and knowledge of directors can be maximised and the workload shared (e.g. NZSC, 2004: 20). As boards increase in size, the ability to appoint independent directors with expertise in various areas, including financial expertise, increases. The empirical evidence shows that audit committee independence increases with board size (e.g. Klein, 2002a: 445) and that larger boards are more likely to establish audit committees which exceed minimum legal requirements for independence and financial expertise (Beasley and Salterio, 2001: 559–563).

<sup>4</sup> However, Morck et al.'s (1988) results suggest that excessive levels of managerial ownership could also lead to entrenchment and suboptimal behaviour.

Based on these arguments, we hypothesise that:

- H6** Firms with larger boards are more likely to voluntarily appoint audit committees that meet best practice membership guidelines.

#### *Independent board directors*

Information asymmetries exist between executive and independent directors because executive directors usually have more information about a firm than independent directors. Independent directors have incentives to seek this information and enhance their reputations as monitors (Fama, 1980: 294).

Although independent directors may have less information about a firm, they are also less influenced by the CEO, and are more likely to evaluate financial reports more objectively (e.g. NYSE and NASD 1999: 22) and to hold directors more accountable for financial results (e.g. Committee on Corporate Governance, 1998: 7). Empirical research suggests that having independent directors on the audit committee improves the quality of financial reporting. Firms investigated for fraudulent reporting or financial irregularities often have boards dominated by executive directors (Dechow et al., 1996: 21). Firms with a high percentage of independent board directors are less likely to have financial reporting problems (e.g. Beasley, 1996: 455; Peasnell et al., 2001: 308; Song and Windram, 2004: 203).

As the proportion of independent directors on the board increases, it is more likely for an audit committee to include more independent directors (e.g. Menon and Williams, 1994: 137) and independent directors with financial reporting and

audit committee knowledge (Beasley and Salterio, 2001: 562).

On the evidence of prior research that independent directors improve the quality of financial reporting monitoring, we hypothesise that:

- H7** Firms with a higher proportion of independent directors on their boards are more likely to voluntarily appoint audit committees that meet best practice membership guidelines.

## 4. Research design

### *4.1. Model and variables*

We use a logit model to test the relation between and demand and supply factors and the likelihood that audit committees will meet specified membership criteria. The logit model is specified in equation (1):

$$\begin{aligned} \text{ACBP} = & \beta_0 + \beta_1\text{LEV} + \beta_2\text{EXDIRSH} + & (1) \\ & \beta_3\text{BLOCK} + \beta_4\text{BIG5} + \beta_5\text{MTB} + \\ & \beta_6\text{BDSIZE} + \beta_7\text{BDIND} \end{aligned}$$

where ACBP is an indicator variable that is equal to 1 if a firm has a best practice audit committee comprised of all non-executive directors, consisting of a majority of independent directors, and including an accounting expert, and 0 otherwise.<sup>5</sup> This definition is consistent with the NZSC (2004) principles and guidelines and the ASX requirements but is more stringent than the NZX (2003) best practice code and less rigorous than the SOX and FRC requirements.<sup>6</sup>

For classification purposes, a non-executive director is a director who is not a member of senior management at the firm. An independent director is defined as one who is not employed or closely affiliated with the company. It 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: 10–11). We read annual report disclosures, in particular the related party disclosures in the notes to the financial statements, to determine whether each director is an independent director.

We also determine whether each director has financial expertise. We classify directors who are qualified as a chartered accountant (CA) as having financial expertise.<sup>7</sup> We use a directory maintained by the New Zealand Institute of Chartered Accountants to identify CA-qualified directors.

We also report the results of equation (1) using two alternative dependent variables (i.e. measures of audit committee composition). Audit committee

<sup>5</sup> Firm and time subscripts are omitted from equation 1, for ease of exposition.

<sup>6</sup> The NZSC (2004) and ASX Corporate Governance Council (2003) recommend audit committees comprise all non-executive directors, the majority of whom are independent, with at least one director who is a chartered accountant or has another recognised form of financial expertise, and a chairperson who is independent and not the chairperson of the board. The NZX (2003) recommends that an audit committee consist solely of non-executive directors. No reference is made to financial expertise. SOX (2002) section 301 requires public company audit committees to be independent of management, and in section 407 SEC registrants must disclose whether or not the audit committee has at least one financial expert. The FRC Combined Code (2003) requires audit committees of at least three members (two members for smaller companies) who are independent non-executive directors with at least one member having recent and relevant financial experience.

<sup>7</sup> This definition is largely consistent with the NZSC (2004) view but is narrower than that legislated in the SOX Act. The SOX Act definition includes presidents and chief executive officers as financial experts because it was considered that a narrow definition would limit the pool of qualified directors able to be appointed as experts (DeFond et al., 2004). The narrower definition of an accounting expert is adopted in this study because of a lack of consistency in the disclosure of directors' backgrounds in company annual reports.



**Table 1**  
**Sample selection**

	<i># of firms</i>
Initial sample	109
Less: Unit trust and finance companies	(2)
Less: Firms delisted	(8)
Less: Firms with audit committees but no details on composition	(9)
Less: Firms that did not disclose if they had an audit committee or not	(7)
Less: Firms with a lack of data	(3)
Less: Firms with an overseas stock exchange listing	(24)
Final sample	56

independence (ACIND) is coded 1 if the audit committee is comprised of a majority of independent directors and 0 if it is not. Audit committee accounting expertise (ACEXP) is equal to 1 if at least one member is a member of a professional accounting body and 0 otherwise. This also allows us to investigate whether the same agency cost factors and board characteristics drive firms' decisions to add independent members and to add members with expertise.

For the independent variables, debt (LEV) is the ratio of borrowings to firm size.<sup>8</sup> The cumulative percentage of shares held by executive directors as a percentage of the total shares issued is the measure of executive director share ownership (EXDIRSH). BLOCK is the percentage of shares issued to shareholders who each have at least 5% of the issued shares of a company. BIG5 is a dummy variable equal to 1 if the firm employs a large auditor and 0 otherwise. Growth opportunities are measured using a market to book ratio (MTB). Board size (BDSIZE) is the number of individuals serving on the board of directors and BDIND is the percentage of independent directors on the board of directors. We do not explicitly control for firm size since board size and firm size are highly correlated ( $r = 0.61$ ).

#### 4.2. Sample and data

We select New Zealand companies listed on the NZX main trading board as reported in the 2001 Investment Guide (Datex Services Limited, 2001). We choose 2001 because we want to focus on the firm's voluntary decision to adopt a best practice membership audit committee. Thus, we need a period that is uncontaminated by external forces that might have led firms to adopt a best practice membership guidelines. For example, the overseas' responses to the collapse of firms like Enron and WorldCom (e.g. changes in stock exchange listing rules, enactment of the SOX Act) that began to appear from 2002 could have created pressure for

firms to improve their corporate governance, even though formal responses did not appear in New Zealand until 2003. Using 2001 data gives us a cleaner test of firm's incentives to choose a high quality audit committee that possess best practice elements.

Our initial sample is 109 firms. We exclude a unit trust and a large insurance and banking company because the governance and financial structures of these entities differs from that of most other company organisations.<sup>9</sup> Eight firms are excluded because of delisting. We omit 19 firms that did not provide sufficient data such as audit committee details. Finally, we eliminate 24 firms that are listed on overseas stock exchanges where audit committee composition might be regulated. This results in a final sample of 56 firms. Table 1 summarises the sample selection.

We obtain financial data from Datex. The audit committee data was hand-collected from annual reports. Where information on audit committee members was incomplete, a letter was sent to the listed company requesting the information.<sup>10</sup> We use company press releases and websites to obtain the qualifications of directors if they were not disclosed in the annual reports. We use the website of the New Zealand Institute of Chartered Accountants to determine if directors on the audit committees were members of the national professional accounting body. However, we acknowledge that this process did not identify directors who have an accounting certification from an overseas professional accounting body.

<sup>8</sup> Firm size is measured as the market value of equity plus the carrying amount of total liabilities.

<sup>9</sup> Unit trusts are investment vehicles whereby funds are invested by investors and managed by professional portfolio managers in accordance with agreed investment objectives.

<sup>10</sup> 89 companies were sent a letter requesting additional information. A total of 54 responses were received representing a response rate of 60.67%.



**Table 2**  
**Description of dependent variables**

<i>Panel A: Means</i>		<i>Label</i>	<i>Mean</i>	<i>N</i>
Audit committee with accounting expert		ACEXP	0.679	38
Independent audit committee		ACIND	0.518	29
Best practice audit committee		ACBP	0.339	19

  

<i>Panel B: Relation between ACEXP and ACIND</i>				
ACIND		0	1	Total
ACEXP	0	11	7	18
	1	16	22	38
Total		27	29	56

ACBP is 1 if a company has an audit committee with all non-executive directors, with a majority (greater than 50%) of independent directors and a director with a professional accounting qualification, 0 otherwise. ACIND is 1 if a company has an audit committee, with greater than 50% independent directors, 0 otherwise. ACEXP is 1 if a company has an audit committee with a member holding a professional accounting qualification, 0 otherwise. The sample size is 56.

## 5. Results

### 5.1. Descriptive statistics and univariate analysis

Table 2 Panels A and B reports the descriptive statistics of the dependent variables used in this study. Of the 56 listed companies, 67.9% (38 firms) have an accounting expert on the committee (ACEXP) and 51.8% (29 firms) of the firms have a majority of independent directors (ACIND). There are 22 firms (39.3%) that meet both these requirements. There are 19 firms (33.9%) that meet audit committee best practice membership guidelines audit committees (ACBP). The percentage of firms with independent audit committees (ACIND) is lower than the US (86.7% in Klein, 2002a: 442), but similar to Australia (64.2% in Cotter and Silvester, 2003: 219).

Table 3 reports the descriptive statistics for the explanatory variables. The mean for LEV is 0.312. On average, executive directors (EXDIRSH) own 3.5% of the issued shares and blockholding shareholders (BLOCK) own 47.3% of issued shares. Eighty-seven percent of firms employ a Big Five auditor. The average market to book ratio is 1.6. Boards have a mean size of 5.9 directors (BSIZE), and 52% of the boards have a majority of independent directors (BIND).

Table 4 reports the results of Mann-Whitney univariate tests of the explanatory variables. We employ nonparametric tests because of the small sample size and because they require no assumptions about the normality of the data. We report a Mann Whitney U tests for the continuous variables and a chi-square for the Big Five indicator variable.

Leverage (LEV) is weakly significant (i.e.  $p > 0.05$ ) and negatively related to audit committee

quality across all three measures. This suggests that leverage and audit committees may be substitute monitoring mechanisms. Specifically, debtholders have incentives to monitor the firm directly, and debt can reduce the firm's free cash flows (Jensen, 1986: 324) which imposes discipline on the managers. Executive directors' shareholdings (EXDIRSH) is only weakly significant (at 0.10 level) for independent audit committees (ACIND). While this positive relation is contrary to expectations, EXDIRSH is not significant in the ACBP or ACIND models and is not significant in the multivariate tests. Thus, in general EXDIRSH and audit committees are unrelated. There is a weak negative relation between blockholders (BLOCK) and an audit committee with accounting expertise (ACEXP) which provides support for the view that blockholders and audit committees are substitutes. Neither BIG5 nor MTB are related to audit committee quality. One reason might be that BIG5 and MTB are relatively noisy proxies for audit quality and growth opportunities. There is a strong positive relation between board size (BDSIZE) and independent and best practice membership audit committees, but not expertise. As expected, board independence (BDIND) is positively and significantly related to audit membership across all three measures.

Table 5 reports the bivariate correlations between the independent variables. The significant correlation between MTB and leverage is as expected (Myers, 1977). There are also significant correlations between EXDIRSH and BLOCK, EXDIRSH and BDIND, and LEV and BIG5. None of these correlations suggest that multicollinearity will be a major problem; nevertheless, we undertake additional analysis to address this issue.

**Table 3**  
Descriptive statistics of independent variables

	<i>Label</i>	<i>Mean</i>	<i>Std dev</i>	<i>Median</i>	<i>Minimum</i>	<i>Maximum</i>
Leverage	LEV	0.312	0.232	0.438	0.000	3.114
Executive director shareholding	EXDIRSH	0.035	0.003	0.073	0.000	0.326
Blockholding	BLOCK	0.473	0.503	0.265	0.000	0.898
Big Five	BIG5	0.875	1.000	0.334	0.000	1.000
Market to book	MTB	1.602	1.055	1.376	0.459	7.865
Board size	BDSIZE	5.946	6.000	1.995	3.000	11.000
Board independence	BDIND	0.520	0.470	0.239	0.000	1.000

LEV is the ratio of borrowings to firm size (the market value of equity plus carrying amount of total liabilities). EXDIRSH is the total number of shares held by executive directors as a percentage of the total shares issued. BLOCK is measured as the percentage of shares owned by shareholders, each with more than a 5% of the firm's issued shares and represented on the board of directors. BIG5 is 1 if a firm has a Big Five auditor, 0 otherwise. MTB is the market-to-book ratio. BDSIZE is the number of individuals serving on the board of directors, and BDIND the proportion of independent directors on the board of directors. The sample size is 56.

**Table 4**  
Univariate tests of explanatory variables

	<i>Predicted sign</i>	<i>Test</i>	<i>ACBP</i>		<i>ACEXP</i>		<i>ACIND</i>	
			<i>Test statistic</i>	<i>p-value</i>	<i>Test statistic</i>	<i>p-value</i>	<i>Test statistic</i>	<i>p-value</i>
LEV	+	MWU	-1.705	(0.044)	-1.930	(0.027)	-1.550	(0.061)
EXDIRSH	-	MWU	1.249	(0.106)	0.070	(0.472)	1.348	(0.089)
BLOCK	-	MWU	-0.554	(0.290)	-1.571	(0.058)	0.591	(0.277)
BIG5	+	CS	0.421	(0.516)	0.421	(0.516)	0.255	(0.614)
MTB	-	MWU	0.078	(0.469)	0.333	(0.369)	0.746	(0.228)
BDSIZE	+	MWU	2.507	(0.006)	0.924	(0.178)	3.297	(0.000)
BDIND	+	MWU	3.845	(0.000)	2.006	(0.022)	3.610	(0.000)

The variables are defined in Tables 2 and 3. A nonparametric Mann Whitney U test (MWU) is employed for continuous variables and a chi-square test (CS) is reported for the binary BIG5 variable. Except for the CS test, p-values are one-tailed. A negative test statistic indicates that where the dependent variable (ACBP, ACEXP, or ACIND) is 0, this group of observations has a higher mean rank than where the dependent variable is 1.

### 5.2. Multivariate analysis

Table 6 presents the results of a logit regression for each measure of best practice for audit committee membership: ACBP, ACEXP and ACIND. Our main focus is on ACBP. In this regression, the model Nagelkerke  $R^2$  is 59.8% which compares favourably with similar studies such as Klein (2002a: 446) who reports an adjusted  $R^2$  of 24%. The only demand variable that is significant is market to book (MTB), which is weakly and negatively significant (at 0.10). Both supply variables,

board size and board independence are positively and significantly related to ACBP at 0.05 and 0.01 levels, respectively. This indicates that, consistent with H6 and H7, firms with large boards and firms with independent boards are more likely to create audit committees that conform to best practice standards.

The logit regressions for ACEXP and ACIND are also significant. The explanatory power for ACIND of 52.9% is similar to the ACBP model. However, the explanatory power of ACEXP is

**Table 5**  
**Spearman correlations matrix**

	LEV	EXDIRSH	BLOCK	BIG 5	MTB	BDSIZE	BDIND
LEV		-0.016	-0.118	-0.165	-0.285*	-0.156	-0.076
EXDIRSH	-0.027		-0.361**	-0.074	0.228	0.233	0.272*
BLOCK	-0.064	-0.135		-0.048	-0.013	0.148	-0.231
BIG5	-0.349**	-0.018	-0.072		0.062	0.183	-0.094
MTB	0.195	-0.025	-0.062	0.055		-0.014	0.087
BDSIZE	-0.149	0.238	0.165	0.181	-0.102		0.224
BDIND	0.113	0.105	-0.226	-0.117	0.008	0.156	

The variables are described in Table 3. Spearman rank correlations are reported above the diagonal and Pearson correlations are reported below the diagonal. The sample size is 56. \*, \*\* indicate significance at the 0.05 and 0.01 levels, respectively. p-values are two-tailed.

**Table 6**  
**Logit regression results**

<i>Model:</i>			<i>ACBP</i>	<i>ACEXP</i>	<i>ACIND</i>
	<i>Predicted sign</i>		<i>Coefficient (p-value)</i>	<i>Coefficient (p-value)</i>	<i>Coefficient (p-value)</i>
Constant			-7.362 (0.016)	0.947 (0.298)	-6.702 (0.004)
LEV	H1	+	-1.902 (0.199)	-3.384 (0.029)	-1.816 (0.096)
EXDIRSH	H2	-	4.284 (0.208)	-5.620 (0.123)	0.347 (0.472)
BLOCK	H3	-	0.541 (0.371)	-2.815 (0.041)	2.498 (0.077)
BIG5	H4	+	0.649 (0.321)	-0.230 (0.415)	0.138 (0.455)
MTB	H5	-	-1.165 (0.085)	0.100 (0.351)	-0.046 (0.452)
BDSIZE	H6	+	0.446 (0.033)	0.174 (0.180)	0.353 (0.035)
BDIND	H7	+	8.800 (0.001)	3.098 (0.038)	7.918 (0.001)
-2 Log likelihood			40.1	54.0	49.3
Nagelkerke R <sup>2</sup>			0.598	0.353	0.529
% Predicted correct			82.1	82.1	76.8

The variables are described in Table 3. The sample size is 56. p-values are one-tailed.

lower at 35.3% which suggests that the appointment of accounting experts to audit committees is related to other demand and supply factors yet to be explored.

When ACIND or ACEXP are used as the dependent variable, the supply variables (BDSIZE and BDIND) are also supported. Independent

boards (H7) are more likely to choose audit committees that have accounting experts and that are independent. Board size (H6) is supported for ACIND, but not for ACEXP.

In contrast to the results for ACBP, LEV is significantly related to ACEXP and ACIND, but in both cases, the positive coefficient is opposite to

that hypothesised. This suggests that high leverage firms are less likely to have a best practice audit committee. One reason for this result might be that leverage acts as a substitute for an audit committee as a monitoring mechanism. First, debt provides discipline for managers by reducing free cash flows (Jensen, 1986: 324). Second, lenders can directly monitor the firm's financial performance which obviates the need for an independent audit committee or an audit committee that has financial expertise.

While BLOCK is not significant in the ACBP model, it is significant in both ACEXP and ACIND models. However, in the ACEXP and ACIND models the signs are both significant and different, thereby cancelling the effect in the ACBP model. This suggests the role of blockholders in monitoring arrangements and governance is more complex than that hypothesised (H3). A rationale for this result is that blockholding directors will seek to be on audit committees to have direct access to the auditors and reduce the information asymmetry between the blockholding directors and the internal directors (Bradbury, 1990: 22). The results are consistent with blockholding directors being substitutes for expert, but not independent, directors on audit committees.

Growth opportunities (MTB) is significant in the ACBP model, but not in either the ACIND or ACEXP models. This may reflect the highly discretionary nature of growth opportunities, which requires a need for audit committee directors with both greater independence and greater expertise. Alternatively, MTB might be a noisy proxy for growth opportunities, which can reduce the models' explanatory power.

In summary, the results indicate that the probability that a best practice audit committee is established increases as board size increases and as board independence increases. Thus, it seems that the supply factors dominate the demand-related factors in determining the likelihood of a firm having an audit committee that meets best practice guidelines.

### 5.3. Additional analysis

This section summarises additional work undertaken to assess the robustness of the results to additional variables and to potential concerns about multicollinearity and endogeneity bias.

#### *Alternative sample and independent variables*

In the reported results, we eliminate firms that are listed overseas because they are more likely to be affected by overseas local listing rules. However, this raises a concern over the small sample size on which the logit analysis in Table 6 is undertaken. We therefore increased the sample by including the 24 companies that are also listed on overseas stock exchanges (see Table 1) and in-

cluded a dummy variable for the overseas exchange listing. The results (untabulated) are similar to those reported. Large or independent boards are more likely to have a best practice audit committee. The exchange listing dummy variable is not significant.

In our main tests, we exclude firm size as a control variable from the reported results because Bradbury (1990: 29) shows that it is highly correlated to board size. He reports that size does not make a marginal contribution to the decision to maintain an audit committee once the number of directors has been considered. Furthermore, given the sample size, we wished to make the model as parsimonious as possible. We examine whether our results are sensitive to the inclusion of a firm size variable. When this is included, board size becomes insignificant while board independence remains significant. Thus, consistent with our priors, including firm size swamps the board size effect.

We also create a dummy variable for blockholding to test whether it was the existence of a blockholder or the size of the blockholding that was more relevant. The results are not sensitive to the use of a dummy blockholder variable.

#### *Alternative dependent variables*

We create an ordinal dependent variable of audit quality from the ACEXP and ACIND variables and employ a multinomial logit regression. For this model the dependent variable is set to 0 if both ACEXP and ACIND are zero; 1 if either (but not both) ACEXP and ACIND are 1; and 2 if both ACEXP and ACIND are 1. This allows us to compare audit committees that do not meet the guidelines with those that are partly compliant and to compare the latter with those that are fully compliant. Only leverage is significant (at the 0.05 level) in explaining the incremental audit committee quality between the dependent variable of 0 and 1 whereas BDIND and BDSIZE are significant determinants of audit committee quality when the dependent is between 1 and 2. This suggests that there are some firms (i.e. the lower quality audit committee firms) where audit committee membership is not influenced by board size and composition.

#### *Multicollinearity*

Multicollinearity is a potential concern because of the significant correlations between a few variables that can be observed in Table 5. We therefore run an ordinary least squares regression on the ACBP model, to assess the variance inflation factors (VIF) for each variable. The VIF factors range from 1.1 to 1.24, which suggests that multicollinearity is not a problem.

However, there is still a concern over the correlation between leverage (LEV) and growth opportunities (MTB) because of the theoretical relation between these variables and the correlations ob-



served in Table 5. We re-ran the ACBP logit regression dropping LEV and MTB in turn. If MTB is eliminated, LEV is not significant and the model has a lower  $R^2$  and classification ability. When leverage is dropped from the regression, MTB is significant (at the 10% level) and the  $R^2$  and classification ability marginally increase.

### Endogeneity

The hypotheses assume that the board characteristics have a unidirectional effect on the composition of the audit committee. However, board and board committee structure may be established simultaneously. That is, while board (BDSIZE) and the percentage of independent directors (BDIND) may affect the composition of the audit committee, the composition of the audit committee may affect board size and the proportion of independent directors. For example, a desire to create an independent audit committee with a financial expert may require the appointment of more directors who are independent or financial experts to the board.

We address this concern using a two-stage approach. We use the lagged board size as an instrumental variable for BDSIZE. The lagged variable is assumed to be a predetermined variable in equation (1) because its value is not determined in the current time period. Therefore, it is assumed that the error term of the model is not correlated with the lagged variable (e.g. Gujarati, 2003: 736).

In the first stage of the approach, BDSIZE is regressed on the other explanatory variables in model (1) plus the lagged value of BDSIZE. Data for BDSIZE for the 2000 year was hand-collected from annual reports. Equation (2) shows the OLS regression:

$$\begin{aligned} \text{BDSIZE}_t = & \Pi_0 + \Pi_1 \text{LogLEV}_t + \\ & \Pi_2 \text{LogEXDIRSH}_t + \Pi_3 \text{BLOCK}_t + \\ & \Pi_4 \text{BIG5}_t + \Pi_5 \text{MTB} + \\ & \Pi_6 \text{BDSIZE}_{t-1} + \Pi_7 \text{BDIND}_t \end{aligned} \quad (2)$$

We normalise LEV and EXDIRSH by taking logs. The other variables are defined in equation 1. In the second stage, the predicted value of BDSIZE replaces the actual value of in the original model. Table 7 contains the results. When the predicted value of board size is included in the model, the results are qualitatively the same as in Table 6. Thus, simultaneity does not seem to be affecting our results.

## 6. Discussion

Our results have several implications for policy setters. First, the low influence of demand factors suggests that regulation will be necessary to move audit committee quality to international standards. Second, if existing (unconstrained) board struc-

tures are optimal from production efficiency perspective, then regulations will require firms to engage additional directors or to change of duties of existing directors.

To gain further insight on the latter issue, we analyse the change in audit committee composition from 1998 to 2001.<sup>11</sup> Over this period, eight firms (15%) moved to achieve best practice audit committee guidelines. For these firms, five firms increased the number of directors, while two firms achieved best practice audit committees by reallocation of tasks within the existing board size. One remaining company reduced the board size by two members over the period and subsequently delisted. Board independence increased for four of the firms, decreased for two of the firms and remained unchanged for two of the remaining companies. Directors fees increased by an average of NZ\$10,042 for the eight companies. The change in average directors' fees was positive for all but one of the eight firms. Interestingly, six other firms moved away from best practice guidelines by losing an accounting expert (two cases) or an independent director (four cases) from the audit committee. Only three of these firms reduced board size, in other cases related party transactions and changes in shareholding affected the independence of directors. This suggests that firms choose board structures for operational reasons – or, at least, reasons unrelated to audit committee best practice membership guidelines. As a result, regulations to meet best practice audit committee membership would impose a cost on these firms.

To get some idea of the cost, we analyse the average directors' fees for each firm by audit committee quality (ACEXP and ACIND). This analysis is reported in Table 8. Thirty-five firms have an accounting expert on the audit committee. The median directors' fee for these firms is NZ\$31,000, compared to those without an accounting expert of NZ\$17,250; a 79.7% increase. Similarly the median directors' fees where ACIND is 1 is 18.7% higher than those firms without an independent audit committee.<sup>12</sup> This suggests the cost, in terms of directors' fees, of increasing audit committee quality will be significant for some firms. Given economies of scale relating to firm size and the strong relation between firm size and board size, smaller firms will incur proportionally more costs than large firms in increasing board size or improving the mix of independent and expert directors. More specifically, the average cost of complying with best practice guidelines will be decreasing with firm size. From a policy perspective,

<sup>11</sup> This analysis is conducted on 52 firms because we lose four observations for firms that were not listed in 1998.

<sup>12</sup> Wilcoxon-matched pairs tests indicate these differences are statistically significant.

**Table 7**  
**Test for simultaneity**

	<i>Sign</i>	<i>ACBP</i> <i>Second Stage</i> <i>Logit</i> <i>Coefficient</i> <i>(p-value)</i>	<i>BDSIZE</i> <i>First Stage</i> <i>OLS</i> <i>Coefficient</i> <i>(p-value)</i>
Constant		-7.488 (0.013)	-0.433 (0.261)
LEV	+	-1.702 (0.226)	0.272 (0.193)
EXDIRSH	-	4.749 (0.189)	0.291 (0.435)
BLOCK	-	0.134 (0.468)	0.403 (0.211)
BIG5	+	0.378 (0.391)	0.852 (0.019)
MTB	+	-1.077 (0.097)	-0.129 (0.082)
BDSIZE (predicted)	+	0.551 (0.023)	
BDSIZE (lagged)	+		0.867 (0.000)
BDIND	+	8.347 (0.001)	0.415 (0.225)
-2 Log likelihood		39.128	
Nagelkerke R <sup>2</sup>		0.611	
% Predicted correct		83.929	

The variables are described in Table 3. The sample size is 56. p-values are one-tailed.

**Table 8**  
**Analysis of average directors' fee per firm (NZ\$)**

	<i>ACEXP=1</i>	<i>ACEXP=0</i>	<i>Increase</i>	<i>Percentage increase</i>
Mean	32,661	20,196	12,465	61.7%
Median	31,000	17,250	13,750	79.7%
N	35	17		
	<i>ACIND=1</i>	<i>ACIND=0</i>		
Mean	28,264	28,908	-643	-2.2%
Median	29,675	25,000	4,675	18.7%
N	26	26		

See Table 2 for definitions of variables.

whether such costs should be imposed on firms needs to be weighed against the social benefits of an increase in directors' fees, such as a general improvement in investors' confidence arising from better financial reporting.

## 7. Summary

Regulators in the US, UK, Australia, and New Zealand require or recommend that listed companies establish audit committees that meet specified membership criteria. These requirements have been made on the premise that if audit committees are appropriately structured (i.e. are of high quality) their effectiveness should improve financial reporting.

This study investigates the characteristics associated with firms that voluntarily established audit committees that meet best practice guidelines for audit committee membership. Our results show that, in a voluntary setting, supply factors (i.e. board size and board independence) are positively related to best practice audit committees. The hypothesised demand factors, such as leverage and growth opportunities, large audit firms have weak or no influence on audit committee membership.

There are two implications of our results for regulators. The first is that if audit committee membership is considered to be crucial for financial reporting, then regulations will be necessary to achieve best practice. Second, if, in a voluntary setting, board composition is optimal for operating purposes, the regulations to achieve audit committee best practice will impose significant costs on some firms.

We note that New Zealand's environment is characterised by smaller firms, more concentrated ownership, and limited resources with regard to directors. Therefore, care should be taken in generalising the results to other settings.

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