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Innate and Discretionary Accrual Quality and Corporate Governance

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The empirical analysis presented in this paper provides further insight into the important issue of the association between corporate governance structures and the quality of reported company earnings. The analysis uses the measure of accrual quality developed by Dechow and Dichev (2002) which provides a direct measure of the quality of current accruals. We derive measures of the innate and discretionary components of accrual quality following Francis et al. (2005), and subsequently include these measures in regressions against corporate governance characteristics. The results show that sound governance structures have a positive association between the innate and discretionary components of accrual quality. Interestingly, we find the relation between sound governance structures and accrual quality is stronger for innate than discretionary accruals. This suggests that sound governance is more important in reducing environmental uncertainty and associated unintentional accrual estimation errors than in constraining discretionary earnings management.

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Key words: Accrual quality; corporate governance

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1. Introduction

The association between corporate governance structures on the quality of financial statement information has been the subject of a substantial body of research. Within this research, particular emphasis has been given to assessing the relation between governance and earnings management or manipulation. Overall, prior studies have shown that governance mechanisms play an important monitoring role, and that stronger governance structures reduce the likelihood of earnings management. While there is clear evidence from Australian data that governance structures limit dysfunctional reporting of earnings (Davidson et al. 2005; Koh et al. 2007), little is known about the effect of governance structures on the quality of reported earnings more generally. This is a consequence of the focus that prior studies have given to earnings management as the variable of interest. The recent development of alternative measures of earnings quality has provided the opportunity for a broader examination of the effects of governance structures on a company's information environment. This paper contributes to the existing literature by providing analysis of how governance structures mitigate the effects of environmental uncertainty and management discretion on the quality of reported earnings.

We present analysis of the relation between governance structures and company information environment based on the measure of earnings quality developed by Dechow and Dichev (DD) (2002). This approach to determining earnings quality is based on assessing how well working capital accruals map into realised cash flows. It directly measures the extent to which accruals reflect actual cash flows to determine the quality of accrual earnings information. Dechow and Dichev (2002) empirically determined accrual quality as the standard deviation of the residual of a regression of current period accruals (measured as the change in working capital) on past, current and future operating cash flows.

The DD model for determining earnings quality represents a quite different approach to that used extensively in the prior literature, that is, the Jones (1991) model and its variants[1]. Francis et al. (2005) noted the DD approach overcomes a key criticism of the Jones model - that it measures accrual quality in an indirect manner. They comment that the 'modified Jones model identifies accruals as abnormal if they are not explained by a limited set of fundamentals (PPE and changes in revenue), and while we believe that such abnormal accruals contain a substantial amount of uncertainty, the link to information risk is less direct than in the DD approach.' Schipper and Vincent (2003) also noted that the DD measure does not require assumptions about unmanaged accounting fundamentals as is the case with the Jones (1991) model. A similar view was expressed by Aboody et al. (2005, p.653) that the DD measure 'is a relatively more direct measure of a firm's information environment derived from fundamental accounting data contained in its financial statements.'

A further advantage of the DD model is that it is not limited to identifying the effects of intentional earnings management on earnings quality. For the DD model, the source of the accrual estimation error is irrelevant. Francis et al. (2005, p.302) pointed out that accrual estimation errors can result from intentional earnings management, or that they can be an unintended consequence of management lapses and environmental uncertainty. They noted that the DD model 'is predicated on the idea that, regardless of management intent, accruals quality is affected by the measurement error in accruals.' Therefore, the DD measure of accrual quality captures the effect on accrual estimation error of both innate firm characteristics and earnings management.

Francis et al. (2005) showed that the DD measure of accruals quality can be separated into its

[1] See, for example, the widely used 'modified Jones model' developed by Dechow (1995).

innate and discretionary components. The innate accruals quality component is dependent on a firm's business model and operating environment, whereas the discretionary component is related to earnings management. The key contribution of this study is that we empirically examine the association between corporate governance structures on both the innate and the discretionary components of accrual quality. This is a significant extension of the existing literature which has focused on the effect of governance structures on the effects of management discretion associated with earnings. This study is valuable in that it provides a broader assessment of the effects of corporate governance measures on the information risk associated with earnings information.

We follow the approach outlined in Frances et al. (2005) to empirically distinguish the innate and discretionary accruals quality. This involves regressing a firm's accrual quality determined by the DD model on innate firm characteristics. The predicted value from this regression represents an estimate of the innate component of the firm's accruals, while the regression residual is an estimate of the discretionary component. The innate characteristics used in the analysis are those suggested by Dechow and Dichev (2002) and Frances et al. (2005) as having an impact on accrual quality.

A further contribution of this paper is a development of the DD model which refines the measure of accrual quality. McNicols (2002, p.67) showed that cash from operations is a noisy proxy for the cash flows recognised in working capital accruals. To overcome this, our accrual quality regressions use targeted components of operating cash flows. The opportunity to refine the cash flow measure arises from the requirement under 'AASB 127 Statement of Cash Flows' that Australian companies apply the 'direct' method for presentation of operating cash flows. Our view is that the accrual estimation errors derived from our adjusted

model provides a less noisy measure of accrual quality.

The results of analyses presented show that sound governance structures have a positive relation between the innate and discretionary components of accrual quality. Interestingly, we find the relation between sound governance structures and accrual quality is stronger for innate than discretionary accruals. This suggests that sound governance is more important in reducing environmental uncertainty and associated unintentional accrual estimation errors than in constraining discretionary earnings management.

This paper proceeds as follows. In the next section, we review related literature and develop a general proposition that is tested by our empirical analysis. The third section explains our research method, including sample selection and measurement of variables. The fourth section reports and discusses the results of the study. In the final section some conclusions are drawn, the limitations of the study are acknowledged, and opportunities for further research are noted.

2. Literature Review and Proposition

2.1 Accrual Quality Literature

Several prior studies have highlighted the relevance of the DD model as the basis for an empirical measure of the quality of a firm's overall information environment. While these studies are not all specifically relevant to the research question in this paper, they do provide evidence of the usefulness of the empirical measure provided by the DD model. Accordingly, the following section presents a brief review of this literature.

Investment decision research has focused on empirical examination of a theoretical model

developed by Lambert et al. (2005) of the relation between quality of accounting information and a firm's cost of capital. The Lambert et al. (2005) model showed that poor quality information is related to coordination between firms and investors with respect to capital investment decisions and results in increased cost of capital. Francis et al. (2005) examined the relation between accrual quality and costs of debt and equity. They found that investors price securities in a manner that reflects awareness of accrual quality and, as a result, poorer accrual quality is associated with higher costs of debt and equity. Biddle and Hilary (2006) reported that accrual quality relates to firm level capital efficiency because of information asymmetry. In relation to capital markets, Chen et al. (2007) showed that accrual quality is a priced information risk factor in a dividend change setting. Their empirical results suggested that the market's perception of information risk changes around dividend changes. An associated study was conducted by Ashbaugh-Skaife et al. (2006) who examined whether a variety of governance attributes explain firm credit ratings. Their study incorporated the DD accrual quality measure as a proxy for the degree of a firm's financial transparency, a desirable governance characteristic. Their empirical analysis showed that the accrual quality measure was significant and positively associated with a firm's credit rating.

Doyle et al. (2007) examined the relation between accruals quality and internal control quality for a sample of US firms. Internal control quality was determined by whether sample firms disclosed a material weakness in internal control under the requirements of the *Sarbanes-Oxley Act*. Their general finding was that firms with weak internal control over financial reporting, as indicated by disclosure of a material weakness, had lower accruals quality. Doyle et al. (2007) also examined the effect of the potential severity of internal control weaknesses. They classified disclosed weakness as 'account-specific', that is weakness in control over specific account balances or transaction-level processes, or

'company-level' weakness where the disclosure indicated a fundamental problem with the firm's control environment. The results showed that 'company level' weaknesses had a greater negative impact on accrual quality. This finding was explained by the account-specific weaknesses being 'auditable' and therefore representing less of a threat to the reliability of the financial statements. Ashbaugh-Skaife et al. (2007) extended this study by considering whether disclosed remediation of disclosed material weakness with internal controls was associated with improved accrual quality. The results suggested that firms which remediate disclosed material weakness, as indicated by a later unqualified audit report, exhibited significant improvements in accrual quality relative to firms that failed to remediate their control problems.

A recent study by Srinidhi and Gul (2007) examined the link between accrual quality and audit quality as indicated by auditor independence. Their results showed that accrual quality had a significant negative association with the magnitude of non-audit fees and the ratio of non-audit fees to audit fees, but a significant positive association with audit fees. The results were consistent with the proposition that higher audit fees were indicative of greater 'audit effort' which resulted in better judgments about matters related to the reporting of accruals. Moreover, non-audit fees resulted in economic bonding and a loss of audit quality which allowed managers to use accruals in an opportunistic manner.

2.2 Governance Structures and Accrual Quality

Prior studies have shown that the quality of accruals and associated accrual estimation errors are affected by opportunistic earnings management and estimation problems that arise from environmental uncertainty (Francis et al., 2005, p.302; Dechow and Dichev, 2002). The focus of this study is the extent to which governance structures mitigate the effects of each of these

sources of error in the estimation of accruals.

According to Dechow (1994, p.5) earnings management that occurs by managers exercising their accrual estimation discretion can result from their intention to 'signal their private information or to opportunistically manipulate earnings.' When managers manipulate accruals, there is a greater likelihood that the accruals do not estimate realised cash flows, with a corresponding decrease in accrual quality. Prior studies suggest that the monitoring effect of corporate governance structures limits the incidence of earnings management (Klein 2002; Davidson et al., 2005; Koh et al., 2007). Therefore, we expect that sound governance structures are associated with higher accrual quality to the extent that they limit opportunistic accrual estimation activities by managers.

We expect sound governance structures to have a similar positive effect to accrual estimation errors that result from environmental uncertainty. Doyle et-al (2007) and Ashbaugh-Skaife (2007) demonstrated a positive relation between the quality of a firm's internal controls and accrual quality. Similarly, Beekes and Brown (2006) provided empirical evidence that better-governed firms make more informative disclosures. These studies show the importance of internal controls in assisting managers make reliable estimations of accrual amounts. Weaker controls lead to greater environmental uncertainty for managers. This, in turn, increases the likelihood of unintentional accrual estimation errors, and result in noisy and less reliable financial information. A key role of corporate governance is to provide controls that ensure compliance with mandated financial reporting requirements and to ensure financial statements present fairly the financial affairs of the company (Davidson et al. 2005; Dechow et al. 1995). Because sound governance structures enhance a firm's overall internal controls, we expect they are associated with higher accrual quality.

It is expected that sound governance structures mitigate intentional and unintentional accrual estimation errors. The following hypothesis is therefore tested in this paper:

H1: Companies with sound corporate governance structures have more accurate accrual estimation than those without sound corporate governance structures.

2.3 Governance Structures

Important to this study is determining which governance structures are likely to improve accrual quality. The extant earnings management literature is drawn upon to determine the relevant governance structures and how their characteristics are likely to relate to accrual quality. It is reasonable to conclude that governance characteristics and associated internal controls that affect intentional earnings management are also relevant to unintentional accrual estimation errors. Davidson et al. (2005) provided an extensive review of prior studies related to controls provided by governance structures and earnings management. Their review concluded that the board of directors, the audit committee, and the external audit function were the relevant key structures.

In relation to the board, the characteristic of independence has been shown to be critical to successful operation. Several studies have demonstrated that board independence is associated with better quality financial reporting (Beasley, 1996; Dechow et al., 1996; Peasnell et al., 2000). This was confirmed in the Australian context by Davidson et al., (2005) and Koh et al., (2007) who reported a significant negative relationship between earnings management and board independence. Board activity has also been shown to have a positive relation with its effectiveness (Yatim et al., 2006; Lipton and Lorsch, 1992; Conger et al., 1998; Vafeas, 1999).

There is substantial prior research which points to the critical role that the audit committee plays in relation to the quality of financial reporting. Davidson et al. (2005, p.245) note that the specialised monitoring role of company's audit committee 'is likely to provide shareholders with the greatest protection in maintaining the credibility of a firm's financial statements.' Various characteristics of the audit committee have been shown to have an impact on its effectiveness. These include the key characteristic of independence (Jiambalvo, 1996; McMullen and Raghunandan, 1996; Wright, 1996); competence indicated by accounting and financial expertise (DeZoort and Salterio, 2001; Knapp 1987; Cohen et al., 2002); diligence in discharging their responsibilities (Farber, 2005; Collier, 1993; Hughes, 1999; Xie et al., 2001; McMullen and Raghunandan, 1996); and size which affects authority (Kalbers and Fogarty, 1993; Braiotta, 2000; Karamanou and Vafeas, 2005). Davidson et al., (2005) reported an association between a reduction in earnings management and audit committee independence indicated by the committee being comprised of a majority of non-executives. The study by Koh et al. (2007) also demonstrated that audit committee independence and activity tended to moderate discretionary reporting behaviour.

Prior studies related to the role of the external auditor have suggested that the size of the audit firm impacts on its effectiveness. Larger audit firms have been shown to provide better quality audit services and monitoring (DeAngelo, 1981; Francis et al., 1999; Kim et al., 2003). The audit firm size measure has generally been whether a firm is one of the recognised large audit firms.[2] No support has been found for the effect of external auditor size in prior Australian studies (Davidson et al., 2005).

Consistent with the prior literature, this study considers the effect of governance variables

[2] Generally referred to as 'Big 5' or 'Big 4' firms.

that measure: board effectiveness, independence, and activity; audit committee independence and activity; and, external auditor characteristics.

3. Research Design

The research design involved the development of multiple regression models to test the extent to which the variance in accrual quality for a sample of listed Australian public companies is explained by governance structures.

3.1 Sample Selection

The sample was comprised of Australian public companies listed on the Australian Stock Exchange in 2004. Data was obtained for companies with a 30 June balance date in 2004 from the Aspect DatAnalysis database. The preliminary sample of companies was then screened for data availability based on criteria designed to ensure the measure of the dependent variable accrual quality (AQ) was able to be calculated. Companies in the sample were also required to have an audit committee in their corporate governance structure. The final sample was comprised of 381 companies.

3.2 Governance Variables

This study focuses on various governance attributes that are likely to influence accrual quality as identified in the prior literature discussed in section 2.3 above. While several prior studies have developed composite governance measures[3], our approach is to use separate measures. This enables assessment of the importance of individual governance measures on innate accrual quality. While some of the independent variables show a degree of correlation, it is not of a size that warrants concern regarding its effect on the multivariate analysis

[3] See Beekes and Brown (2006) for an extensive recent review.

conducted. Data for the governance variables outlined below was collected for the financial year ending 2004.

Board independence was measured by two variables. First, the proportion of non-executive directors to total directors; and, second, a dummy variable indicating whether the roles of the chairperson and CEO are separate. Board diligence was measured by the number of board meetings per year.

Selected audit committee variables included measures of independence, expertise and diligence and size. Independence was measured as the proportion of committee members that are described as non-executive. Expertise of committee members was determined by reading the financial reports and identifying formal qualifications in accounting and finance of members (for example, B.Com., FCA, CPA). The proportion of committee members with qualifications was included as a proxy for expertise. Diligence was measured by the number of audit committee meetings held during the year. Finally, audit committee size was measured as the number of directors assigned to the audit committee.

Consistent with the approach taken in prior studies, the external auditor size variable was determined by classifying audit firms as large or small. A dummy variable was used to identify companies that have utilised the audit services of one of the large audit firms. Large firms are usually limited to the so called 'Big Four', however, there are some mid-tier international firms that audit large numbers of listed companies in Australia. Therefore, we included in our definition of large firms, the two largest mid-tier firms (BDO and PKF).[4]

[4] These were the two largest mid-tier audit firms as measured by revenue earned and number of audits of listed companies.

3.3 Accrual Quality Measure

The DD approach to determining accrual quality is developed from the observation that accruals shift or adjust the recognition of cash flows over time. The advantage of accrual based earnings is that they better represent underlying economic achievements and sacrifices. However, they require estimates to be made and are subject to the exercise of managerial discretion. As Dechow and Dichev (2002) observed, the 'benefit of using accruals comes at the cost of including estimation errors in reported earnings'. Dechow and Dichev (2002) show that the estimation error for working capital accruals can be measured by the residuals from firm specific regressions of changes in working capital on prior year, present year, and one-year ahead operating cash flows. Dechow and Dichev (2002) focused on working capital accruals and operating cash flows because the cash flow realisation of these accruals generally occurs within a year. They developed the following firm-level time-series regression to empirically determine accrual quality:

$$\Delta WC = \beta_0 + \beta_1 * CFO_{t-1} + \beta_2 * CFO_t + \beta_3 * CFO_{t+1} + \varepsilon_t \quad (1)$$

The regression residual or error term provides the measure of accrual quality; it represents the portion of accruals that does not closely estimate actual cash flows. Dechow and Dichev (2002) showed that the standard deviation of the residual is an appropriate measure of accrual quality: a higher standard deviation signifies greater accrual estimation error and lower quality. Moreover, they show that when calculating accrual quality at the firm-year level, the absolute value of the residual for that year is also an appropriate measure of accrual quality.

The DD accrual quality measure is an attractive alternative to the previously widely used approach to determining discretionary accrual measure developed by Jones (1991) and

enhanced by Dechow et al. (1995). An important advantage of the DD model according to Francis et al. (2005) is that it provides a more direct link to information risk associated with earnings information. In consideration of this advantage of the DD method, we adopt a similar measure as a proxy for information risk in our empirical analysis.

We make minor adjustments to the DD model in an effort to refine the measure of accrual quality. McNicols (2002, p.67), in assessing the DD model, found that the regression residual was strongly correlated with change in sales. This indicated that cash from operations was a noisy proxy for the cash flows that result from the reported accruals. To overcome this model misspecification, our accrual quality regressions use targeted components of operating cash flows; that is, we include only 'cash receipts from customers' (CRC) and 'cash payments to suppliers and employees' (CPSE). The opportunity to make this adjustment arises from the requirement under AASB 127 Statement of Cash Flows that Australian companies apply the 'direct' method for presentation of operating cash flows, thereby providing more detailed cash flow information. Moreover, we use working capital accounts in our accrual calculation that would be most likely to estimate the cash flow components selected. These include: accounts receivable, accounts payable, provisions, and inventory. Consistent with Dechow and Dichev (2002), all variables are scaled by average total assets. The model used is represented in equation (2) below:

$$\Delta WC = \beta_0 + \beta_1 * \left[\frac{CRC + CPSE}{TA}\right]_{t-1} + \beta_2 * \left[\frac{CRC + CPSE}{TA}\right]_{t} + \beta_3 * \left[\frac{CRC + CPSE}{TA}\right]_{t+1} + \varepsilon_t \quad (2)$$

Company specific regressions were conducted for five years, from 2001 to 2005. The AQ measure for each company was determined as the standard deviation of the residual for the

company over the five years.

3.4 Innate and Discretionary Components of Accrual Quality

The approach of Francis et al. (2005) of separating accruals quality into innate and discretionary accruals involves a regression of the DD accrual quality measure on selected factors that represent a firm's innate characteristics. The selected innate characteristics follow Dechow and Dichev (2002), who showed that negative earnings, volatility in sales and operating cash flows, length of operating cycle, and company size affect accrual quality. The following regression was calculated:

$$AQ_t = \alpha + \beta_1 * SIZE_t + \beta_2 * LOSS + \beta_3 * OPCYC + \beta_4 * SDOR + \varepsilon_t \quad (3)$$

Table 1 provides a full explanation of variables included in this regression. The predicted values from the regression provide an estimate of innate accrual quality (IAQ), and the residual values provide an estimate of discretionary accrual quality (DAQ). The estimates of the components of accrual quality derived from equation (3) were subsequently regressed on selected corporate governance variables.

3.5 Governance Regression Models

A further regression was used to test our proposition regarding the relation between accrual quality and corporate governance structures. The dependent variables are innate accrual quality (IAQ) and discretionary accrual quality (DAQ) determined according to equation (3) above. Equation (4) represents the regression models:

$$IAQ = \alpha + \beta_1*PROIND + \beta_2*DUAL + \beta_3*MEETBD + \beta_4*AUDITOR + \beta_5*NDIRAC + \beta_6*PRONEDAC + \beta_7*MEETAC + \beta_8*PROEXP \quad (4)$$

$$DAQ = \alpha + \beta_1*PROIND + \beta_2*DUAL + \beta_3*MEETBD + \beta_4*AUDITOR + \beta_5*NDIRAC + \beta_6*PRONEDAC + \beta_7*MEETAC + \beta_8*PROEXP \quad (5)$$

A summary of independent variables included in the regression models is provided in Table 1.

(Table 1 about here)

4. Results

4.1 Descriptive Statistics

Table 2 provides descriptive statistics for variables included in the models. Descriptives for the sample companies' innate characteristics show the mean asset size was $635 million. The average operating cycle was 62 days, and the standard deviation of operating revenue was 0.223. A minority (38 percent) of companies reported a net loss after tax in 2004.

The descriptive statistics for board characteristics vary across the sample companies. Generally, the data indicates that boards were structured to promote independence, and that board activities were conducted diligently. The average proportion of independent directors was substantial at 52 percent. Only 12 percent of companies in the sample had a joint CEO and board chair. The range in the number of board meetings per year was from a minimum of 1 to a maximum of 34, with a median value of 11. In relation to external audit, 75 percent of

the sample companies utilised the services of one of the 'Big 4 +2' audit firms.

(Table 2 about here)

Audit committee size ranged from 1 to 7 with a median of 3. On average, 51 percent of audit committee members had experience in accounting and finance expertise. The frequency of audit committee meetings ranged from 0 to 16 per year, with a median of 3 per year. Audit committee independence was favourable, with 88 percent of members being non-executive directors.

Table 3 reports appropriate correlation measures for all independent variables included in the regression analyses. The highest correlation for the corporate governance variables is between the proportion of independent board directors (PROIND) and the proportion of non-executive directors on the audit committee (r = .301). None of the correlations between variables were of sufficient magnitude to raise concerns about multicollinearity for the regression analyses (Tabachnick and Fidell 1996).

(Table 3 about here)

4.2 Accrual Quality Measure

Accrual quality was determined for companies in the sample over the years 2001 to 2005 by means of regression analysis that followed the DD accrual quality model (see section 3.3). Recall that the DD model was modified to minimise possible model misspecification. This involved using the targeted components of operating cash flows as set out in Equation (2) above. Table 4 reports the results of these annual regressions. In order to examine whether the use of targeted cash flow components improved the model specification, comparative

results are also provided for DD model regressions. Based on comparison of the values of R^2, the use of targeted cash flows markedly improved the model specification. This result suggests successful mitigation of the noise that arises from using total cash from operations as a proxy for the cash flows that result from the reported accruals.

In contrast to all other years, the AQ regression for 2001 was not significant. This raised concerns about including the AQ data for this year in the subsequent analyses. This concern was addressed by running subsequent analysis with and without the 2001 AQ data. Overall, the results of the analyses did not differ, and the reported results include all years from 2001 to 2005.

The residual for regressions over each of the years from 2001 to 2005 provided the measure of AQ. The standard deviation of these residuals was used as the overall measure of accrual quality.

4.3 Innate and Discretionary Accrual Quality

The method devised by Francis et al. (2005) is used to empirically determine innate and discretionary accrual quality (see section 3.4 above). This required a regression of the calculated overall AQ measure against innate firm characteristics as outlined in equation (3) above. Results of this regression are reported in Table 5.

The results show that company size and volatility in operating revenue were significant. The sign of the coefficients on the significant variables indicates that larger companies have higher AQ, and firms with more volatile operating revenues have lower AQ. This is consistent with the earlier findings by Dechow and Dichev (2002).

4.4 Governance Structures and Accrual Quality

4.4.1 Innate Accrual Quality

The regression of governance characteristics on innate accrual quality was significant at p <.01 (F=13.577). The results (displayed in Table 6) suggest that the characteristics of the board, the audit committee, and the external auditor significantly explain the level of innate accrual quality.

(Table 6 about here)

In relation to board characteristics, the indicator variable for companies with a dual CEO and board chair (DUAL), and the number of board meetings (MEETBD) were significant at p<.05. As expected, when the dual CEO and chair role occurred, the predicted AQ measure was greater which indicates lower accrual quality. Contrary to expectations, a greater number of board meetings were also associated with lower accrual quality. However, the size of the coefficient on this variable suggests its economic significance is insubstantial. The size of the external auditor was significant at p<.01. Companies that used the services of the 'Big 4 plus 2' audit firms had higher accrual quality. Of the variables that operationalised audit committee characteristics, committee size (NDIRAC), proportion of non executive directors assigned to the committee (PRONEDAC), and number of meetings (MEETAC) were significant. The sign of all of the audit committee variables were consistent with expectations. Larger audit committees, a greater proportion of non executive directors assigned to the committee, and more frequent committee meetings were associated with higher accrual quality.

Overall, the results provided support for the proposition that sound governance structures are

positively related to innate accrual quality. These findings are generally consistent with prior studies that have demonstrated a positive relation between internal controls and overall quality of financial reporting.

4.4.2 Discretionary Accrual Quality

The regressions of governance characteristics on discretionary AQ showed that a small proportion of the variance in DAQ is explained by the selected governance characteristics (R^2=0.055). The regression (see Table 6) was significant at p=.007. Results show that the only significant variables were the size of the audit committee (NDIRAC) and the number of audit committee meetings held (NOMEETAC). The sign of these audit committee variables were consistent with expectations, that is, larger audit committees and more frequent committee meetings were associated with higher accrual quality.

The results of this analysis are inconsistent with the earlier studies that have used Australian data (Davidson et al., 2005; Koh et al., 2007). Both of these prior studies reported that board independence was associated with lower levels of earnings management. In contrast, we find no evidence of a similar effect for either of the board independence variables included in our analysis. Davidson et al. (2005) and Koh et al. (2007) reported that audit committee independence was associated with lower levels of earnings management. Koh et al. (2007) also reported the number of audit committee meetings was associated with lower earnings management. While our results also suggest that the audit committee serves to maintain reported earnings quality by minimising discretionary accruals, we find different audit committee characteristics to be important.

5.0 Conclusion

The empirical analysis presented in this paper provides a useful insight into the important issue of how corporate governance structures affect the quality of reported company earnings. This study uses the empirical model of accrual quality developed by Dechow and Dichev (2002) which, by determining how well estimated accruals reflect actual cash flows, provides a direct measure of earnings quality. The model provides a useful metric for determining the information risk in earnings numbers.

We develop a modified version of the Dechow and Dichev (2002) model to determine accrual quality. This measure of accrual quality is separated into components attributable to innate firm characteristics and management discretion. These components of accrual quality were then used as the dependent variables in regressions against various corporate governance characteristics.

The results of our analysis suggest that the relation between sound governance structures and accrual quality is stronger for innate than discretionary accruals. This finding suggests that the consequences of sound governance extend beyond mitigating dysfunctional management reporting. The results are consistent with the view that sound governance and associated internal controls reduce environmental uncertainty for managers and reduce the likelihood of unintentional accrual estimation errors. This leads to less noisy and more reliable earnings information. In relation to innate accruals, board and audit committee independence, larger audit committees, and diligence of the audit committee all related positively to accrual quality.

Analysis related to discretionary accruals provided interesting results. Audit committee size and diligence of the committee were the only significant governance characteristics.

Companies with larger audit committees and those with audit committees that met more frequently were associated with higher accrual quality. These results are inconsistent with prior Australian studies. An obvious explanation is the different method used to determine the effects of managerial discretion on reported earnings; prior studies have used the Jones model approach. The modified version of the Dechow and Dichev (2002) approach utilised in this study is likely to provide a less noisy measure of earnings management. Comparison of these methods may provide ongoing research opportunities, as well as further development of development and refinement of the Dechow and Dichev (2002) approach to measuring accrual quality.

There are several limitations to this study. First, the measure of earnings quality is limited to considering how well current accruals estimate operating cash flows. This approach has been shown to be a suitable proxy for accrual quality; however, it does not provide a complete analysis of earnings quality. This necessarily excludes some components of reported earnings that are not associated with current accruals. Second, the results of the analysis are subject to the effectiveness of the measures adopted to operationalise various characteristics of corporate governance structures.

Table 1: Variables in Analyses

	Variable	Measure	Descriptor
Innate Characteristics			
	Company size	Natural log of total assets	SIZE
	Negative earnings	Dummy variable - coded 1 if negative net profit after tax reported in 2004, 0 otherwise	LOSS
	Operating Cycle	Natural log of average days inventory and days receivable for 2003 and 2004	OPCYC
	Volatility	Windsorised standard deviation of operating revenue for 2003 to 2005	SDOR
Board Characteristics			
Independence	Proportion of independent directors	Number of independent directors/ number of directors	PROIND
Independence	Dual CEO and board chair	Dummy variable - coded 1 if CEO is chair of board of directors, 0 otherwise	DUAL
Diligence	Number of board meetings each year		MEETBD
External Audit Characteristics			
Auditor	Existence of Big 4 + 2 auditor	Dummy variable - coded 1 if appointed auditor is one of the Big 4 + 2 firms	AUDITOR
Audit Committee Characteristics			
Size	Number of directors on the audit committee		NDIRAC
Independence	Proportion of non-executive directors on the audit committee		PRONEDAC
Diligence	Number of audit committee meetings each year		MEETAC
Expertise	Proportion of audit committee members that have accounting and finance qualifications	Number of audit committee members with qualifications/number of committee members	PROEXP

Table 2: Descriptive Statistics

Variable	Mean	Standard Deviation	Minimum	Median	Maximum
n =381					
Panel A: Continuous Variables					
AQ					
IAQ					
DAQ					
Total Assets (000's)	635 775	3 083 487	710	44 284	45 259 109
SIZE	17.837	2.044	13.490	17.606	24.540
Average Op. Cycle	62.140	102.630	0.260	39.679	1462.870
OPCYC	3.622	1.015	0.000	3.681	7.290
SDOR	0.223	0.256	0.000	0.125	1.000
PROIND	0.521	0.232	0.000	0.500	1.000
MEETBD	11.120	4.604	1	11	34
NDIRAC	2.910	0.830	1	3	7
PRONEDAC	0.877	0.220	0.000	1.000	1.000
MEETAC	3.350	1.868	0	3	16
PROEXP	0.505	0.320	0.000	0.500	1.000

Panel B: Dummy Variables

	Firms	Percentage
LOSS	203	38.2
DUAL	66	12.4
AUDITOR	399	75.0

Where:
SIZE = Natural log of total assets
LOSS = Dummy variable - coded 1 if negative net profit after tax reported in 2004, 0 otherwise
OPCYC = Natural log of average days inventory and days receivable for 2003 and 2004
SDOR = Windsorised standard deviation of operating revenue for 2003 to 2005
PROIND = Number of independent directors/ number of directors
DUAL = Dummy variable - coded 1 if CEO is chair of board of directors, 0 otherwise
MEETBD = Number of board meetings each year
AUDITOR = Dummy variable - coded 1 if appointed auditor is one of the Big 4 + 2 firms
NDIRAC = Number of directors on the audit committee
PRONEDAC = Proportion of non-executive directors on the audit committee
MEETAC = Number of audit committee meetings each year
PROEXP = Number of audit committee members with qualifications/number of committee members

Table 3: Correlation Matrices for Independent Variables

Panel A: Innate Characteristics								
	SIZE	**LOSS**	**SDOR**	**OPCYC**				
SIZE	1							
LOSS	-0.496	1						
OPCYC	-0.039	-0.017	1					
SDOR	-0.244	0.128	-0.160	1				
Panel B: Governance Variables								
	PROIND	**DUAL**	**MEETBD**	**AUDITOR**	**NDIRAC**	**PRONEDAC**	**MEETAC**	**PROEXP**
PROIND	1							
DUAL	-0.071	1						
MEETBD	0.051	-0.106	1					
AUDITOR	0.145	-0.148	0.051	1				
NDIRAC	0.104	-0.118	0.050	0.137	1			
PRONEDAC	0.301	-0.120	0.061	0.214	-0.056	1		
MEETAC	0.198	0.003	0.071	0.136	0.178	0.176	1	
PROEXP	-0.020	-0.021	0.045	0.009	-0.146	0.116	0.035	1

* Denotes significant at $p<.05$
** Denotes significant at $p<.01$

Where:
SIZE = Natural log of total assets
LOSS = Dummy variable - coded 1 if negative net profit after tax reported in 2004, 0 otherwise
OPCYC = Natural log of average days inventory and days receivable for 2003 and 2004
SDOR = Windsorised standard deviation of operating revenue for 2003 to 2005
PROIND = Number of independent directors/ number of directors
DUAL = Dummy variable - coded 1 if CEO is chair of board of directors, 0 otherwise
MEETBD = Number of board meetings each year
AUDITOR = Dummy variable - coded 1 if appointed auditor is one of the Big 4 + 2 firms
NDIRAC = Number of directors on the audit committee
PRONEDAC = Proportion of non-executive directors on the audit committee
MEETAC = Number of audit committee meetings each year
PROEXP = Number of audit committee members with qualifications/number of committee members

Table 4: Regression Results - Annual Accrual Quality

	Modified DD Model				DD Model			
Year	**R^2**		***β***	***F* Value**	**R^2**		***β***	***F* Value**
Pooled Years (2001 -2005)								
2001	0.005	β_1 β_2 β_3	0.001 -0.085 0.013	1.111	0.002	β_1 β_2 β_3	0.067 -0.015 0.007	0.369
2002	0.354	β_1 β_2 β_3	-0.231 0.432 -0.066	126.229**	0.146	β_1 β_2 β_3	0.584 -0.095 -0.080	38.616**
2003	0.404	β_1 β_2 β_3	0.114 -0.658 0.020	47.766**	0.194	β_1 β_2 β_3	-0.823 -0.078 0.214	57.548**
2004	0.758	β_1 β_2 β_3	0.801 -1.359 0.014	768.921**	0.019	β_1 β_2 β_3	-0.052 -1.922 1.494	4.930**
2005	0.682	β_1 β_2 β_3	0.027 -0.355 0.002	528.043**	0.001	β_1 β_2 β_3	0.084 -0.053 0.013	0.120

** Denotes significant at $p<.01$

Table 5: Regression Results - Innate Characteristics

	Modified DD Model - Standard Deviation of 5 Years Residual		**DD Model - Standard Deviation of 5 Years Residual**		**Modified DD Model - Average of Absolute 5 Years Residual**	
Variable	***β***	***t* statistic (*p* value)**	***β***	***t* statistic (*p* value)**	***β***	***t* statistic (*p* value)**
INTERCEPT	0.694		0.699		0.504	
SIZE	-0.027	-5.230** (0.000)	-0.030	-6.555** (0.000)	-0.020	-4.595** (0.000)
LOSS	0.013	0.603 (0.547)	0.035	1.822 (0.069)	0.020	1.108 (0.268)
OPCYC	-0.012	-1.381 (0.168)	-0.005	-0.594 (0.553)	-0.006	-0.840 (0.401)
SDOR	0.178	4.834** (0.000)	0.155	4.694** (0.000)	0.152	5.109** (0.000)
Model						
R^2	0.144		0.197		0.133	
Adj. R^2	0.137		0.191		0.127	
F Statistic	22.115**		32.083**		21.175**	

** Denotes significant at $p<.01$

Where:

SIZE = Natural log of total assets

LOSS = Dummy variable - coded 1 if negative net profit after tax reported in 2004, 0 otherwise

OPCYC = Natural log of average days inventory and days receivable for 2003 and 2004

SDOR = Windsorised standard deviation of operating revenue for 2003 to 2005

Table 6: Regression Results – Governance Structures and Accrual Quality

		Innate Accrual Quality		Discretionary Accrual Quality	
Variable	**Predicted Sign**	***β***	***t* statistic**	***β***	***t* statistic**
INTERCEPT		0.329		0.308	
PROIND	-	0.013	0.746 (0.228)	-0.005	-0.117 (0.449)
DUAL	+	0.025	2.001* (0.023)	0.010	0.361 (0.359)
MEETBD	-	0.001	1.645* (0.050)	-0.001	-0.422 (0.336)
AUDITOR	-	-0.033	-3.695** (0.000)	-0.006	-0.327 (0.372)
NDIRAC	-	-0.025	-5.269** (0.000)	-0.032	-3.209** (0.001)
PRONEDAC	-	-0.036	-2.000* (0.023)	-0.043	-1.117 (0.133)
MEETAC	-	-0.010	-4.801** (0.000)	-0.007	-1.710* (0.044)
PROEXP	-	-0.001	-0.083 (0.471)	0.029	-1.161 (0.125)
Model					
R^2		0.226		0.055	
Adj. R^2		0.209		0.035	
F Statistic		13.581**		2.702**	
		$n = 381$		$n = 381$	

*Denotes significant at $p<.05$, **denotes significant at $p<.01$ (one-tail test for coefficients).
Where:
PROIND = Number of independent directors/ number of directors
DUAL = Dummy variable - coded 1 if CEO is chair of board of directors, 0 otherwise
MEETBD = Number of board meetings each year
AUDITOR = Dummy variable - coded 1 if appointed auditor is one of the Big 4 + 2 firms
NDIRAC = Number of directors on the audit committee
PRONEDAC = Proportion of non-executive directors on the audit committee
MEETAC = Number of audit committee meetings each year
PROEXP = Number of audit committee members with qualifications/number of committee members

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