Manipulation of Earnings through Correction of Prior Period Errors (AASB108): An Empirical Test

Amanda Carrol
Faculty of Business
Bond University, Australia

Gregory Laing
Faculty of Arts, Business & Law
University of the Sunshine Coast, Australia
Email: glaing@usc.edu.au

Abstract

Purpose: This research examines whether the likelihood of a company reporting a prior period error under AASB 108 can be explained by earnings management behaviour.

Design/Method/Approach: A model of independent and control variables is developed and tested. The sample consists of all companies listed on the Australian Securities Exchange Limited (ASX) during 2008 that reported prior period errors under AASB 108. The research design employs a matched pair, case-control method, where each firm-year containing a reported prior period error is treated as a case. Three types of statistical analyses were performed on the data: descriptive and correlational analysis, and multivariate testing of the model using multiple regression.

Findings: CEO cash bonuses was found to be positively associated with prior period error corrections that reduced previously overstated earnings. Four of the independent variables were found to contribute significantly to the model.

Originality/Value: The findings from this study provide useful insights into the potential for opportunistic behaviour concerning the misuse of AASB 108 in the treatment of prior period errors to manipulate current period earnings.

Key words: prior period errors; AASB108; management performance incentives; manipulation of earnings.

JEL Classification: M41
PsycINFO Classification: 3450 ; 3660
FoR Code: 1501
ERA Journal ID#: 123340
Introduction

One of the principles that dominated pre-harmonisation of Australian GAAP was that once financial statements had been completed and signed they could not be altered again (Institute of Chartered Accountants in Australia, 2009). The exception was if Auditing Standard AUS 706 applied to a material subsequent event requiring re-issuance of the financial reports (Auditing Standards Board, 1995). Otherwise, if an error from that period was found at some time after the reports had been finalised, it had to be dealt with in the period of its discovery, and then disclosed in the notes.

International Financial Reporting Standard IAS 8, and its Australian equivalent, AASB 108, now requires prior period errors to be amended retrospectively by restating the comparatives as if the error had never occurred (Australian Accounting Standards Board, 2007; International Accounting Standards Board, 2009). Hence, the impact of any prior period errors is shown through retained earnings rather than being included in the current period’s profit or loss.

In the United States, where retrospective restatement has been an accepted treatment, there is a well-documented evidence of an increase in restatement activity since the late 1990’s. A large body of research has grown out of concern over the causes underlying these restatements, and the persistent trend of increase in their number. A significant stream of this research relates restatements to earnings management.

The introduction of AASB 108 in Australia creates an opportunity for research to examine how Australian firms are applying the standard. This research is likely to be of interest to standard setters. In his address to the International Accounting Standard Setters Board World Standard Setters conference, Chairman of the Australian Securities and Investments Commission David Knott referred to the GAO database companies as “deficient reporting” (Knott, 2002, p. 2). Restatements due to errors and irregularities are considered to indicate poor earnings quality, and to pose a threat to investor confidence, particularly if they occur in high numbers (Ahmed & Goodwin, 2007). This study uses data available for the first time, on Australian companies disclosing corrections of prior period errors under AASB 108, which is the Australian equivalent of IAS 8.

It is therefore possible that the introduction of AASB 108 has presented a temptation for managers of Australian companies to engage in similar opportunistic reporting practices. The standard requires a treatment for prior period errors that could be misused by aggressive managers, as a method for manipulating current period earnings. Alternatively, the need to apply the standard and restate a prior period’s earnings may reveal previous earnings management activity within the firm, as has been hypothesised in some studies emanating from the US research. Either way, it is possible that a relationship exists between the disclosure of an earnings correction under AASB 108 and the presence of earnings management within Australian Securities Exchange Limited (ASX) listed companies.

Through its treatment of prior period errors, AASB 108 creates a variety of possible techniques for manipulating the prime targets of earnings management identified by Stlowy and Breton in their comprehensive review (2004), the earnings per share (EPS) and the debt/equity ratio. The more obvious approaches involve recognition of revenues and expenses, but the standard makes it possible to misclassify liabilities, for example as non-current rather than current, or even simply miscalculate the EPS. Under AASB 108, the prior period error can then be amended the following year, with no lingering constraining effects on the balance sheet as a result of the manipulation.

One fundamental and unavoidable difference stems from considerations about the availability and comparability of data as well as those features mentioned above. Many US studies use the GAO database of 919 restatements made due to accounting irregularities between 1997 and 2002, which was released in the hope of encouraging and facilitating academic research on the issue (General Accounting Office, 2003). The companies included in the GAO database have been identified by an independent accounting authority as having engaged in improper accounting, including aggressive accounting practices (Efendi, Srivastava, & Swanson, 2007; General Accounting Office, 2003). The database excludes companies that
restate[d for reasons other than to correct mistakes in the application of financial reporting standards, such as changes in accounting policies, mergers and acquisitions, and revisions due to currency issues and other within-GAAP accounting estimates (General Accounting Office, 2002, 2003).

There have been many calls for more research on earnings restatements involving firms from outside the US (see, for example: Flanagan et al., 2008). In particular, in the only empirical study found that examined restatements by Australian firms, Ahmed and Goodwin (2007) call for future research to study restatements in Australia under IFRS. They hand-collected data from 1970 to 2003 to compile their sample of firms that restated prior period earnings, and found 141 firms (195 firm-years) with no observations after 1993 (Ahmed & Goodwin, 2007). Their sample included firms that restated earnings due to accounting policy changes, revisions of prior period estimates, and errors and unknown. The restatements due to errors and unknown group comprised only 11 per cent of their sample of firms (Ahmed & Goodwin, 2007). The mandatory application of AASB 108 for reporting periods beginning on or after July 2007 means that current data is now available on Australian companies that restate their earnings due to errors, in sufficient quantities to enable statistical analysis.

Review of Literature

The notion that managers of business firms manage earnings in order to arrive at the reported accounting numbers they wish to present to the firm’s stakeholders arose early in the development of positive accounting theory. It relies on agency theory, which explains that when there is a separation between ownership and control of a business, the owner/s incur costs in attempting and/or failing to induce the firm’s controllers (managers) to act in the owner’s best interests (Jensen & Meckling, 1976). One perspective on the agency problem is to argue that managers are opportunistic and seek to transfer wealth from owners to themselves (Godfrey, Hodgson, & Holmes, 2003). A substantial body of literature has emerged that examines and tests this opportunistic perspective.

Healy and Wahlen (1999) reviewed the earnings management literature, as it applied to accounting standard setting. They offered the following definition of earnings management: “Earnings management occurs when managers use judgement in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers,” (Healy & Wahlen, 1999, p. 368). They specifically exclude managers’ exercise of judgement for the purpose of making financial reports more informative for users from their definition of earnings management (Healy & Wahlen, 1999).

The existing literature on earnings management is extensive. It has been the subject of several reviews during the last decade. Healy and Wahlen (1999) focussed on material that is helpful to standard setters, and Dechow and Skinner (2000) aimed to reconcile the differing views on earnings management of practitioners, standard setters and academics. Stlouy and Breton (2004) put together a comprehensive review and conceptual framework of the literature on accounts manipulation to that date, while Xu, Taylor and Dugan (2007) reviewed the literature on real earnings management. Hettihewa and Wright (2010) attempted to integrate an underlying theory of earnings management from the variety of approaches, methods and findings in the extant literature.

Although these reviews all had a different focus, the dominant issues considered were consistent enough to be identifiable. Firstly, there was the pervasive question of whether market participants are actually deceived by earnings management (Market Efficiency vs. Functional Fixation). Secondly, the reviewers all acknowledged the importance of tests of incentives to manage earnings in providing evidentiary support for the existence of earnings management. A frequently used research design was to take a sample of firms exhibiting a particular incentive, and to test those firms for abnormal discretionary accruals (a proxy for earnings management). The construct earnings management is not a directly observable phenomenon, so researchers have to rely on circumstantial evidence, such as the simultaneous presence of the incentive and the proxy, to provide evidence of its existence. Empirical findings on the prevalence of earnings management have been somewhat inconsistent as a result.
In the US the study by Ahmed and Goodwin (2007) was essentially descriptive in nature simply documenting the characteristics of earnings restatements and of the firms that disclose them. They found that 49 per cent of earnings restatements reduced prior period earnings and that these negative restatements were relatively larger than positive restatements (Ahmed & Goodwin, 2007). They also found that restating firms were smaller and had higher growth opportunities than non-restating firms from the same industry (Ahmed & Goodwin, 2007). Ahmed and Goodwin (2007) found a negative market response to restatements due to errors and unknown reasons, which is consistent with other US findings, although they advised caution in relying on this result due to small sample size.

Their study differs from this one in many ways, including that they collect their sample from the top 500 Australian firms, whereas the sample used for this study was collected from the entire population of ASX Limited listed firms in 2008. Furthermore, Ahmed and Goodwin (2007) test the value relevance of restatements in the Australian market, but conceptualise restatements in terms of earnings quality only and do not consider the possible association with earnings management. Finally, their study used data from a different era in terms of accounting standards. Their sample includes firms-years from 1970 to 1993; hence, their definition of restatements differs from that used in this, which comes from the standard. Ahmed and Goodwin (2007) were working in the absence of a standard, and had to construct their own definition. Furthermore, the economic, legal and regulatory environment facing the Australian firms in this study differs from those faced in the 1970’s to 1990’s.

AASB 108 Accounting Policies, Changes in Accounting Estimates and Errors (Australian Accounting Standards Board, 2010a) is concerned with changes to accounting policies and estimates, as well as the correction of errors. Unlike the study by Ahmed and Goodwin (2007), which examined changes to accounting policies, revisions of estimates, and errors, this paper is limited to considering the retrospective correction of prior period errors. The treatment of these is detailed in paragraphs 41 to 53 of the standard (Australian Accounting Standards Board, 2010a). Limiting this study to error firms, and in particular to those restating earnings, enhances its comparability to similar research from the US. It is possible, however, that voluntary changes to accounting policies and revisions of estimates could also be used as methods for manipulating earnings, and future research could extend this work by considering those treatments as well.

The availability of the GAO database has led many US researchers to assume that restatement firms are earnings managers, or to use restatements as a proxy for earnings management. One study has tested this assumption and found empirical evidence that US restatement firms manage earnings prior to restating (Ettredge, Scholz, Smith, & Sun, 2010). The validity of the assumption that restating firms are earnings managers is actually dependent on the researchers’ efforts to ensure the sample does not include firms that restated due to genuine, unintentional errors (Hennes, Leone, & Miller, 2008). Those firms targeted for investigation by the US Securities and Exchange Commission (SEC) tend to be larger and have made more substantial errors than companies whose restatements were prompted internally or by their auditor (Flanagan, Muse, & O'Shaughnessy, 2008). A number of studies used a reduced sample of these firms in an effort to ensure the accuracy of the assumption that restating firms are earnings managers (see, for example: Dechow, Sloan, & Sweeney, 1996). Whilst the lack of such efforts effectively reduces the power of the tests many of the results were quite robust regardless.

This research does not assume that restating firms are earnings managers, as shown below in section 2.4 Theory of Model: Conceptual and Theoretical Frameworks. Nor does it use corrections as a proxy for earnings management. Rather, it allows for the possibility that some restating firms may be earnings managers, and seeks empirical evidence to clarify the relationship in Australia. Differences in the regulatory and legal environments in the US and Australia (Brown & Higgins, 2001; Habib & Hossain, 2008), and significant differences between the sample used and the GAO database (General Accounting Office, 2003) and other frequently used samples in US studies, make it inappropriate to assume that Australian firms that restate earnings are necessarily earnings managers. However, as detailed in section 3.5 Sampling Designs, efforts are made in the construction of the sample used for this research to increase its comparability with the US studies. These include restricting the sample to firms that restated
due to prior period errors, excluding typographical errors and restatements due to changes in accounting policies or revisions of accounting estimates.

Executive compensation contracts draw upon a variety of remuneration possibilities, including various forms of incentive schemes. The purpose of rewarding managers based on performance is to better align their interests with the interests of owners, hence reducing agency costs. Research indicates that some arrangements achieve this more effectively than others, in that some forms of management incentive compensation create strong incentives to manage earnings. The impact of management compensation contracts on accounting choice has been the subject of a considerable body of empirical research to date.

Accounting numbers such as earnings figures are used to help monitor and enforce the terms of contracts between the firm and others, including its management (Healy & Wahlen, 1999). Watts and Zimmerman (1978) first argued that management compensation contracts create incentives to manage earnings, and numerous researchers have tested the theory since then. Healy (1985) developed a model of the bonus plan hypothesis, clarifying the different incentives to manage earnings created by bonus schemes under various profit outcomes. Healy’s (1985) model showed that managers make income-increasing accounting decisions, if by doing so they can maximise their remuneration under the bonus plan. Where the profit is too low to reach the minimum required for a bonus, or higher than the level that would return the maximum bonus, managers use income-decreasing discretionary accruals to defer earnings to a later period (Godfrey et al., 2003).

Cash bonuses remain of interest in recent studies of management incentives (Burns & Kedia, 2006; Dechow et al., 1996; Efendi et al., 2007; Harris & Bromiley, 2007), though this variable is often found not to be significant. One explanation put forward for this result is the relative insignificance of cash bonus amounts compared to the value of stock options granted to management in the United States (Burns & Kedia, 2006; Harris & Bromiley, 2007). However, it is possible that this relationship differs in Australia, where the awarding of stock option incentives is not as widespread or systematic as in the US (Habib & Hossain, 2008). Hence, it is possible that the relative importance of cash bonuses may be greater in Australia than in the US. This leads to hypothesis one:

Hypothesis 1: CEO cash bonuses will be positively associated with prior period error corrections that reduce previously overstated earnings.

Burns and Kedia (2006) examined the impact of performance-based compensation on misreporting and found strong evidence that stock options create incentives to engage in aggressive accounting practices. In an empirical study of firms that restated earnings due to accounting irregularities, Burns and Kedia (2006) tested the sensitivity of stock options, equity, restricted stock, long-term incentive payouts and cash salary plus bonus payments to firm performance. They found that the sensitivity of CEO option portfolio to firm price is significantly positively related to the likelihood and magnitude of a restatement (Burns & Kedia, 2006). The sensitivity of the other tested components of CEO compensation had no significant impact on misreporting behaviour. Burns and Kedia (2006) explained the difference in terms of the convexity of the relationship between CEO wealth and stock price inherent in stock options, which limits the downside risk of misreporting.

Cheng and Warfield (2005) examined the link between management’s equity incentives and earnings management, measured as the likelihood of meeting or just beating analyst’s forecasts. They base their hypotheses on the existence of a positive relationship between equity incentives and managers’ future sales of their own firm’s stock (Cheng & Warfield, 2005). That is, because managers with high equity incentives are more likely to sell their shares in the firm in the future, those managers have increased incentives to manage earnings, in order to maximise their returns from such sales. Their results confirm that managers with high equity incentives are more likely to sell their shares in future periods (Cheng & Warfield, 2005). They also find that such managers are more likely to report earnings that meet or just beat analyst’s forecasts, but less likely to report large earnings surprises (Cheng & Warfield, 2005). Their results are consistent with the theory that equity incentives lead to managers’ wealth being more sensitive to future stock prices, and hence create incentives to manage earnings. They examine equity incentives in the form of option grants, un-exercisable options, exercisable options, restricted stock grants, and stock ownership (Cheng & Warfield, 2005).
Overall, the literature on the relationship between management compensation and earnings management presents a fairly consistent picture (Preißing, Southey & Laing, 2013). Given that earnings management is not a costless or risk-free activity (Desai, Hogan, & Wilkins, 2006), incentive compensation up to some ‘reasonable’ value is generally not sufficient to motivate managers to engage in accounting manipulation activity that is against the interests of the firm (Stlowy & Breton, 2004). However, the proliferation of stock option grants in the US in the last two decades (Efendi et al., 2007), combined with strongly performing stock markets for much of that time that overvalued many stocks (Jensen, 2005), led to executives being compensated in very high amounts.

Research has consistently found that high values of CEO stock options are significantly associated with an increased likelihood of producing financial reports that later require restatement (Burns & Kedia, 2006; Cheng & Warfield, 2005; Dechow et al., 1996; Efendi et al., 2007; Elayan, Li, & Meyer, 2008; Harris & Bromiley, 2007). This leads to hypotheses two and three:

**Hypothesis 2:** CEO pay from stock options will be positively associated with prior period error corrections that reduce previously overstated earnings.

**Hypothesis 3:** CEO holdings of stock options will be positively associated with prior period error corrections that reduce previously overstated earnings.

**Figure: 1**
*Incentives to Overstate Revenue*

![Diagram](image)

**Capital Financing Pressure**

There are many occasions when opportunistic managers might engage in earnings management on the firm’s behalf Stlowy and Breton’s (2004) principles of accounts manipulation. One such situation is when managers attempt to minimise the cost of raising debt or equity capital (Stlowy & Breton, 2004). Researchers have found strong empirical evidence that the need to minimise the costs of acquiring external financing is a clear motive for earnings management (Dechow et al., 1996; Efendi et al., 2007; Richardson et al., 2003). Hence, it is predicted that capital financing pressures provide an incentive to manage earnings in Australia.

Studies on stock market incentives for earnings management have also found that managers use discretionary accruals to overstate earnings prior to initial public offerings and seasoned equity issues (Healy & Wahlen, 1999). Teoh, Welch and Wong (1998) found that managers use discretionary current accruals to inflate net income prior to issuing shares. This indicates that the market may be deceived by managements’ efforts and that opportunistic manipulation of earnings reporting can achieve a reduced cost of equity capital. This leads to hypotheses four:
Hypothesis 4: Acquiring new debt and equity finance will be positively associated with prior period error corrections that reduce previously overstated earnings.

Performance Relative to Expectations

Firm performance has received a great deal of attention as a possible motivation for earnings management. The discontinuities studies mentioned above first examined firm performance around earnings benchmarks, in a departure from the traditional discretionary accrual models that attempted to capture the prevalence of earnings management in the population of listed firms (Dechow & Skinner, 2000). Degeorge, Patel and Zeckhauser (1999) identified earnings management around three thresholds: firstly, to report positive profits; secondly, to report higher earnings than in the prior year; and thirdly, to meet analysts’ earnings forecasts.

Extending on the work by Kent, Monem and Cuffe (2008), it is suggested that firms experiencing a sudden turnaround in performance due to the onset of the global financial crisis might find this an ideal time to take a bath. In anticipation of potentially difficult years ahead, using AASB 108 to move current year expenses to the prior year could be an effective method of shielding future income against losses. This leads to hypothesis five:

Hypothesis 5: Poor performance relative to expectations will be positively associated with prior period error corrections that reduce previously reported earnings.

CEO Change

Theory and empirical research supports several reasons why companies are more likely to disclose a prior period error that corrects previously overstated earnings following the resignation of the CEO. Firstly, incoming CEO’s have incentives to take a bath, that is, to make income decreasing write-offs in their first year of office. The purpose of this is to reverse any constraints on the balance sheet left over from earnings management activities in prior years, and to create a fresh start for the new CEO. Taking a bath in the first year of office enables the new CEO to show a rapid turnaround in earnings the following year (Walsh et al., 1991). This leads to hypothesis six:

Hypothesis 6: CEO change will be positively associated with prior period error corrections that reduce previously reported earnings.

Firm size has been described as a noisy proxy and other measures such as industry membership suggested in its place (Godfrey et al., 2003). Industry membership has a more direct relationship with the nature and degree of regulation a firm is subject to, while the size of a firm correlates strongly with a number of other factors that are also known to impact on earnings management behaviour (Godfrey et al., 2003). For this reason, empirical studies of earnings management frequently include variables for both industry and size, either as explanatory or as control variables.

One factor that is known to have a strong positive correlation with firm size is the size or type of auditor the company uses (Lee & Choi, 2002). Lee and Choi (2002) found that size remained significant in explaining earnings management behaviour when auditor type was controlled for, but not the inverse, suggesting that company size is the stronger determinant. They found that small companies managed earnings to avoid losses more frequently than large companies (Lee & Choi, 2002). While this finding is broadly in keeping with Watts and Zimmerman’s political cost theory (1978), there are many possible reasons why large firms behave better than smaller ones in terms of earnings management. For example, in a study of Australian listed companies, Baxter (2010) anticipated that large companies would benefit more from, and hence have greater incentives to form and maintain, higher quality audit committees than smaller companies.
One factor with a known correlation to company size is the type or size of auditor used by the company. In a widely cited paper on the subject, DeAngelo (1981) argued that incumbent large audit firms have incentives to provide higher quality audits, because they face higher opportunity costs if caught cheating than small audit firms.

Davidson and Neu (1993) tested the association between auditor size and audit quality using management earnings forecasts. They found that, after controlling for client risk, companies that were audited by Big Eight audit firms had larger forecast errors. This was consistent with their expectation that a higher quality audit allows the client less flexibility to manage reported earnings closer to the forecast earnings figure (Davidson & Neu, 1993).

The work of Watts and Zimmerman (1986; 1990) was seminal in proposing and developing the debt/equity hypothesis, which predicts that the higher a firms debt/equity ratio, the more likely that managers make income-increasing accounting choices.

A substantial number of studies have tested the debt hypothesis, with most finding empirical support for its claims. Defond and Jiambalvo (1994) and Sweeney (1994) both examined firms that actually violated their debt covenants, and used discretionary accrual models to test for the presence of earnings management. They find evidence of increased abnormal accruals before and after the violation.

Efendi, Srivastava and Swanson (2007) found that restatement firms had higher interest coverage ratios than firms in the matched sample. Since these ratios have been widely used in the literature, they are included in this study as control variables.

Figure 2: Model and Relationships between Variables

Research Method

The sample consists of all companies listed on the Australian Securities Exchange Limited (ASX) during 2008 that reported prior period errors under AASB 108. These were found in the
statement of changes in equity, where prior period error adjustments under AASB 108 must be disclosed. These companies reported errors that related to 2006 and 2007.

Companies that are listed on stock exchanges such as the ASX Limited are required to publish their annual reports. These reports are then readily available to researchers through various databases, including Connect 4 and FinAnalysis.

Although companies that reported errors that impacted on the balance sheet alone were retained in the sample, only errors that affected the EPS figure are captured in the dependant variable. Firms disclosing errors of a purely typographical nature, which were clearly immaterial having impacted only on the notes level of detail or on the presentation of the report, were removed from the sample.

The research design employs a matched pair, case-control method, where each firm-year containing a reported prior period error is a case. Control firm-years are matched on year, then industry, then size as closely as possible. All firms are from the population of companies listed on the ASX for 2008. The year in which the error was disclosed by the firm was the appropriate choice for matching, because although the majority of prior period errors relate to the year immediately prior to disclosure, this is not a requirement of the standard. In fact, some errors originated several years prior, or relate to a number of periods, and the accumulated impact is adjusted against the statement of changes in equity and any applicable comparatives in the year immediately prior to disclosure.

The study is cross-sectional and comparisons are made between subjects. Since each subject is a firm-year, and control firms are matched using the same year as the disclosure firm-year, the study also compares firms within years. The study could be extended to include comparisons within subjects, that is, comparisons of disclosure firm-years with reports from the same firm in subsequent years that did not contain errors. However, it is preferable to compare between firms initially, because of the possibility of introducing non-independent errors and violating one of the assumptions of regression analysis (Berenson, Levine, & Krehbiel, 2006).

Three types of statistical analyses are performed on the data: descriptive and correlational analysis, and multivariate testing of the model using multiple regression. This study uses both continuous and discrete (or categorical) variables. The categorical variables are all dichotomous; that is, they have two categories. With this type of variable, as with any categorical variable, descriptive statistics such as the mean and standard deviation are meaningless (Pallant, 2010).

Measurement of the Dependant Variable

The dependent variable *Earnings Correction* is measured as a ratio scaled, continuous variable, which enables the use of multiple regression analysis on the data. Although many studies using matched samples of error, restatement and fraud firms use a dichotomous dependent variable defined as error or no error (See, for example: Beasley, 1996; Dechow et al., 1996; DeFond & Jiambalvo, 1991; Efendi et al., 2007) the use of a continuous variable allows more detailed investigation of any relationships that exist with the independent variables. To construct the variable *Earnings Correction*, data was first collected on Earnings Per Share (EPS) for all firms in the sample for the disclosure year and the prior year from the FinAnalysis database. Next, the comparative EPS figures for the error firms were recorded from their printed annual reports in the disclosure year. This provided a Corrected EPS figure for the prior year.

The published EPS for the prior year was then subtracted from the Corrected EPS figure, to give a measure of the impact of the error on the EPS. For the matched firms this figure was necessarily zero; hence, there is quite high kurtosis in the variable. Also, because the majority of income-affecting errors had inflated the prior year’s EPS, the dependent variable was initially negatively skewed and had a negative mean, reflecting the fact that most earnings corrections were reductions of previously reported EPS. The *Earnings Correction* variable used in the final analysis is transformed by multiplying by minus one (-1), in order to reduce confusion in reporting the results, and to enhance comparability with other studies. To describe it more simply, the table outline shows the transformed version, that is: (EPS in PY - Corrected EPS).
Measurement of the Independent Variables

The first independent variable *Ratio of CEO Bonus Pay to Salary* is the cash bonus, measured as the proportion of CEO pay that comes from cash incentive bonuses. It is calculated as the cash bonus amount over fees and salary, averaged across the prior year and the year of disclosure. This differs from Harris and Bromiley (2007), who use data from the year immediately prior to the misrepresentation, but admit that past bonuses only serve as a proxy for future rewards. It is hoped that, by using bonuses paid in the year that the error occurred and the disclosure year, this variable captures any actual rewards relating to the erroneous period.

The second independent variable *Value of CEO Options Issued as Incentive Pay* is measured as the declared value (in the published remuneration report) of any options issued to the CEO as incentive pay during the prior year and the disclosure year.

The third independent variable *CEO Options Held* is measured as the average of the number of options held by the CEO at the beginning of the disclosure year (end of prior year) and the number of options held by the CEO at the end of the disclosure year.

The fourth independent variable *New Debt and Equity Finance Acquired* is measured as the total change in debt and equity capital in the disclosure year and the year following disclosure. As such, it can take on a negative value if the company reduces its debt and equity capital during those years. The values are adjusted for those error companies that disclosed corrections to debt or equity figures.

The fifth independent variable, *Poor EPS Performance* is measured as the change in Earnings Per Share from the prior year to the disclosure year. That is, the variable is calculated by subtracting the prior year EPS from the disclosure year EPS. The Corrected EPS is not used because this variable captures the incentive to disclose. Hence, the metric of interest is the change in performance, as it would have been had the company not disclosed the error.

The sixth and final independent variable *CEO Resigned* is also the first categorical variable in the final model. It is measured dichotomously, being the equivalent to a yes or no response to the question, did the CEO resign between the end of the prior year and the end of the disclosure year.

The sampling design is a 1-1 matched pair case-control study. The matched sample is a special form of stratified case-control study, in which “subjects are stratified on the basis of variables believed to be associated with the outcome” (Hosmer & Lemeshow, 2004). In this case, control firms are matched with error companies on the basis of industry and size. Industry is measured using the Global Industry Classification Standard (GICS) industry codes, which are now used by ASX Limited to improve the comparability of Australian companies internationally. Random assignment of subjects to a control sample is often an effective way to ensure the equivalent distribution of confounding variables between groups, thus controlling for the effects of extraneous variables (Salkind, 2006). However, when it is known that particular variables not of interest to the research can be expected to impact on the dependent variable, matching the control sample based on those variables is a better option (Salkind, 2006). Matched samples have been used in similar research, both in the US (Harris, 2008; Harris & Bromiley, 2007) and in Australia (Ahmed & Goodwin, 2007; Sharma, 2004).

The first control variable *Audit Quality* is measured dichotomously. It takes a value of one if the firm was audited by one of the *big four* auditing firms, and zero if it was not. The auditing firms that are known as the *big four* are: KPMG, PricewaterhouseCoopers, Deloitte Touche Tohmatsu, and Ernst & Young.

The control variable *Size* is a ratio scaled, continuous variable that is measured as the natural logarithm of the total assets of the firm in the year of disclosure. The raw dollar value
of total assets in DY was transformed using the natural logarithm function after descriptive
analysis indicated that the distribution was so overwhelmingly skewed towards small companies
as to be exponential in shape.

The control variable Industry - Financials is also measured dichotomously. It takes a
value of one if the firm is a member of the Global Industry Classification Standard (GICS) industry
sector Financials and a value of zero otherwise. The Financials sector includes banks, insurance,
diversified financials and real estate companies (Aspect Huntley, 2008), although there were no
examples of the former two in the sample.

The control variable Industry - Industrials is also measured dichotomously. It takes a
value of one if the firm is a member of the Global Industry Classification Standard (GICS) industry
sector Industrials and a value of zero otherwise. The Industrials sector includes Capital Goods,
Commercial and Professional Services and Transportation (Aspect Huntley, 2008).

The control variable Industry - Materials is also measured dichotomously. It takes a
value of one if the firm is a member of the Global Industry Classification Standard (GICS) industry
sector Materials and a value of zero otherwise. The Materials sector includes Chemicals,
Construction Materials, Containers and Packaging, Metals and Mining, and Paper and Forest
Products (Aspect Huntley, 2008).

The control variable Industry - Other is also measured dichotomously. It takes a value of
one if the firm is a member of one of the Global Industry Classification Standard (GICS) industry
sectors: Consumer Discretionary, Consumer Staples, Energy, Health Care, Information
Technology, Telecommunications, or Utilities; and a value of zero otherwise. Hence, this group
potentially includes companies in the Automobiles and Components, Consumer Durables and
Apparel, Consumer Services, Media, Retailing, Food and Staples Retailing, Food, Beverage and
Tobacco, Household and Personal Products, Health Care Equipment and Services, Pharmacueticals,
Biotechnology and Life Sciences, Software and Services, Technology Hardware
and Equipment, Semiconductors and Semiconductor Equipment, Telecommunication Services,
and Utilities industries (Aspect Huntley, 2008). These sectors were collapsed into one variable
following descriptive analysis, which indicated there were too few in each category for inclusion
as separate variables.

The control variable Debt to Assets is a ratio scaled, continuous variable that is
measured as the average of the ratio of long term debt to assets in the year of disclosure and the
year prior to disclosure. The ratio in each year is calculated as the long term debt of the firm in
that year divided by the total assets of the firm in that year. The two ratios are then added
together and divided by two to arrive at the value of the final variable.

The control variable Interest Coverage is a ratio scaled, continuous variable that is
measured as the average of the interest coverage ratios in the year of disclosure and the year
prior to disclosure. The ratio in each year is calculated as the interest expense of the firm in
that year divided by the earnings before interest and taxes (EBIT) of the firm in that year. This
is an inverted form of the usual interest coverage ratio, and yields less missing values from the
data set when a large number of firms have zero interest expense.

The two ratios are then added together and divided by two to arrive at the value of the
final variable. The ratio is capped at two (2.00). Interest coverage was measured this way by
Efendi, Srivastava and Swanson (2007). It was decided to use this method after descriptive
analysis on the original interest coverage ratio variable showed the values returned were
extreme, mostly due to operating losses. Alternative forms of this variable were also tried and
tested including the individual (not averaged) ratios for each year.

Error Firm Sample Selection

The sample of error firms was collected first. This was done by systematically examining
the financial reports of every company listed on the Australian Securities Exchange Limited in
2008. Since the visibility of disclosure of these errors in the financial statements varies, a
numerical approach was used first, in order to capture every ASX Limited listed company that
applied AASB 108 to adjust a prior period error in the years considered.

The initial, comprehensive search of the 2008 financial year search yielded a sample of
95 firms with some form of error or direct adjustment to equity. Detailed examination excluded
five firms on the basis that the error was made in the year it was disclosed. A further 19 companies were removed from the sample because the adjustment to equity was not the result of a prior period error. These included prior period adjustments due to changes of accounting policy, applications of new or amended accounting standards, and revisions of estimates. At this point, 71 companies remained that had disclosed one or more prior period errors of some kind in 2008.

A further four firms were removed from the sample because the prior period error was a typographical error with either no financial impact, for example an incorrect heading, or negligible financial impact, as in a summation error in the notes that does not carry to the financial statements. One was removed because the error originated in the half-yearly interim report, and there were concerns about the comparability of data. Finally, two were removed due to involvement by outside parties. One of the two had police involvement, as the error was due to employee fraud. The other company had filled out its payroll tax returns incorrectly; hence, the prior period error arose from interest on unpaid taxes, and was evidently not a result of managerial discretion.

Judgement had to be exercised at this step in the process, as the aim was to keep as many firm year observations in the sample as possible, while excluding any errors that clearly could not have arisen by management’s choice. Hence, several unusual observations were kept in the sample, on the basis that it is possible they could represent examples of earnings management. In the end, 64 firms remained in the final sample of error companies.

Of the final 64 firms, three had an error in both years. Since this paper examines the characteristics of companies that report errors, it would have been inappropriate to include any company more than once. An unusual company included in this way could potentially skew the results. The practise of excluding repeat offenders is usual in studies of this kind (Harris & Bromiley, 2007). The small number of repetitions meant that the choice of which error year to retain for these firms could be made on the basis of the materiality of the error to earnings, rather than an arbitrary approach like taking the first error.

Results

The first independent variable Ratio of CEO Bonus Pay to Salary has a minimum of zero. Sixty firms paid their CEOs no cash bonuses. The mean value was 0.2 or 20 per cent of CEO cash pay consisting of incentive bonuses. This figure is slightly higher for the matched firms at 22 per cent, compared to 18 per cent for the error firm sample. The maximum value is 2.07 or 207 per cent, which corresponds to actual cash bonuses of $57,676 in the disclosure year and $23,465 in the prior year with a fixed salary of $19,620 in both years, for one of the matched firms.

The maximum value within the error company sample was 1.69 or 169 per cent of cash remuneration coming from bonus pay. This value corresponded to actual cash bonuses of $3,317,027 against a salary of $1,280,943 in the disclosure year and $959,310 with a salary of $1,225,793 in the year prior to disclosure. Two CEOs of error firms and three from matched firms were paid zero dollars in salary in the year prior to disclosure. In the disclosure year CEOs of a different two error firms were paid zero dollars in salary, while the minimum salary paid to a matched firm CEO in the disclosure year was $3,077. Some of these firms were small and in their developmental stages, making losses, and paid their CEO’s in options or shares that year instead of cash.

One of the zero salary firms was disclosed as a salary sacrifice arrangement. Although they were not disclosed as such, high superannuation figures indicated that some of the CEOs with non-zero but very low salaries might also have chosen similar strategies. It was decided to use the disclosed figures for salary and bonuses in these cases for two reasons. Firstly, having sacrificed all or substantially all of his or her cash salary to superannuation, the CEO has more incentive to maximise any cash bonus payment. Hence, using the disclosed figures for the variable captures this sharper incentive. Secondly, the information required to undo the arrangement is not always publicly available, and since many CEOs may employ such arrangements in varying proportions, the data are more comparable if the disclosed figures are used. All mean and maximum salary and bonus figures increased from the prior year to the
disclosure year. Descriptive statistics showing the dependant, independent and control variables in Model are presented in Table 1.

The second independent variable Value of CEO Options Issued as Incentive Pay has a minimum value of zero. Twenty four matched firms and 26 error firms did not provide their CEOs with any share options as incentive remuneration. This equals a total of 50 firms, which represents 39 per cent of the entire sample that did not use share options as incentive remuneration. The maximum value of $3,055,000 was paid to the CEO of a matched firm, with the second highest of $2,895,090 being receive by the CEO of an error company. The overall mean for this variable was $208,893 with the matched firms coming in slightly higher than the error sample, the two being $210,417 and $207,369 respectively.

Table 1:
Descriptive Statistics for Variables in Model

<table>
<thead>
<tr>
<th>Variables in Model</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earnings Correction</td>
<td>-3</td>
<td>12</td>
<td>0.34</td>
<td>1.57</td>
</tr>
<tr>
<td>Ratio of CEO Bonus Pay to Salary</td>
<td>0</td>
<td>2.07</td>
<td>0.2</td>
<td>0.37</td>
</tr>
<tr>
<td>Value of Options Issued to CEO as Incentive Pay</td>
<td>$0</td>
<td>$3,055,000</td>
<td>$208,893</td>
<td>$491,332</td>
</tr>
<tr>
<td>CEO Options Held</td>
<td>0</td>
<td>30,000,000</td>
<td>1,777,119</td>
<td>3,509,350</td>
</tr>
<tr>
<td>New Debt and Equity Finance Acquired (000's)</td>
<td>-$279,700</td>
<td>$1,924,600</td>
<td>$83,934</td>
<td>$293,124</td>
</tr>
<tr>
<td>Poor EPS Performance</td>
<td>-549.4</td>
<td>102.4</td>
<td>-7.4</td>
<td>55.8</td>
</tr>
</tbody>
</table>

Panel B: Dichotomous Variables

<table>
<thead>
<tr>
<th>Variables in Model</th>
<th>Frequency Yes</th>
<th>% Yes</th>
<th>Frequency No</th>
<th>% No</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEO Resigned</td>
<td>18</td>
<td>14.1</td>
<td>98</td>
<td>76.6</td>
</tr>
<tr>
<td>Audit Quality</td>
<td>67</td>
<td>52.3</td>
<td>61</td>
<td>47.7</td>
</tr>
</tbody>
</table>

The CEO’s of 19 matched firms and 18 error firms held the minimum value for the variable CEO Options Held of zero options during the disclosure year. This equates to a total of 37 companies where the CEOs held no options during the period examined. At 29 per cent of the entire sample, this group is smaller than the set of firms that did not use options as incentive pay during the prior year or the disclosure year. This is because some firms granted their CEO’s a parcel of options as part of a sign-on package or in some other arrangement that was explicitly not linked to performance incentives. The maximum of 30,000,000 was held by the CEO of a matched firm, while the highest number of options held by the CEO of an error firm was 10,000,000. The mean values were 2,027,195 for the matched firms, 1,527,042 for the error companies, and 1,777,119 for the full sample.

Result for Hypothesis 1:

Hypothesis one is supported by the results of the regression analysis. The independent variable Ratio of CEO Bonus Pay to Salary has a t-test statistic of 2.72, which is statistically
significant at p < .01 with a 2-tailed test. This indicates that Ratio of CEO Bonus Pay to Salary makes a unique and significant contribution to the model. Its Beta or standardised coefficient is .249, and it has the positive sign predicted in hypothesis one. Hence, firms with high proportions of CEO cash remuneration paid in the form of incentive bonuses are more likely to have prior period error corrections that adjusted overstated prior year earnings.

This finding is consistent with Healy’s (1985) bonus scheme hypothesis. However, some recent empirical studies from the US have not found support for hypotheses connecting cash bonuses with restatements (Burns & Kedia, 2006; Harris & Bromiley, 2007). Burns and Kedia (2006) attribute their finding to the declining relative importance of cash bonuses as a form of incentive compensation in the US. Harris and Bromiley (2007) suspected that the vast differences between the values of options and cash bonuses in their sample may have accounted for the finding. The average option grant in their sample was valued at twenty times the average cash bonus (Harris & Bromiley, 2007). This is not the case for the Australian companies in the sample used in this study. The dollar values of cash bonuses and options issued as incentive pay compare quite closely in each year, with cash bonuses marginally higher on average.

Result for Hypothesis 2 and 3:

Hypotheses two and three are not supported by the multivariate testing of the model. The independent variables Value of Options Issued to CEO as Incentive Pay and CEO Options Held do not make unique and significant contributions to the model. Furthermore, the signs of the coefficients on both variables are negative, which is the opposite of the positive relationships predicted in the hypotheses.

Value of Options Issued to CEO as Incentive Pay has a t-test statistic of (-.47), with the p-value = .64. Its Beta coefficient is (-.04). CEO Options Held has a t-test statistic of (-1.36), with the p-value = .18. Its Beta coefficient is (-.12). This result indicates that the use of share options as part of CEO remuneration packages by Australian companies is not associated with prior period error corrections that adjust overstated prior year earnings.

These findings differ from the results of previous research, which found that high values of CEO stock options are significantly associated with an increased likelihood of earnings restatements (Burns & Kedia, 2006; Cheng & Warfield, 2005; Dechow et al., 1996; Efendi et al., 2007; Elayan et al., 2008; Harris & Bromiley, 2007). However, these studies came from the US, and previous research has also found that options are not used as frequently or systematically in Australia as in that country (Habib & Hossain, 2008). Furthermore, within some samples used in US studies the mean value of option grants is twenty to thirty times the value of cash bonuses (Harris & Bromiley, 2007). The relative importance of stock options as remuneration in the US is one explanation offered for findings that do not support hypotheses linking cash bonuses to restatements (Burns & Kedia, 2006; Harris & Bromiley, 2007).

Multivariate Testing of Hypotheses

Table 2 below shows the results of the regression modelling for the six hypotheses tested. The adjusted $R^2$ value reveals that the model explains 25 per cent of the variation in the dependant variable Earnings Correction. The adjusted $R^2$ provides a better estimate of the true value in the population than the normal $R^2$ when a small sample is used (Pallant, 2010). Hence, the adjusted value is more appropriate in this study and is the value that is relied on, although both are reported in the tables for comparative purposes. The analysis of variance F-test result of 5.99 is significant at p < .0005. This result indicates that the variance in the dependant variable is significantly explained by the independent variables, rather than the expected variability that is present within the variables due to chance (Pallant, 2010). Table below summarises the results for each of the variables included in the model. The independent variables Value of Options Issued to CEO as Incentive Pay, CEO Options Held, and the control variable Audit Quality did not make unique and statistically significant contributions to the model.
The following sections address each of the hypotheses tested in the regression model and discuss the results of each one in further detail. The model tested is expressed as: 

Earnings Correction = \( b_0 + b_1 \text{Ratio of CEO Bonus Pay to Salary} + b_2 \text{Value of CEO Options Issued as Incentive Pay} + b_3 \text{CEO Options Held} + b_4 \text{New Debt and Equity Finance} + b_5 \text{Poor EPS Performance} + b_6 \text{CEO Resigned} + b_7 \text{Audit Quality} + e \)

Table 2: The Multiple Regression Model Dependent Variable - Earnings Correction

<table>
<thead>
<tr>
<th>Variables</th>
<th>Hypothesis</th>
<th>Predicted</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Sign</td>
<td>Beta</td>
</tr>
<tr>
<td>(Constant)</td>
<td></td>
<td></td>
<td>-0.268</td>
</tr>
<tr>
<td>Ratio of CEO Bonus Pay to Salary</td>
<td>H1</td>
<td>+</td>
<td>0.249</td>
</tr>
<tr>
<td>Value of Options Issued to CEO as Incentive Pay</td>
<td>H2</td>
<td>+</td>
<td>-0.044</td>
</tr>
<tr>
<td>CEO Options Held</td>
<td>H3</td>
<td>+</td>
<td>-0.117</td>
</tr>
<tr>
<td>New Debt and Equity Finance Acquired</td>
<td>H4</td>
<td>+</td>
<td>0.232</td>
</tr>
<tr>
<td>Poor EPS Performance</td>
<td>H5</td>
<td>+</td>
<td>0.237</td>
</tr>
<tr>
<td>CEO Resigned</td>
<td>H6</td>
<td>+</td>
<td>0.192</td>
</tr>
<tr>
<td>Audit Quality Control</td>
<td></td>
<td>?</td>
<td>0.03</td>
</tr>
</tbody>
</table>

R\(^2\): .300, Adjusted R\(^2\): .250, F-test: 5.99\(^b\), Sig.: .000\(^a\), N=106

- a. Predictors: (Constant), Audit Quality, Poor EPS Performance, CEO Resigned, CEO Options Held, Ratio of CEO Bonus Pay to Salary, Value of Options Issued to CEO as Incentive Pay, New Debt and Equity Finance Acquired
- b. Dependent Variable: Earnings Correction

* Significant at the 0.05 level (2-tailed). ** Significant at the 0.01 level (2-tailed).

Earnings Correction = The effect of the error on Earnings Per Share (EPS). Or, (EPS in PY - Corrected EPS).

Ratio of CEO Bonus Pay to Salary = CEO cash bonus divided by fees and salary, averaged across disclosure year (DY) and prior year (PY).

Value of CEO Options Issued as Incentive Pay = Value (as disclosed) of options granted to the CEO as incentive pay in DY and PY.

CEO Options Held = Average number of options held by CEO at beginning of DY (end of PY) and end of DY.

New Debt and Equity Finance Acquired = Total change in debt and equity capital in DY and year following disclosure (DY+1).

Poor EPS Performance = The change in Earnings Per Share (EPS) performance. Or, (EPS in DY - EPS in PY).

CEO Resigned = 1 for firms whose CEO resigned between the end of PY and the end of DY, 0 otherwise. Audit Quality = 1 for firms that were audited by a ‘Big Four’ Audit Firm, 0 otherwise.

Four of the independent variables contribute significantly to the model. These are the same four variables that have statistically significant Pearson correlations with the dependent variable. Table 3 shows these variables with their Pearson’s product moment values highlighted. Ratio of CEO Bonus Pay to Salary has a Pearson’s of .353, significant at the 0.01 level with a 2-tailed test. New Debt and Equity Finance Acquired has a correlation of .346, significant at the 0.01 level with a 2-tailed test. Poor EPS Performance has a Pearson’s of .304, significant at the 0.01 level with a 2-tailed test. CEO Resigned has a correlation of .221, which is significant at the 0.05 level with a 2-tailed test. Furthermore, all four correlation coefficients have the positive signs predicted by their corresponding hypotheses.
### Table 3:
*Pearson Correlations on Variables in the Model*

<table>
<thead>
<tr>
<th></th>
<th>Earnings Correction</th>
<th>Ratio of CEO Bonus Pay to Salary</th>
<th>Value of Options Issued to CEO as Incentive Pay</th>
<th>CEO Options Held</th>
<th>New Debt and Equity Finance Acquired</th>
<th>Poor EPS Performance</th>
<th>CEO Resigned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ratio of CEO Bonus Pay to Salary</td>
<td>0.353**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value of Options Issued to CEO as Incentive Pay</td>
<td>0.084</td>
<td>0.229*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEO Options Held</td>
<td>-0.141</td>
<td>0.042</td>
<td>0.085</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Debt and Equity Finance Acquired</td>
<td>0.346**</td>
<td>0.337**</td>
<td>0.380**</td>
<td>-0.054</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor EPS Performance</td>
<td>0.304**</td>
<td>0.151</td>
<td>0.017</td>
<td>0.017</td>
<td>0.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEO Resigned</td>
<td>0.221*</td>
<td>0.004</td>
<td>-0.093</td>
<td>-0.101</td>
<td>0.027</td>
<td>0.02</td>
<td>0.02</td>
</tr>
<tr>
<td>Audit Quality</td>
<td>0.133</td>
<td>0.146</td>
<td>0.235*</td>
<td>-0.094</td>
<td>0.230*</td>
<td>0.024</td>
<td>0.034</td>
</tr>
</tbody>
</table>

* * Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Earnings Correction = The effect of the error on Earnings Per Share (EPS). Or, (EPS in PY - Corrected EPS). Ratio of CEO Bonus Pay to Salary = CEO cash bonus divided by fees and salary, averaged across disclosure year (DY) and prior year (PY). Value of CEO Options Issued as Incentive Pay = Value (as disclosed) of options granted to the CEO as incentive pay in DY and PY. CEO Options Held = Average number of options held by CEO at beginning of DY (end of PY) and end of DY. New Debt and Equity Finance Acquired = Total change in debt and equity capital in DY and year following disclosure (DY+1). Poor EPS Performance = The change in Earnings Per Share (EPS) performance. Or, (EPS in DY – EPS in PY). CEO Resigned = 1 for firms whose CEO resigned between the end of PY and the end of DY, 0 otherwise. Audit Quality = 1 for firms that were audited by a ‘Big Four’ Audit Firm, 0 otherwise.
**Result for Hypothesis 4:**

Hypotheses four is supported by the multivariate testing. The independent variable *New Debt and Equity Finance Acquired* has a t-test statistic of 2.40, which is statistically significant at $p < .05$ with a 2-tailed test. This indicates that the composite variable *New Debt and Equity Finance Acquired* makes a unique and significant contribution to the model. Its Beta or standardised coefficient is .23, and it has the positive sign predicted in hypothesis four. This result indicates that acquiring new equity finance is associated with corrections to errors made under AASB 108 that reduced previously overstated prior period earnings.

**Result for Hypothesis 5:**

Hypotheses five is supported by the multivariate testing. The independent variable *Poor EPS Performance* has a t-test statistic of 2.76, which is statistically significant at $p < .01$ with a 2-tailed test. This indicates that the variable *Poor EPS Performance* makes a unique and significant contribution to the model. Its Beta or standardised coefficient is .24, and it has the positive sign predicted in hypothesis five. Thus, companies experiencing poor performance relative to the prior year are more likely to disclose prior period error corrections under AASB 108 that reduce prior year earnings.

**Result for Hypothesis 6:** CEO change will be positively associated with prior period error corrections that reduce previously reported earnings.

Hypotheses six is supported by the multivariate testing. The independent variable *CEO Resigned* has a t-test statistic of 2.25, which is statistically significant at $p < .05$ with a 2-tailed test. This indicates that the variable *CEO Resigned* makes a unique and significant contribution to the model. Its Beta or standardised coefficient is .19, and it has the positive sign predicted in hypothesis six. Hence, companies experiencing a change of CEO are more likely to disclose prior period error corrections that reduce previously overstated earnings in prior years.

**Tests of Robustness**

A number of tests of robustness were performed in order to check the sensitivity of the results, for the model and the independent variables. In addition to the tabulated results provided in this section, numerous alternative versions of the model and the independent variables were tested.

The impact of changes in the model and the other variables on the final variables tested was quite consistent across the many versions, such that the four significant variables can be ranked in terms of their sensitivity and overall significance. The strongest result was for *New Equity Finance Acquired in DY*, which is an alternative version of the *New Debt and Equity Finance Acquired* variable that is discussed in section. This variable is highly significant and least sensitive to changes in the model and variables.

The next strongest result was for Ratio of *CEO Bonus Pay to Salary*, followed by *CEO Resigned*, with *Poor EPS Performance* the weakest of the four significant variables. In addition to the tests for the model and the independent variables, some checks were performed in relation to the control variables.

**Windsorised Dependant Variable**

An alternative model using a Windsorised version of the dependant variable was tested. The results are presented in Table 4, and are consistent with those reported above in the previous sections dealing with the final model. To perform this test, the value of the dependent variable for the influential outlier was adjusted down to match the value of the next observation. Cook’s Distance statistic (Pallant, 2010) was relied on to confirm that the most extreme observation was also the one exerting influence on the result and therefore the one that should be Windsorised and tested.
Table 4: Robustness Test with Windsorised Dependant Variable

<table>
<thead>
<tr>
<th>Variables</th>
<th>Hypothesis</th>
<th>Standardized Coefficients</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Predicted Sign</td>
<td>Beta</td>
<td>T statistic</td>
<td>Sig. (2-tailed)</td>
</tr>
<tr>
<td>(Constant)</td>
<td>-0.152</td>
<td>0.88</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ratio of CEO Bonus Pay to Salary</td>
<td>H1</td>
<td>+</td>
<td>0.24</td>
<td>2.594</td>
<td>0.011</td>
</tr>
<tr>
<td>Value of Options Issued to CEO as Incentive Pay</td>
<td>H2</td>
<td>+</td>
<td>-0.041</td>
<td>-0.432</td>
<td>0.666</td>
</tr>
<tr>
<td>CEO Options Held</td>
<td>H3</td>
<td>+</td>
<td>-0.126</td>
<td>-1.44</td>
<td>0.153</td>
</tr>
<tr>
<td>New Debt and Equity Finance Acquired</td>
<td>H4</td>
<td>+</td>
<td>0.219</td>
<td>2.23</td>
<td>0.028</td>
</tr>
<tr>
<td>Poor EPS Performance</td>
<td>H5</td>
<td>+</td>
<td>0.226</td>
<td>2.593</td>
<td>0.011</td>
</tr>
<tr>
<td>CEO Resigned</td>
<td>H6</td>
<td>+</td>
<td>0.187</td>
<td>2.155</td>
<td>0.034</td>
</tr>
<tr>
<td>Audit Quality</td>
<td>Control</td>
<td>?</td>
<td>0.035</td>
<td>0.384</td>
<td>0.702</td>
</tr>
</tbody>
</table>

R² = .280, Adjusted R² = .229, F-test = 5.44b, Sig. = .000a, N=106

a. Predictors: (Constant), Audit Quality, Poor EPS Performance, CEO Resigned, CEO Options Held, Ratio of CEO Bonus Pay to Salary, Value of Options Issued to CEO as Incentive Pay, New Debt and Equity Finance Acquired
b. Dependent Variable: Windsorised Earnings Correction

Control Variables

Tests were performed on the control variables in an effort to ensure the matching process was effective, and that the factors that needed to be controlled for in the model had been adequately tested.

A model consisting only of control variables was tested on a reduced sample consisting only of the error companies. This nullified the matching process and allowed testing for the significance of the control variables without the presence of the independent variables. Only Size approached significance, with a t-test statistic of 1.92 and p = .060.

The untransformed size variable, Total Assets in Disclosure Year, was also added to the multivariate model and tested on the error company sample. The untransformed size variable was significant at p = .002, with a standardised Beta of .650 and a t-test statistic of 3.22. However, the variable had high collinearity (VIF of 5.215, Tolerance of .19). Alternative versions of the control variables Debt to Assets and Interest Coverage, measured in each of the prior year and the disclosure year, rather than averaged across the two were also tested. None of these alternative versions was significant.

Conclusion

Descriptive statistics indicated that this research took place against an economic setting of falling profits in the early stages of the global financial crisis. The average change in performance was negative for all firms, although the error firms performed more poorly than their matched counterparts. Average earnings in the disclosure year remained positive for the matched companies, whereas the error companies made a mean loss in that year.
Consistent with Healy (1985), but unlike the findings of some recent studies from the US (Burns & Kedia, 2006; Harris & Bromiley, 2007), strong support was found for the hypothesis that CEO cash bonuses were associated with earnings corrections. Those companies with a high ratio of CEO cash bonus to salary were more likely to overstate earnings, and hence disclose an error correction under AASB 108 that adjusted previously reported earnings downward.

CEO stock options were not found to be associated with prior period error corrections and hypotheses two and three were rejected. This result differed from those of many US studies, which have consistently found stock options to create a strong incentive to manage earnings (Burns & Kedia, 2006; Cheng & Warfield, 2005; Dechow et al., 1996; Efendi et al., 2007; Elayan et al., 2008; Harris & Bromiley, 2007). Neither the value of options issued as incentive pay, nor the number of options held by the CEO were significant within the multivariate model. Furthermore, the coefficients of both variables were negative and remained so throughout the sensitivity testing. This study found no evidence that the use of CEO stock options increases the likelihood of an earnings correction under AASB 108.

Multivariate testing found support for the hypothesis that an association existed between the resignation of the company CEO and a prior period error earnings correction. Examination of the raw data revealed a case that could be an example of big bath accounting by an incoming CEO. Additional Univariate testing on this variable revealed that a significant difference existed between the error sample and the matched firms.

Management compensation incentive schemes, in the form of cash bonuses, options issued as incentive pay and CEO holdings of options were expected to create incentives for management to overstate profits in order to maximise their personal wealth. These incentives were therefore expected to be positively associated with earnings corrections that reduced prior year overstated earnings. The results of the multivariate testing of hypotheses one, two and three found that only cash bonuses are associated with earnings corrections in Australia. The association was positive and highly significant, making this a strong result. High ratios of cash bonus to salary are associated with corrections of previously overstated earnings in Australian companies. CEO holdings of stock options and options issued as incentives are not.

Several limitations should be considered when analysing the contribution of this research. Firstly, the sample size is small due to the need to ensure comparability at a time when International Financial Reporting Standards were transitioning to full mandatory application in Australia. Australian Accounting Standard AASB 108 (IAS 8) was fully applied by reporting entities in the 2008 year. The new third balance sheet requirement must be applied to reporting periods beginning on or after 1 January 2009. The desire to collect a sample that was affected by as few confounding factors as possible therefore limited the timeframe used.

Secondly, the standard applies to changes in accounting policies and revisions of estimates as well as errors. Companies that applied the standard for these reasons were not included in the sample, although it is possible that these methods could also be used to manage earnings. Although the decision to exclude these companies reduced the sample size, it was made to improve the comparability of the research to other studies, and to limit confounding influences.

References


International Accounting Standards Board. (2010a). Accounting Policies, Changes in Accounting Estimates and Errors - Basis for Conclusions. *International Accounting Standard IAS 8*

International Accounting Standards Board. (2010b). Presentation of Financial Statements - Basis for Conclusions. *International Accounting Standard IAS 8*


