

THE ASSOCIATION BETWEEN CORPORATE GOVERNANCE AND EARNINGS MANAGEMENT: THE ROLE OF INDEPENDENT DIRECTORS

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Abstract

The agency perspective of corporate governance emphasises the monitoring role of the board of directors. This study is concerned with analysing whether independent directors on the board and audit committee (recommendations of the ASX Corporate Governance Council, 2003) are associated with reduced levels of earnings management. The results support the hypotheses that a higher proportion of independent directors on the board and on the audit committee are associated with reduced levels of earnings management. The results are robust to alternative specifications of the model. This study adds to the very limited research into the relationship between corporate governance and earnings management in Australia. It also provides empirical evidence on the effectiveness of some of the regulators' recommendations, which may be of value to regulators in preparing and amending corporate governance codes.

Keywords: Corporate governance; Independent directors; Earnings management.

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1 Introduction

Corporate governance is concerned with establishing mechanisms that ensure that firms' resources are optimally employed for the benefits of shareholders (Dechow et al, 1996). Financial accounting-related corporate governance research has regularly adopted an agency perspective of corporate governance, which characterises the separation of ownership and control that is indicative of many large corporations. Under an agency approach, the principal objective of corporate governance is to monitor and control management. Earnings management occurs 'when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholder about the underlying economic performance of the firm, or to influence contractual outcomes that depend on reported accounting numbers' (Healy and Wahlen, 1998). If monitoring and control of management is regarded as the primary aim of corporate governance, then governance mechanisms instituted to fulfil this purpose should have an effect on the managerial practice of earnings management. Thus, this study analyses whether having a higher proportion of independent directors on the board and audit committee is associated with reduced levels of earnings management.

The potential impact of corporate governance on earnings management has been under researched in the academic literature. A few US studies (Xie et al,

2003; Klein, 2002; Chung et al, 2002) and one UK study (Peasnell et al, 2000), have considered whether specific corporate governance mechanisms are associated with reduced earnings management.¹ However, the results of these studies do not necessarily apply to Australian firms, as corporate governance practices between countries may be dissimilar as a result of differences in the countries' respective institutional environments (Shleifer and Vishny, 1997). As far as we are aware, only two studies (Mather and Ramsay, 2003; Koh, 2003) have been dedicated to providing insight on the relationship between corporate governance and earnings management in an Australian context. While Koh (2003) solely analysed the effect of institutional ownership on earnings management, Mather and Ramsay (2003) investigated the impact of certain corporate governance variables on earnings management within the specific context of CEO changes. Thus, there has been little empirical evidence provided on the impact of corporate governance on earnings management using Australian data.

As a result of the recent instances of corporate failures and accounting scandals, national regulators have established corporate governance codes, such as the Sarbanes-Oxley Act (2002) in the United States and the ASX Corporate Governance Council (2003) in Australia. These regulators believe that improving

¹ Refer to section 2 for a review of these studies.

corporate governance structures within firms will compel managers to act in the shareholders' best interests and will thus ensure that resources are optimally allocated. As the recommendations of the corporate governance codes may impose implementation costs on companies, firms want to ensure that such recommendations are beneficial for them. The practical contribution of this study is therefore to provide empirical evidence on the efficacy of some of the regulators' recommendations by analysing whether they are associated with reduced levels of earnings management.

We find that, in a sample of the top 300 Australian companies, boards comprising a higher proportion of independent directors are associated with reduced levels of earnings management and that audit committees comprising a higher proportion of independent directors are also associated with reduced levels of earnings management. Additional analysis indicates the larger firms in the sample are driving these results. This difference may arise due to the higher public scrutiny of large firms and the notion that independent directors have stronger incentives to be better monitors in large firms as a result of this higher scrutiny (Xie et al, 2003; Fama, 1980; Fama and Jensen, 1983). It is also consistent with the view that large firms are able to attract directors with superior expertise and experience.

2 Theoretical framework and literature review

The following section briefly surveys the corporate governance and earnings management literature, before reviewing prior research considering the impact of specific corporate governance mechanisms on earnings management.

2.1 Corporate governance

The agency perspective of corporate governance concerns the incentive problems that are created by the separation of management and ownership in corporations (Sloan, 2001). Sloan (2001) depicts this agency problem by stating that managers have incentives to take actions to increase their utility but not to maximise shareholders returns. As a result of these problems, corporate control mechanisms have evolved as the means by which managers are disciplined to act in the investors' interests (Bushman and Smith, 2001).

The board of directors is the apex of the internal governance system and assists in reducing these agency problems (Fama and Jensen, 1983; Mather and Ramsay, 2003). Boards play a critical role in corporate governance through the monitoring of top management and establishing various other mechanisms that mitigate the incentives for managers to act opportunistically (Fama and Jensen, 1983). It is expected that this monitoring role is likely to be assumed by independent directors, as inside directors

are part of the management team (Mather and Ramsay, 2003). To substantiate these claims, considerable evidence has been provided in the academic literature to illustrate that independent directors protect shareholders when there are agency problems: see Brickley and James (1987), Weisbach (1988) and Byrd and Hickman (1992).

There are many aspects of corporate governance and the academic literature has analysed a number of corporate governance mechanisms within firms. Board composition is a key factor, as directors are either inside, affiliated or outside and may have backgrounds in various areas such as in the corporate, finance and legal sectors (Xie et al, 2003). Prior research has found that boards comprised primarily of independent directors are more effective monitors (Brickley and James, 1987), while outside blockholders on the board play a significant monitoring role (Jensen, 1993). Boards are less effective monitors when the board's equity ownership is small and when the CEO doubles as the Chairman of the board. (Jensen, 1993). CEOs who are company founders have greater influence over firm operations (Jensen, 1993), while stock ownership by managers leads to a closer alignment of interests between managers and shareholders and should therefore mitigate agency problems (Peasnell et al, 2000).

A key role of boards is to establish sub-committees that deal with specific matters. One such committee is the audit committee, which is responsible for oversight of the financial reporting process. Prior research suggests that the role of the audit committee is to evaluate and broker the differing views of management and external auditors in order to produce a reliable financial report (DeFond and Subramanyam, 1998). The presence of an audit committee and its composition have been analysed in detail in corporate governance research (Dechow et al, 1996; Xie et al, 2003), where it has been found that firms with accounting errors were less likely to have an audit committee (DeFond and Jiambalvo, 1991).

2.2 Earnings management

The academic literature on earnings management is well established.² Prior research has focused on various contracting theories of earnings management, such as the bonus hypothesis and the debt hypothesis (Watts and Zimmerman, 1990). The mere existence of earnings-based bonus plans may present managers with incentives to either increase or decrease earnings (Healy, 1985). Similarly, closeness to debt covenant constraints may provide managers with the necessary motivation to engage in earnings management (Dechow et al, 1996). Practitioners believe that the role of accounting information in investment and lending decisions is the prime incentive for earnings management (Dechow et al, 1996).

² See Schipper (1989) and Healy and Wahlen (1998) for a review of the earnings management literature.

Other research has established that, in addition to income-increasing earnings management, managers appear to manage earnings downwards when pre-managed earnings exceed the requisite threshold by a considerable margin (DeGeorge et al, 1999). A suggested explanation for this tendency is that managers prefer to shift abnormal positive earnings to future periods in order to render future targets more attainable. Another explanation could be that managers are reluctant to report high earnings as their performance targets may be correspondingly elevated in the future (Peasnell et al, 2000).

Managers manipulate earnings through their use of accruals, changes in accounting methods and modifications to capital structure (Jones, 1991).³ The academic literature has generally favoured the use of discretionary accruals as the proxy for the discretionary component of earnings, and hence the measure of earnings management: see Healy (1985), DeAngelo (1986) and Jones (1991). As nondiscretionary accruals cannot be observed separately, some mechanism must be invoked in order to obtain a proxy for discretionary accruals from total accruals (Schipper, 1989).

2.3 The impact of corporate governance on earnings management

Prior research has indicated that low managerial oversight is a significant catalyst for earnings management (Dechow et al, 1996). While Dechow et al (1996) considered extreme cases of earnings manipulation, recent research has assessed the relationship between more subtle accruals-based earnings management and corporate governance (Xie et al, 2003; Mather and Ramsay, 2003).

It has been established that boards with a higher proportion of independent directors assist in constraining income-increasing earnings management (Peasnell et al, 2000; Xie et al, 2003; Klein, 2002). Further, Xie et al (2003) provide evidence that independent directors with corporate experience are more likely to constrain earnings management.⁴

Dechow et al (1996) provide evidence that firms engaging in earnings management are less likely to have an external blockholder monitoring management and are more likely to have a CEO who is the company founder and/or the Chairman of the board. Xie et al (2003) demonstrate that reduced earnings management is associated with frequent board meetings and shorter tenures of independent directors. They also show that smaller firms tend to report

higher levels of discretionary accruals, which is consistent with the notion that smaller firms attract less scrutiny and therefore may be able to engage in a higher level of earnings management (Xie et al, 2003).

Chung et al (2002) demonstrate that institutional investors with significant shareholdings will monitor managers' accounting choices and will assist in reducing earnings management. Koh (2003), however, makes an important distinction, illustrating that short-term institutional investors create incentives for managers to engage in earnings management, whereas long-term institutional investors actively participate in their firm's corporate governance and limit managers' discretion to engage in earnings management.

While Peasnell et al (2000) do not find evidence to substantiate that audit committees directly constrain earnings management, they nevertheless determine from their finding of a significant negative co-efficient on the interaction term between outside directors and the presence of an audit committee, that audit committees influence earnings management through their role of facilitating outside director monitoring. Xie et al (2003) found that the percentage of independent directors on the audit committee is unrelated to discretionary accruals. However, the existence of corporate members and/or investment bankers on the audit committee is associated with reduced levels of earnings management (Xie et al, 2003). These members therefore assist the monitoring role of the committee. In contrast to Peasnell et al (2000) and Xie et al (2003), Klein (2002) found a negative relationship between the percentage of independent directors on the audit committee and abnormal accruals. In relation to the NASDAQ and NYSE's guidelines that audit committees are only independent if they consist solely of independent directors, Klein (2002) did not find evidence of an association between an all-independent audit committee and abnormal accruals.

3 Hypothesis development

From an agency perspective, the primary aim of corporate governance mechanisms is to mitigate agency problems, which result from the separation of ownership and control. Dispersed ownership, which is manifested in large corporations, necessitates the delegation of decision-making authority to management and as a result managers may have incentives to behave opportunistically in preference to acting in the best interests of shareholders. This may lead to direct wealth transfers from shareholders to management, sub-optimal allocation of capital and managerial perquisite consumption (Sloan, 2001). Thus, agency problems may cause costs to be imposed on shareholders. This displays the need for corporate governance mechanisms and, in particular, a board of directors. Boards play a critical role in corporate governance through the monitoring of top management and establishing various other

³ Earnings management exists because the costs to produce contracts with full information may outweigh the benefits of eliminating it (Schipper, 1989). In many cases, the potential benefit to each member of a particular group is too small and collectively their interests are too diverse to make opposition to earnings management cost effective (Jones, 1991).

⁴ Xie et al (2003) define corporate experience as directors who are currently or were previously employed as executives in publicly held corporations.

mechanisms that mitigate the incentives for managers to act opportunistically (Fama and Jensen, 1983).

Given this approach, monitoring management is the principal role of the board hence, it is particularly relevant to determine the characteristics of the board that result in maximisation of its ability to perform its monitoring role. Discussions on board characteristics frequently refer to two aspects: board size and board composition. In this paper, board composition will be analysed.⁵

Directors can be classified as inside, affiliated or outside. Inside directors are part of the management team and would not be expected to effectively monitor senior management, while affiliated directors are not truly independent and would also not be expected to be effective monitors. The monitoring role is therefore likely to be the province of independent directors. The ASX Corporate Governance Council (2003) recommends that a majority of the board should be independent directors so that the board can 'effectively review and challenge the performance of management and exercise independent judgment' (ASX Corporate Governance Council, 2003). Thus, as a result of the importance of the monitoring function of independent directors in the agency perspective of corporate governance, both hypotheses relate to independent directors. Fama (1980) and Fama and Jensen (1983) contend that independent directors have incentives to build reputations as expert monitors, as performing poorly in this area would diminish the value of their human capital. It is therefore expected that independent directors, in the performance of their monitoring role, would play a role in the detection and prevention of earnings management. This leads to the first hypothesis:

H1 – Firms with boards comprising a higher proportion of independent directors will be associated with reduced earnings management.

Fama (1980) and Fama and Jensen (1983) state that boards establish mechanisms to reduce the ability of managers to behave opportunistically. One such institution is the audit committee, which is responsible for monitoring the firm's financial performance and financial reporting. The audit committee acts as a link between the board and the external auditors, meeting regularly with these parties to review the firm's financial statements, audit process and internal

accounting controls (Klein, 2002). The ASX Corporate Governance Council (2003) recommends the establishment of an audit committee that is of 'sufficient size, independence and technical expertise to discharge its mandate effectively' (ASX Corporate Governance Council, 2003). In particular, they suggest that audit committees should be comprised of a majority of independent directors and an independent chairperson. Prior research is mixed on whether there is a significant association between the proportion of independent directors on the audit committee and earnings management. Nevertheless, as the audit committee deals specifically with financial reporting and independent directors have incentives to monitor management, it is expected that independent directors on the audit committee play a role in the detection and prevention of earnings management. This leads to the second hypothesis:

H2 – Firms with audit committees comprising a higher proportion of independent directors will be associated with reduced earnings management.

4 Research design

4.1 Earnings management model

A number of models have been developed to estimate discretionary accruals. Dechow et al (1995) assert that all of the models are well specified but have low power. The Jones (1991) model will not be used because it biases estimates of discretionary accruals in tests of revenue-based earnings management. It also requires a substantial amount of time-series data, which is not practical in light of the scope of this study. While the modified Jones model (Dechow et al., 1995) is the most powerful, it similarly requires data over a lengthy time series and, as such, may significantly reduce the sample size. The cross-sectional Jones model (Dechow et al., 1995) will not be employed due to potential industry matching problems and concerns over industry classifications in Australian data. This study will follow DeAngelo (1986) in estimating discretionary accruals. In this model, the total accruals from the previous year are assumed to be the non-discretionary accruals for the current year. This model has been used in prior Australian earnings management research: see Eddey and Taylor (1999) and Godfrey et al (2003). The assumptions inherent in the DeAngelo model are less restrictive and it requires less data than the other models (Godfrey et al, 2003). The accrual component of earnings, or current accruals, is defined as the difference between net operating profit after interest and tax and cash flow from operations.

$$ACC_t = NPAT_t - CFO_t$$

ACC_t = Current accruals in period 't' or accrual component of earnings in period 't.'

$NPAT_t$ = Net operating profit after interest and tax in period 't.'

CFO_t = Cash flow from operations in period 't.'

$NPAT_t$ and CFO_t , and hence ACC_t , are deflated by beginning-of-period total assets to allow for interfirm

⁵ Prior academic research that has considered the relationship between board size and firm performance finds conflicting results (Yermack, 1996; Eisenberg et al, 1998; Dalton et al, 1999). However, there has been significantly less research on the association between board size and its monitoring role in relation to earnings management. Xie et al (2003) provide evidence that larger boards are associated with reduced earnings management, while Mather and Ramsay (2003) reach a similar conclusion in the context of CEO changes. Nevertheless, in analysing the effect of board size on earnings management, it must be taken into account that board size is an exceptionally noisy measure. It may indeed be that large boards only constrain earnings management as a result of having a higher number of independent directors or more directors with financial expertise. It is therefore difficult to determine whether board size on its own has any influence. Thus, no specific hypotheses concerning board size will be developed.

comparisons and to reduce heteroskedasticity (Edey and Taylor, 1999; Godfrey et al, 2003).

As accruals comprise discretionary and nondiscretionary components, the level of discretionary accruals is measured as the difference between current accruals and nondiscretionary accruals. The DeAngelo model uses current accruals from a prior period as the measure of nondiscretionary accruals for the current period. The model uses each firm as its own control and relies on the assumption that the average change in nondiscretionary accruals is zero, so that a change in accruals reflects a change in discretionary accruals.

$$DACC_t = ACC_t - ACC_{t-1}$$

$DACC_t$ = Discretionary accruals in period 't.'

ACC_t = Current accruals in period 't' or accrual component of earnings in period 't.'

ACC_{t-1} = Current accruals in period 't-1,' which is the proxy for nondiscretionary accruals in period 't.'

The DeAngelo model has its limitations. Firstly, if nondiscretionary accruals vary across periods, the model will measure discretionary accruals with error. Secondly, the model does not take account of the impact of changes in economic circumstances on nondiscretionary accruals (Dechow et al, 1995). Thirdly, as the power of the model is low, it may not detect all instances of earnings management (Godfrey et al, 2003).

4.2 Corporate governance variables

The following corporate governance variables derive from the theory and hypothesis development.

Proportion of independent directors on the board (INDDIR): This variable is defined as the number of independent directors based on the Investment and Financial Services Association definition divided by the total number of directors on the board.⁶

Proportion of independent directors on the audit committee (INDAUD) This variable is identified as the number of independent directors on the audit committee based on the Investment and Financial Services Association definition divided by the total number of directors on the audit committee.

4.3 Control variables

While there are a number of possible control variables that can be used, increasing the number of controls may have the effect of reducing the power of the model. The following controls, which are built in to the model to be used in the empirical analysis, have been frequently used in similar prior studies.⁷

Board size (SIZE) This variable is defined as the number of directors on the board and is included as a

control variable based on prior research indicates that board size may have implications for board monitoring (Jensen, 1993).

CEO duality (CEO=CHAIR) This is a dummy variable that takes the value of one if the roles of CEO and Chairperson are combined and zero otherwise. Jensen (1993) argues that this arrangement reduces board monitoring effectiveness.

Big 4 auditor (BIG4) This is a dummy variable that is designated one if the firm has a "big 4" auditor and zero otherwise. Prior academic research suggests that firms with "big 4" auditors are less likely to report income-increasing abnormal accruals (Becker et al, 1998). Thus, this study controls for potential auditor quality effects.

Leverage (LEV) This variable is defined as the amount of interest-bearing debt divided by year-end total assets. An incentive for adopting income-increasing accruals may be to avoid or delay costs associated with debt covenant violations (DeFond and Jambalvo, 1994). Leverage is thus used to proxy for the likelihood of debt covenant violation. Including leverage as a control variable is consistent with prior research (Peasnell et al, 2000).

Cash flow from operations (CFO) This variable is included to control for the association between abnormal accruals and operating cash flow (Dechow et al, 1995) and to be consistent with prior research (Peasnell et al, 2000). CFO is scaled by beginning-of-period total assets.

Year dummy variables (01YEAR and 02YEAR) The 2001 (2002) year dummy variable takes the value of one if the firm-year observation is from 2001 (2002) and zero otherwise. These variables are included to control for the possibility that the results reflect only intertemporal variation in accruals (Xie et al, 2003).

4.4 The model

A regression model was constructed to test the hypotheses that the specific corporate governance mechanisms identified are associated with reduced earnings management. The dependent variable is discretionary accruals, which is the proxy for the extent of earnings management. The independent variables are comprised of the corporate governance variables (*INDDIR* and *INDAUD*) and the control variables (*SIZE*, *CEO=CHAIR*, *BIG4*, *LEV*, *CFO*, *01YEAR* and *02YEAR*). Thus, the overall regression model is:

$$DACC = \beta_0 + \beta_1 INDDIR + \beta_2 INDAUD + \beta_3 SIZE + \beta_4 CEO=CHAIR + \beta_5 BIG4 + \beta_6 LEV + \beta_7 CFO + \beta_8 01YEAR + \beta_9 02YEAR + \epsilon$$

Since the discretionary accruals model is not contextual, we have no way of predicting whether any earnings management is likely to be upwards or downwards. Hence, the absolute values of discretionary accruals were used in all regressions.

⁶ The classification was based on information supplied in the corporate governance disclosures in the company's annual report.

⁷ Corporate governance-related controls have been built into the model. Robustness tests were performed omitting these particular controls from the analysis. Refer to the results section for the results of these tests.

4.5 Sample and data

The top 300 Australian companies by market capitalisation as at June 30, 2003 were initially selected and, consistent with prior literature, all banks, insurance companies and other financial institutions were excluded from the sample. This left a sample of 222 firms. The data for this study was collected over the fiscal years 2001, 2002 and 2003. Thus, the final sample included 666 firm-year observations.

The accounting data required was gathered from Aspect Financial database. The data for the independent variables and the corporate-governance related control variables was hand collected from Connect4 and hard copy annual reports. The data was analysed by running a pooled cross-sectional regression using the statistical package EViews and the White heteroskedasticity-consistent standard errors and covariance function was utilised in all of the regressions.

5 Results

5.1 Descriptive statistics

Table 1 contains descriptive statistics of the variables in the overall regression model. Discretionary accruals (which are scaled by beginning-of-period total assets) range from -119.8% to 352.7%, with a mean of 0.7%. The small mean is a function of negative and positive discretionary accruals figures in the sample that offset each other.⁸ The average number of directors on the board of sample firms is 7.3 (with a minimum of 2 and maximum of 18), of which 57.6% on average are independent directors. In regards to the audit committee, independent directors comprise 76.3% of their composition for sample firms.

Table 1 about here

CEO duality is uncommon. Only 6% of firm-year observations indicate that the CEO was also the Chairperson of the board. Most of our sample companies are audited by “big 4” audit firms as evidenced by the fact that 88.9% of firm-year observations in the sample involve “big 4” auditors. The average leverage of sample firms is 24.7%, with a minimum of 0 and a maximum of 152.3%,⁹ while the average cash flow from operations scaled by beginning-of-period total assets for sample firms is 9.1%, with a minimum of -101.3% and a maximum of 107.2%.

5.2 Results for the overall model

Table 2 presents the results for the pooled cross-sectional regression model comprising all the variables. The sign of the co-efficient of *INDAUD* is

⁸ Note that the regressions employ the absolute values of discretionary accruals.

⁹ Four firm-year observations (three firms) have leverage greater than 100%. The data was double checked to ensure there were no errors. One of these firms is now delisted, while another is trading under a different name.

negative and significant at the 5% level. This suggests that a higher proportion of independent directors on the audit committee is associated with reduced earnings management, which is consistent with H2. However, the co-efficient of *INDDIR* is insignificant and positive, which is inconsistent with the theory, and does not support a significant association between the proportion of independent directors on the board and earnings management.

Table 2 about here

The correlation coefficient associated with the independent variables *INDDIR* is .75 which indicates that multicollinearity is a potential problem. Kvanli et al (1986) point out that multicollinearity can be controlled through various means such as the omission of some of the collinear variables from the regression. Thus, to mitigate the multicollinearity problem, two regressions were run: one without *INDDAUD*, the proportion of independent directors on the board model (hereinafter the board model) and the other without *INDDIR*, the proportion of independent directors on the audit committee model (hereinafter known as the audit committee model).¹⁰

5.3 Results for the board model and audit committee model

5.3.1 Board model

The results for the board model are set out in table 3. The model is significant at the 10% level (F-statistic of 1.94) and has an adjusted R² of 0.0125. None of the control variables are significant. H1 states that boards comprising a higher proportion of independent directors will be associated with reduced earnings management. The results support the hypothesis, as the co-efficient of *INDDIR* is negative and significant at the 1% level (t-statistic of -2.59).¹¹

Table 3 about here

5.3.2 Audit committee model

The results for the audit committee model are found in Table 4. The model is significant at the 1% level (F-statistic of 2.71) and has an adjusted R² of 0.0232. Again, none of the control variables are significant. H2 states that audit committees comprising a higher proportion of independent directors will be associated with reduced earnings management. The co-efficient

¹⁰ Xie et al (2003) adopted the same approach to overcome a similar multicollinearity problem.

¹¹ In order to determine whether the corporate governance-related control variables (*SIZE*, *CEO=CHAIR* and *BIG4*) influenced the sign and magnitude of the co-efficients of *INDDIR* in the board model and *INDAUD* in the audit committee model, regressions were run omitting these variables. The results for both models were consistent with the results of the original models. Similarly, after scaling discretionary accruals by beginning-of-period total assets, there were a few instances where this ratio was greater than 1 or less than -1. These outliers were removed from the sample and the board model and audit committee model regressions were re-run to determine whether the outliers influenced the results. The results for both models were consistent with the results of the original models.

of *INDAUD* is negative and significant at the 1% level (t-statistic of -2.97). Thus, this finding provides evidence in support of H2.

Table 4 about here

5.4 Results for large versus small firms

Xie et al (2003) provide evidence that small US firms tend to report higher levels of discretionary accruals. To analyse the effects of large and small firms, firm-year observations were split at the median total assets figure of \$550.6 million. Firm-years above this value were classified as “large” and firm-years below were categorised as “small.” Separate regressions were then run for large and small firms. Large and small firm regressions were each run twice, as a result of the multicollinearity problem mentioned previously. Thus, one regression was for the board model and the other for the audit committee model. Table 5 contains the results for the large and small firms board models. The large firms board model (panel A) is significant at the 10% level (F-statistic of 1.71) and has an adjusted R^2 of 0.0182. In contrast, the small firms board model (panel B) is not significant and has an extremely low adjusted R^2 . The large firms board model produced similar results to the combined firms board model. The co-efficient of *INDDIR* is negative and significant at the 5% level (t-statistic of -2.23). This indicates that in large firms, a higher proportion of independent directors on the board is associated with reduced levels of earnings management. On the other hand, the small firms board model produced contrasting results. The co-efficient of *INDDIR* is negative but insignificant (t-statistic of -0.68), which suggests that a higher proportion of independent directors on the board of small firms is not associated with reduced levels of earnings management.

Table 5 about here

The results for the large and small firms audit committee models are contained in Table 6. While the large firms audit committee model is significant at the 1% level (Panel A, F-statistic of 3.36) and has an adjusted R^2 of 0.0591, the small firms audit committee model (panel B) is not significant and has an extremely low adjusted R^2 . The large firms audit committee model yielded results analogous to the combined firms audit committee model. The co-efficient of *INDAUD* is negative and significant at the 1% level (t-statistic of -2.86), which signifies that a higher proportion of independent directors on the audit committee of large firms is associated with reduced levels of earnings management. Again, the small firms model failed to produce significant results. The co-efficient of *INDAUD* in the small firms audit committee model is negative but insignificant (t-statistic of -1.34), highlighting that, for small firms, a higher proportion of independent directors on the audit

committee is not associated with reduced levels of earnings management.

Table 6 about here

These findings can be used to create a link between the scrutiny explanation of Xie et al (2003) and Fama (1980) and Fama and Jensen's (1983) contention that independent directors have incentives to build reputations as expert monitors. As large firms face more intense public scrutiny than small firms, independent directors of large firms will have incentives to be even better monitors with the knowledge that poor performance will more likely be observed and scrutinised by prominent stakeholders who have an influence on the managerial labour market. The results are also consistent with the possibility that large firms are able to attract superior independent directors.

6 Conclusions

This study sought to examine whether independent directors, in their monitoring role, are associated with a reduction in earnings management in Australian firms. The empirical results support the hypotheses. It was found that, in a sample of the top 300 Australian companies, boards comprising a higher proportion of independent directors are associated with reduced levels of earnings management and that audit committees comprising a higher proportion of independent directors are also associated with reduced levels of earnings management. Thus, the results are consistent with prior US and UK research that has demonstrated the importance of the monitoring role of independent directors in corporate governance practices. Additional analyses were also undertaken in relation to large and small firms in order to provide further insight into the association between corporate governance and earnings management. The results indicate that a higher proportion of independent directors on the board and audit committee are associated with reduced levels of earnings management for large firms but not for small firms. This difference may arise due to the higher public scrutiny of large firms and the notion that independent directors have stronger incentives to be better monitors in large firms as a result of this higher scrutiny (Xie et al, 2003; Fama, 1980; Fama and Jensen, 1983). It may also be consistent with the view that large firms are able to attract directors with superior expertise and experience. There are some limitations inherent in the study. The DeAngelo model, which is used to estimate discretionary accruals, has certain limitations. As a result, the measure of discretionary accruals, which is the proxy for the level of earnings management, may contain error. Further, there is a limitation in relation to the regression model used in the empirical tests. While the model controls for a number of corporate-governance factors as well as leverage and cash flow from

operations, there is no control for particular events where incentives for earnings management are strong. Examples of these would be takeover targets, firms seeking to raise external capital and firms that experience CEO changes. While the corporate governance mechanisms analysed in this study should still mitigate earnings management, there nevertheless may be differences in the relation between corporate governance and earnings management in these contexts. It may be useful for further research to examine the possible relation between discretionary accruals, leverage and firm size. In addition, it may be interesting to analyse the impact of other corporate governance mechanisms on earnings management using Australian data.

This study adds to the very limited research in Australia on the association between corporate governance and earnings management and provides empirical evidence on the efficacy of a number of the recent ASX Corporate Governance Council (2003) recommendations. Thus, this study should be of interest to regulators as well as academics.

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Appendices

Table 1. Descriptive Statistics

DACC is the value of discretionary accruals derived using the model discussed in section 4.1 of the paper, *INDDIR* is the number of independent directors based on the Investment and Financial Services Association (*IFSA*) definition divided by the total number of directors on the board, *INDAUD* is the number of independent directors on the audit committee based on the *IFSA* definition divided by the total number of directors on the audit committee, *SIZE* is the number of directors on the board, *CEO=CHAIR* is a dummy variable that takes the value of one if the roles of CEO and Chairperson are combined and zero otherwise, *BIG4* is a dummy variable that takes the value of one if the firm has a “big 4” auditor and zero otherwise, *LEV* is the amount of interest-bearing debt divided by year-end total assets, *CFO* is cash flow from operations scaled by beginning-of-period total assets, *O1YEAR* is a dummy variable that takes the value of one if the firm-year observation is from 2001 and zero otherwise. *O2YEAR* is a dummy variable that takes the value of one if the firm-year observation is from 2002 and zero otherwise.

	Mean	Median	Std. Dev.	Minimum	Maximum
<i>DACC</i>	0.007	0	0.219	-1.198	3.527
<i>INDDIR</i>	0.576	0.6	0.217	0	1
<i>INDAUD</i>	0.763	0.75	0.266	0	1
<i>SIZE</i>	7.253	7	2.408	2	18
<i>CEO=CHAIR</i>	0.060	0	0.238	0	1
<i>BIG4</i>	0.889	1	0.315	0	1
<i>LEV</i>	0.247	0.238	0.182	0	1.523
<i>CFO</i>	0.091	0.092	0.176	-1.013	1.072
<i>O1YEAR</i>	0.333	0	0.472	0	1
<i>O2YEAR</i>	0.333	0	0.472	0	1

Table 2. Overall Model

Presents the results of running the following equation:

$$DACC = \beta_0 + \beta_1 INDDIR + \beta_2 INDAUD + \beta_3 SIZE + \beta_4 CEO=CHAIR + \beta_5 BIG4 + \beta_6 LEV + \beta_7 CFO + \beta_8 O1YEAR + \beta_9 O2YEAR + \varepsilon$$

Where *DACC* is the value of discretionary accruals derived using the model discussed in section 4.1 of the paper, *INDDIR* is the number of independent directors based on the Investment and Financial Services Association (*IFSA*) definition divided by the total number of directors on the board, *INDAUD* is the number of independent directors on the audit committee based on the *IFSA* definition divided by the total number of directors on the audit committee, *SIZE* is the number of directors on the board, *CEO=CHAIR* is a dummy variable that takes the value of one if the roles of CEO and Chairperson are combined and zero otherwise, *BIG4* is a dummy variable that takes the value of one if the firm has a “big 4” auditor and zero otherwise, *LEV* is the amount of interest-bearing debt divided by year-end total assets, *CFO* is cash flow from operations scaled by beginning-of-period total assets, *O1YEAR* is a dummy variable that takes the value of one if the firm-year observation is from 2001 and zero otherwise. *O2YEAR* is a dummy variable that takes the value of one if the firm-year observation is from 2002 and zero otherwise.

	β_0	β_1 <i>INDDIR</i>	β_2 <i>INDAUD</i>	β_3 <i>SIZE</i>	β_4 <i>CEO=CHAIR</i>	β_5 <i>BIG4</i>	β_6 <i>LEV</i>	β_7 <i>CFO</i>	β_8 <i>O1YEAR</i>	β_9 <i>O2YEAR</i>
Co-efficient	0.2067	0.0495	-0.1314	0.0009	-0.0011	-0.0525	-0.0434	0.0748	0.0204	-0.005
t-stat	(3.58)***	(0.82)	(-2.15)**	(0.32)	(-0.04)	(-0.83)	(-0.9)	(0.95)	(0.93)	(-0.34)
Adj. R ²	0.0227									
F-stat	2.4841***									

** Significant at 5% level

*** Significant at 1% level

Table 3. Board Model

Presents the results of running the following equation:

$$DACC = \beta_0 + \beta_1 INDDIR + \beta_3 SIZE + \beta_4 CEO=CHAIR + \beta_5 BIG4 + \beta_6 LEV + \beta_7 CFO + \beta_8 O1YEAR + \beta_9 O2YEAR + \epsilon$$

Where *DACC* is the value of discretionary accruals derived using the model discussed in section 4.1 of the paper, *INDDIR* is the number of independent directors based on the Investment and Financial Services Association (*IFSA*) definition divided by the total number of directors on the board, *SIZE* is the number of directors on the board, *CEO=CHAIR* is a dummy variable that takes the value of one if the roles of CEO and Chairperson are combined and zero otherwise, *BIG4* is a dummy variable that takes the value of one if the firm has a “big 4” auditor and zero otherwise, *LEV* is the amount of interest-bearing debt divided by year-end total assets, *CFO* is cash flow from operations scaled by beginning-of-period total assets, *O1YEAR* is a dummy variable that takes the value of one if the firm-year observation is from 2001 and zero otherwise. *O2YEAR* is a dummy variable that takes the value of one if the firm-year observation is from 2002 and zero otherwise.

	β_0	β_1 <i>INDDIR</i>	β_3 <i>SIZE</i>	β_4 <i>CEO=CHAIR</i>	β_5 <i>BIG4</i>	β_6 <i>LEV</i>	β_7 <i>CFO</i>	β_8 <i>O1YEAR</i>	β_9 <i>O2YEAR</i>
Co-efficient	0.176	-0.073	0.000005	0.0061	-0.0482	-0.0358	0.0924	0.0203	-0.0036
t-stat	(3.83)***	(-2.59)***	(0.0019)	(0.21)	(-0.78)	(-0.77)	(1.21)	(0.93)	(-0.25)
Adj. R ²	0.0125								
F-stat	1.94*								

* Significant at 10% level

*** Significant at 1% level

Table 4. Audit Committee Model

Presents the results of running the following equation:

$$DACC = \beta_0 + \beta_2 INDAUD + \beta_3 SIZE + \beta_4 CEO=CHAIR + \beta_5 BIG4 + \beta_6 LEV + \beta_7 CFO + \beta_8 O1YEAR + \beta_9 O2YEAR + \epsilon$$

Where *DACC* is the value of discretionary accruals derived using the model discussed in section 4.1 of the paper, *INDAUD* is the number of independent directors on the audit committee based on the Investment and Financial Services Association definition divided by the total number of directors on the audit committee, *SIZE* is the number of directors on the board, *CEO=CHAIR* is a dummy variable that takes the value of one if the roles of CEO and Chairperson are combined and zero otherwise, *BIG4* is a dummy variable that takes the value of one if the firm has a “big 4” auditor and zero otherwise, *LEV* is the amount of interest-bearing debt divided by year-end total assets, *CFO* is cash flow from operations scaled by beginning-of-period total assets, *O1YEAR* is a dummy variable that takes the value of one if the firm-year observation is from 2001 and zero otherwise. *O2YEAR* is a dummy variable that takes the value of one if the firm-year observation is from 2002 and zero otherwise.

	β_0	β_2 <i>INDAUD</i>	β_3 <i>SIZE</i>	β_4 <i>CEO=CHAIR</i>	β_5 <i>BIG4</i>	β_6 <i>LEV</i>	β_7 <i>CFO</i>	β_8 <i>O1YEAR</i>	β_9 <i>O2YEAR</i>
Co-efficient	0.209	-0.1026	0.0011	-0.0031	-0.0504	-0.0396	0.0764	0.0212	-0.0048
t-stat	(3.49)***	(-2.97)***	(0.36)	(-0.1)	(-0.82)	(-0.81)	(0.95)	(0.95)	(-0.33)
Adj. R ²	0.0232								
F-stat	2.71***								

*** Significant at 1% level

Table 5. Large and Small Firms Board Models

$$DACC = \beta_0 + \beta_1 INDDIR + \beta_3 SIZE + \beta_4 CEO=CHAIR + \beta_5 BIG4 + \beta_6 LEV + \beta_7 CFO + \beta_8 01YEAR + \beta_9 02YEAR + \epsilon$$

Where *DACC* is the value of discretionary accruals derived using the model discussed in section 4.1 of the paper, *INDDIR* is the number of independent directors based on the Investment and Financial Services Association (*IFSA*) definition divided by the total number of directors on the board, *SIZE* is the number of directors on the board, *CEO=CHAIR* is a dummy variable that takes the value of one if the roles of CEO and Chairperson are combined and zero otherwise, *BIG4* is a dummy variable that takes the value of one if the firm has a “big 4” auditor and zero otherwise, *LEV* is the amount of interest-bearing debt divided by year-end total assets, *CFO* is cash flow from operations scaled by beginning-of-period total assets, *01YEAR* is a dummy variable that takes the value of one if the firm-year observation is from 2001 and zero otherwise. *02YEAR* is a dummy variable that takes the value of one if the firm-year observation is from 2002 and zero otherwise.

Panel A: Large Firms Board Model

	β_0	β_1 <i>INDDIR</i>	β_3 <i>SIZE</i>	β_4 <i>CEO=CHAIR</i>	β_5 <i>BIG4</i>	β_6 <i>LEV</i>	β_7 <i>CFO</i>	β_8 <i>01YEAR</i>	β_9 <i>02YEAR</i>
Co-efficient	0.2611	-0.1177	0.0004	0.0006	-0.1221	0.0098	0.097	-0.0164	-0.0218
t-stat	(1.35)	(-2.23)**	(0.11)	(0.02)	(-0.79)	(0.14)	(0.38)	(-0.85)	(-1.01)
Adj. R ²	0.0182								
F-stat	1.71*								

* Significant at 10% level

** Significant at 5% level

Panel B: Small Firms Board Model

	β_0	β_1 <i>INDDIR</i>	β_3 <i>SIZE</i>	β_4 <i>CEO=CHAIR</i>	β_5 <i>BIG4</i>	β_6 <i>LEV</i>	β_7 <i>CFO</i>	β_8 <i>01YEAR</i>	β_9 <i>02YEAR</i>
Co-efficient	0.0741	-0.0255	0.0102	0.0134	-0.0331	-0.0261	0.0831	0.0536	0.0133
t-stat	(1.94)*	(-0.68)	(1.23)	(0.31)	(-0.47)	(-0.39)	(1.01)	(1.45)	(0.75)
Adj. R ²	-0.0042								
F-stat	0.85								

* Significant at 10% level

Table 6. Large and Small Firms Audit Committee Models

$$DACC = \beta_0 + \beta_2 INDAUD + \beta_3 SIZE + \beta_4 CEO=CHAIR + \beta_5 BIG4 + \beta_6 LEV + \beta_7 CFO + \beta_8 01YEAR + \beta_9 02YEAR + \epsilon$$

Where *DACC* is the value of discretionary accruals derived using the model discussed in section 4.1 of the paper, *INDAUD* is the number of independent directors on the audit committee based on the Investment and Financial Services Association definition divided by the total number of directors on the audit committee, *SIZE* is the number of directors on the board, *CEO=CHAIR* is a dummy variable that takes the value of one if the roles of CEO and Chairperson are combined and zero otherwise, *BIG4* is a dummy variable that takes the value of one if the firm has a “big 4” auditor and zero otherwise, *LEV* is the amount of interest-bearing debt divided by year-end total assets, *CFO* is cash flow from operations scaled by beginning-of-period total assets, *01YEAR* is a dummy variable that takes the value of one if the firm-year observation is from 2001 and zero otherwise. *02YEAR* is a dummy variable that takes the value of one if the firm-year observation is from 2002 and zero otherwise.

Panel A: Large Firms Audit Committee Model

	β_0	β_2 <i>INDAUD</i>	β_3 <i>SIZE</i>	β_4 <i>CEO</i>	β_5 <i>BIG4</i>	β_6 <i>LEV</i>	β_7 <i>CFO</i>	β_8 <i>01YEAR</i>	β_9 <i>02YEAR</i>
Co-efficient	0.2847	-0.1564	0.0021	-0.0145	-0.1011	0.0113	0.0433	-0.0237	-0.0252
t-stat	(1.49)	(-2.86)***	(0.71)	(-0.72)	(-0.69)	(0.16)	(0.16)	(-1.19)	(-1.18)
Adj. R ²	0.0591								
F-stat	3.36***								

*** Significant at 1% level

Panel B: Small Firms Audit Committee Model

	β_0	β_2 <i>INDAUD</i>	β_3 <i>SIZE</i>	β_4 <i>CEO</i>	β_5 <i>BIG4</i>	β_6 <i>LEV</i>	β_7 <i>CFO</i>	β_8 <i>01YEAR</i>	β_9 <i>02YEAR</i>
Co-efficient	0.1026	-0.0719	0.0119	0.0051	-0.0337	-0.02	0.0793	0.0586	0.0115
t-stat	(2.03)**	(-1.34)	(1.15)	(0.11)	(-0.47)	(-0.29)	(0.92)	(1.53)	(0.61)
Adj. R ²	0.0006								
F-stat	1.02								

** Significant at 5% level