# THE IMPACT OF AUDIT QUALITY ON EARNINGS CONSERVATISM: AUSTRALIAN EVIDENCE

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Key Words: Audit Quality; Earnings; Losses; Cash flows; Accruals; Conservatism.

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**The Impact of Audit Quality on Earnings Conservatism: Australian Evidence**


## Abstract

This paper examines the relation between auditor quality and the extent to which firms report conservative earnings. The term conservatism is used to describe a property of earnings which arises when accounting earnings are more timely in reflecting bad news regarding economic earnings, compared to good news. Extending the analysis of Taylor and Taylor (2003) which provides evidence of earnings conservatism in an Australian setting, this paper considers what impact, if any, differential audit quality has on the level of conservatism in reported earnings. Existing evidence on audit quality leads to an expectation that high quality auditors may have greater incentive to encourage more conservative earnings reporting practices. Using a conventional proxy for audit quality – Big Six vs Non-Big Six auditors I partition three different tests of conservatism to examine differences in sub-samples of Big Six and Non-Big Six auditee earnings conservatism. Each of the models of conservatism is then extended to incorporate a series of audit quality dummy variables and interaction terms which attempts to quantify any shift in earnings conservatism that is observed where audit quality differs. Contrary to expectations, the results of all three tests fail to provide evidence of any difference in the extent of conservatism arising as a result of differential audit quality.



Key Words: Audit Quality; Earnings; Losses; Cash flows; Accruals; Conservatism.

## 1. Introduction

Earnings conservatism has generally been considered a desirable feature of an accounting system - it is rare for a firm's accounting policy choices to be criticised as too conservative. Shareholders, regulators and financial statement users in general are believed to be more concerned about earnings overstatements than understatements and in the wake of recent high profile corporate collapses, allegations have again arisen that the accounting and auditing process has failed to ensure the timely reporting of bad news[1]. Although managers are responsible for preparing the accounts, reported earnings are a joint product of management and the auditor. Accordingly, this paper investigates whether differential audit quality plays any role in the extent to which reported earnings are conservative.

Although there is no single accepted definition of accounting conservatism, earnings conservatism in this paper refers to the manner in which accounting earnings incorporate the effects of good and bad news, such that the impact of bad news is almost immediate and comprehensive, while the impact of good news is typically delayed and incorporated over a number of years[2]. For example the practice of immediately writing down net assets in response to economic "bad news" indicating a decline in the useful life of an asset means that earnings immediately reflect this bad news. However, where there is an increase in the useful

[1] For example Dechow, Sloan and Sweeney (1996) investigate a sample of SEC enforcement actions against US firms. Table 3 lists the types of earnings manipulation identified in the SEC actions and all relate to either overstatement of revenues, delayed recognition of losses or expenses, overstatement of asset values, understatement of liabilities, some combination of these four. All but 4% of the firm's targeted by the SEC in the sample had a problem with earnings and/or net assets being too high. The other 4% related to disclosure issues. There were no cases of earnings or assets being understated.

[2] Broadly speaking, conservatism is captured by the expression "anticipate no profits but anticipate all losses" (Bliss, 1924). In discussing the increasing incidence of losses and the reduced value relevance of earnings among United States firms, Givoly and Hayn (2000, p.292) adopt the definition that conservatism is reflected in "accounting principles that lead to the minimization of cumulative reported earnings". Their concept of

life of an asset i.e., economic "good news", no corresponding increase in net assets or income is recognised – rather there is a decline in the depreciation expense and increase in earnings over the remaining life of the asset. This results in asymmetry in the recognition of good and bad news in earnings – earnings reflects bad news more quickly than good news (Basu, 1997). This "news driven" definition of conservatism is consistent with the endogenous impact of contracting, political, litigation and taxation issues faced by managers in providing financial reports (Holthausen and Watts, 2001).

A number of papers have utilised the definition and methodology adopted by Basu (1997) to provide empirical evidence of news-based earnings conservatism internationally[3]. Evidence of earnings conservatism in Australia arising from asymmetric recognition of good and bad news is provided in (at least) two papers. Ball et al (2000) include Australia in a comparison of earnings conservatism across a number of common and code law countries. Ball et al test for asymmetric timeliness using a reverse regression of returns and earnings. They document a stronger relation between returns and earnings where stock returns are negative, a proxy for economic bad news. Taylor and Taylor (2003) provide more comprehensive tests of earnings conservatism and show similar results to those of Ball et al for timeliness, as well as incorporating tests of earnings persistence and the reversal of accruals. Taylor and Taylor also investigate the extent to which "news-based" conservatism is related to firm characteristics such as size and market-to-book ratio – a proxy for inherent conservatism suggested by Pope and Walker (2001).

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conservatism is pervasive and thus differs from the news-based definition of conservatism which is applied in this paper.

[3] These include Ball, Kothari and Robin (2000), Ball, Robin and Wu (2001), Basu, Hwang and Jan (2001), Giner and Rees (2001) and Pope and Walker (1999,2001).

The requirement that financial reports be audited introduces another possible source of earnings conservatism. External audits are a valuable and efficient form of monitoring used by firms (Watts and Zimmerman (1983, 1986)). Basu (1997) notes that the conservatism principle evolved in conjunction with audited financial statements as a means of management bonding against exploiting their position of information asymmetry. Likewise Ball et al (2000) suggest that conservatism facilitates monitoring, and therefore has an important governance role in conjunction with auditing.

Statement of Accounting Concepts 3 (SAC 3, paragraph 21) states that "General purpose financial reporting should, if it is to be reliable, be free from bias (that is, be neutral). It should not be designed to lead users to conclusions that serve particular needs, desires or preconceptions of the preparers." Paragraph 23 continues to state that "The role of independent audit is important in relation to reliability." Theoretically an auditor's role is to increase reliability of financial reporting in a neutral manner - auditing is believed to increase the credibility of financial reporting due to the auditor's role in reducing the likelihood of deliberate misreporting of income. Despite the neutral aim of financial reporting encouraged by SAC 3, conservatism is well entrenched in accounting standards, both in Australia and internationally. This inherent tendency towards conservatism in GAAP, combined with the self-interest of auditors may result in a biased evaluation of the reliability of reported earnings.

Specifically, I expect that auditors will be more concerned with preventing earnings overstatements, as opposed to earnings understatements due to potential legal liability. Almost without exception, auditors are typically only sued where there have been allegations

of artificially inflated earnings[4]. Thus the independent auditor may impose a conservative bias on reported earnings. A number of areas of the auditing literature have examined the role of auditors in relation to reported earnings. Studies of earnings management and discretionary accruals by Becker, DeFond, Jiambalvo and Subramanyam (1998) and DeFond and Subramanyam (1998) have identified a lower level of discretionary accruals among firms with Big Six auditors. Francis, Maydew and Sparks (1999) observes that firms with a higher propensity to generate accruals act on incentives to hire a Big Six auditor to signal the credibility of reported earnings in the presence of large accruals. One conclusion which may be drawn from these studies is to confirm that auditors do have a role in the characteristics of reported income. Further it appears that high quality auditors, proxied as Big Six auditors, impose a greater constraint on "undesirable" reporting practices such as the use of discretionary accruals to manipulate earnings.

Basu, Hwang and Jan (2001) specifically examine the impact of auditor quality on earnings conservatism for a sample of US firms. The authors show that earnings reported by US firms are more conservative when they are also audited by a Big Eight auditor. Similar to Base et al (2001), this paper revisits the existence of news-based conservatism in Australian earnings, as a basis for examining whether differential audit quality results in any differences in the extent to which such conservatism exists. Conservatism is measured using three tests: of timeliness in reflecting good and bad news in economic earnings; of the persistence of earnings declines and earnings increases; and of the reversal of accruals relative to increasing or declining cashflows.

[4] There have been some reports of cases in the United States where shareholders are suing for "losses" due to selling their shares because earnings were artificially depressed, however I am unaware of any successful cases of this nature in Australia.

The results indicate that as with prior evidence, news-based conservatism is present in this sample. Also consistent with prior literature, the evidence of conservatism is strongest for the first two tests (timeliness and persistence). However, almost without exception, there is no evidence of any material differences in the extent to which this conservatism exists for Big Six and Non-Big Six auditee firms. Explanations for this lack of a result include the possibility that the tests are incorrectly specified or lack sufficient power to detect the hypothesised effect. An alternative explanation may be that the proxy for audit quality is not sufficiently sophisticated to isolate any impact of greater quality on the conservatism measures. A final possibility is that there is endogeneity in the choice of auditor and level of conservatism in financial statements that the current tests do not control for.

This paper proceeds as follows. Section two briefly reviews the literature on conservatism, auditor quality and the influence of auditors on reported earnings. Section three describes the data and methodology, while section four presents the primary results. Section five reviews some additional tests of robustness and the implications of the results or lack thereof. Section six concludes.

## 2. Literature Review

### 2.1 Tests of Conservatism

A number of approaches have been taken to investigating the extent and impact of conservatism. As noted in the introduction, there are at least two ways to view conservatism and the methodology used typically reflects the type of conservatism being investigated. Although my focus is news-based conservatism I use three different approaches to measure the extent of news-based conservatism and also perform some sensitivity analysis to investigate the impact of different disclosure practices and the extent of pervasive conservatism.

Basu (1997) adopts a definition of conservatism which I characterise as news-based conservatism. He expects that if earnings are conservative there will be differences in the relationship between earnings and stock returns, conditional on the type of "news" which the market has received in the period. Overall, Basu expects that earnings will reflect bad news in a more timely fashion. He proxies bad news as negative stock returns, and good news as positive stock returns and estimates a reverse regression of annual earnings and contemporaneous stock returns.

A number of limitations exist when using this approach to investigating conservatism. Most notably Dietrich et al. (2002) highlight the truncation of the sample that occurs when firms are divided into those with positive and negative stock returns. Because negative returns have a lower bound of minus one (-1), the "bad news" sub-sample has a considerably lower standard deviation, compared to the "good news" sub-sample. Dietrich et al. argue that this truncation introduces an econometric bias into the estimation and that the significance of the

"bad news" coefficients and increased adjusted $R^2$ are merely an econometric artefact. They also question the validity of the reverse regression approach as implying that returns cause earnings. They conclude that the interpretation of the coefficients may be problematic due to questions of causality and bias arising from the research design.

In order to address some of the concerns raised by Dietrech et al. (2002) regarding the reverse regression methodology, I consider alternative tests of earnings conservatism. A consistent result across a range of tests would suggest the results are robust to the potential bias induced by this particular methodology.

As well as testing the differences in intercept and slope coefficients for positive and negative share returns Basu (1997) also tests for conservatism by examining the extent to which positive and negative earnings changes reverse in the following period. Differences in the persistence of earnings decreases and increases may arise due to the nature of GAAP which will typically require immediate write-offs in relation to "bad news", while the effect of "good news" takes many periods to be realised in earnings. Basu argues that if a decline in earnings represents the outcome of conservative accounting it should be transitory in nature and more likely to be followed by an increase in earnings. This method of testing for conservatism also has some limitations due to the requirement of a time-series of earnings data for each firm and the assumption that no significant structural changes have occurred that would make the calculation of earnings changes from year to year meaningless.

My final test to detect conservatism is based on Ball and Shivakumar (2002) and Dechow, Kothari and Watts (1998). Ball and Shivakumar investigate the relation between the current

period change in cash flows and the current period level of accruals. Ball and Shivakumar (2002) suggest that where cash flows increase, accruals are likely to be low since the cash flows should represent economic gains which are not accounted for until realised. Conversely, where cash flows decline, this may represent economic losses, which were recognised in prior periods, and thus accruals will be higher in the current period. Again, this test requires cash flow data for at least two years to calculate the change and assumes that the comparison between the two years is valid. Dechow et al provide evidence that changes in cash flows should be correlated with changes in accruals, which reverse over time as the relevant cash flows occur. Accordingly I use a slightly different specification of this test than Ball and Shivakumar – focusing on the relation between changes in cashflows and changes in accruals.

The first two of these three approaches have been applied in a number of contexts by various authors.[5] Basu (1997) uses tests of the timeliness of earnings in reflecting good and bad stock returns and of the persistence of earnings changes to investigate conservatism in a large sample of US listed firms and finds evidence of conservatism using both tests. Using the reverse regression methodology, Pope and Walker (1999, 2001) document similar evidence of conservatism for UK firms, while Giner and Rees (2001), Ball et al. (2000) and Ball et al. (2001) all provide international comparisons which demonstrate that conservatism is a persistent phenomenon, although the extent varies due to differences in institutional factors between countries.

[5] These include Pope and Walker (1999), Givoly and Hayn (2000), Ball et al. (2000), Ball et al. (2001), Holthausen and Watts (2001), Giner and Rees (2001) and Pope and Walker (2001).

Taylor and Taylor (2003) provides detailed evidence on conservatism using all three of these tests in an Australian context. Their evidence shows that timeliness and persistence of earnings are significantly greater for bad news compared with good news, consistent with conservatism. The third test of correlation between cash flow and accrual changes is less conclusive however the balance of the evidence supports the conclusion that news-based earnings conservatism does exist in Australian earnings.

## 2.2 Evidence of Audit Quality

DeAngelo (1981) describes audit quality as reflecting the joint probability of finding and reporting a breach. This definition contains essentially two components: likelihood of detecting a breach or auditor competence, and likelihood of reporting a breach once it is discovered or auditor independence.

The existence of apparent differences in audit quality has long been inferred in the literature. Craswell, Francis and Taylor (1995) document the fact that "Big" audit firms are able to charge a significant fee premium. This and similar studies interpret the significant fee premium as indicating superior quality of the audit service provided by Big Eight/Six/Five, relative to smaller Non-Big Six auditors. There are at least two possible explanations for this higher quality audit. First, it is argued that the competence of auditors in large firms is improved by in-house training and support that are not possible on a similar scale at the smaller firms. Economies of scale give the larger audit firm a relative advantage in investing in the technical competence of audit staff. The second argument is that because of their larger client base, larger audit firms are less likely to suffer impaired independence arising from fee

dependence[6]. Thus it is expected that the probability of both detecting and reporting a breach will be higher, resulting in a higher quality audit.

Another commonly used measure of audit quality is auditor specialisation in specific industries or even geographical locations. Craswell, Francis and Taylor (1995) and, more recently, Ferguson, Francis and Stokes (2003) demonstrate that significant fee premiums may be earned by firms with specialised expertise and experience within an industry. The fee premiums are presumed to be a reward for the higher quality audit performed by an auditor with specialist knowledge of an industry. Evidence that Big Six and specialist auditors are able to earn significant fee premiums from producing a quality audit creates an incentive for auditors to maintain a reputation for quality and thus maintain the fee premium. In this study only one measure of audit quality is used – proxied as the difference between Big Six (high quality) and Non-Big Six (low quality) auditors.

### 2.3 Audit Quality and Earnings Quality

As noted above, the requirement that firms have their financial statements audited introduces an alternative source of conservatism in earnings. Although the auditor does not bear legal responsibility for compiling the accounts, it is beyond dispute that they are expected to influence the outcome. It is typically assumed that managers have incentives to be optimistic, and because auditors are more likely to be called to account for permitting overly aggressive accounting I expect that the impact of auditing is to impose greater conservatism on a firm than would otherwise be evident in the financial statements. Accordingly a "high quality" audit is not necessarily one which presents the most accurate financial statements, but rather

[6] Although a recent paper by Craswell, Laughton and Stokes (2002) fails to find any clear evidence consistent with fee dependence compromising auditor independence.

one which prevents earnings overstatements. The asymmetric loss function auditors face provides them with incentives to impose a conservative bias on firms, or at the very least to constrain overly aggressive accounting. The extent to which auditors actually perform this function is expected to vary for high and low quality auditors and therefore the impact of audit quality on conservatism is examined through sub-samples of Big Six and Non-Big Six clients.

Evidence that audit quality affects the financial reporting has been documented in a number of contexts. Several papers have investigated the impact of audit quality on unexpected accruals, a measure of earnings management, and find that unexpected accruals are lower for firms with a high quality (characterised as Big Eight/Six/Five) auditor and that high quality auditors are more likely to report a modified opinion where accruals are high.[7] Lennox (1999) finds that, in the UK Big Six auditors more accurately predict financial distress among client firms. The general conclusion that can be drawn from such papers is that Big Six auditors are more likely to detect and constrain aggressive activity, while non-Big Six auditors are either more liberal in what they allow, or possibly fail to detect any potential problems.

Basu et al. (2001) investigates the impact of audit quality on news-based conservatism by applying the methodology of Basu (1997) to a sample of US firms. Basu et al. note the existing evidence that (then) Big Eight auditors tend to be more "conservative" using more traditional earnings measures (such as unexpected or actual accruals) and then investigate whether there is also evidence of auditor conservatism through asymmetric timeliness in the recognition of good and bad economic news in accounting earnings. Basu et al. also

[7] Examples include Becker, DeFond, Jiambalvo and Subramanyam (1998), DeFond and Subramanyam (1998), Francis, Maydew and Sparks (1999) and Francis and Krishnan (1999).

investigate whether the persistence of earnings increases and decreases is related to audit quality. The results of Basu et al. indicate that there is an auditor effect on conservatism and that, as expected, earnings of firms with a Big Eight auditor are more conservative based on both their measures of conservatism. The emphasis in Basu et al is in associating time periods of greater conservatism by auditors, with high levels of litigation against auditors. This paper performs similar tests of the impact of auditor quality on conservatism to those used by Basu et al. with the addition of the modification of the accruals-cash flow test of Ball and Shivakumar (2002).

An interesting feature of the Australian market is that a significant minority of publicly listed firms (39%) are audited by non-Big Six auditors, compared with less than 20% in the US (Basu et al. 2001). This allows for a more robust examination of the extent to which differential levels of audit quality, proxied by the distinction between large and small auditors, affect earnings conservatism. Auditing requirements in Australia are generally similar to those in the United States and United Kingdom. Although the likelihood of an auditor being sued, and the amount of damages likely to be awarded, in Australia and the UK is somewhat reduced by the legal systems in place, there is evidence to indicate that high quality (Big Six) auditors receive a fee premium (Craswell, Francis and Taylor, 1995). To protect the fee premium, auditors will have an incentive to perform a high quality audit, even absent a strong threat of litigation.

## 3. Data and Methodology

### 3.1 Methodology

The analysis consists of three alternative tests for conservatism: the timeliness of recognition of good and bad news; persistence of earnings increases and decreases; and the relation between cash flow changes and accruals. This analysis is then repeated on sub-samples of Big Six and non-Big Six auditees to investigate the impact of audit quality on the conservatism relation. The audit quality analysis is also run on a combined sample with additional slope and intercept terms to capture the incremental effect of audit quality.

As noted in the introduction, I initially follow the definition of conservatism offered by Basu (1997), namely that earnings will more fully reflect bad news (as reflected in contemporaneous stock returns) than good news. Put differently, earnings will be more timely for bad news than for good news, and an explicit control for this effect should improve the extent to which earnings can be explained by contemporaneous stock returns. Timeliness is therefore measured by the slope coefficient from Beaver, Lambert and Morse (1980) "reverse" regressions, with annual earnings as the dependent variable. Stock returns are used to partition the sample into good news and bad news firms.[8] Negative returns are used as a proxy for bad news and positive returns are used as a proxy for good news. Asymmetric timeliness in recognising good and bad news is tested using separate intercept
and slope coefficients for good and bad news.

The first pooled cross-sectional regression is of annual accounting income on contemporaneous annual returns, which establishes the overall extent of timeliness of annual

[8] Under the efficient market hypothesis, stock prices efficiently reflect value-relevant information received about a firm. Stock prices reflect information received from sources other than current earnings, stock prices lead accounting earnings, by up to four years (Ball and Brown, 1968; Beaver, et al., 1980; Kothari and Sloan, 1992).

earnings, where timeliness is simply the extent to which earnings reflects contemporaneous returns, viz:

$$OI_{it} = \alpha_0 + \beta_0 RET_{it} \quad (1)$$

Where:

$OI_{it}$ = Operating income for firm *i* in year *t* deflated by $MVE_{t-1}$,

$MVE_{it-1}$ = Beginning of period market value of equity for firm *i* in year *t*,

$RET_{it}$ = annual share return for firm *i* in fiscal year *t*.

The second pooled cross-sectional regression incorporates the dummy variables for negative returns. This explicitly allows for conservatism, in that $\beta_1$ is expected to be positive and significant, consistent with greater timeliness of earnings in reflecting bad, rather than good news.

$$OI_{it} = \alpha_0 + \alpha_1 DRET_{it} + \beta_0 RET_{it} + \beta_1 RET_{it} * DRET_{it} \quad (2)$$

Where:

$DRET_{it}$ is a dummy return variable; taking the value of one (1) if $R_{it} < 0$; zero (0) otherwise

This approach to measuring the degree of conservatism is premised on the assumption that, although periodic accounting reports may recognize good news more slowly than bad news, stock prices exhibit no such bias. Hence, it is a maintained assumption that there is timely ad-

hoc disclosure of both good and bad news which could be expected to impact investors' expectations. As mentioned above, ASX-listed firms are required to provide price relevant disclosure on a continuous basis, which is consistent with Basu's maintained hypothesis.

To avoid the problems associated with regressing earnings on contemporaneous stock returns Basu also performs tests of the time series properties of earnings, through examining changes in earnings. Basu predicts that the asymmetric timeliness of earnings in reflecting good and bad news should result in differing levels of earnings persistence. Specifically, Basu predicts that bad news impacts earnings immediately but the effect does not persist, while good news takes longer to be reflected in earnings but is more likely to persist in future periods, hence bad news reverses and good news persists. His results are consistent with these predictions. I extend the analysis of earnings conservatism to consider changes in earnings (earnings persistence) using the following regression:

$$\Delta Y_{it} = \alpha_0 + \beta_0 \Delta Y_{it-1} \qquad (3)$$

Where:

$\Delta Y_{it}$ = change in operating income for firm *i* in fiscal year *t* deflated by $MVE_{t-1}$,

$\Delta Y_{it-1}$ = change in operating income for firm *i* in fiscal year *t-1* deflated by $MVE_{t-2}$,

$MVE_{t-2}$ = beginning of period market value of equity for firm *i* in fiscal year *t-1*.

This simple model of earnings changes is then expanded to include a dummy variable denoting whether the change in earnings is positive or negative.

$$\Delta Y_{it} = \alpha_0 + \alpha_1 DY_{it-1} + \beta_0 \Delta Y_{it-1} + \beta_1 \Delta Y_{it-1} * DY_{it-1} \quad (4)$$

Where:

$DY_{it}$ is a dummy change variable, taking the value of one (1) if $\Delta Y_{it-1} < 0$; equals zero (0) otherwise.

The final test of earnings conservatism investigates the relation between the change in operating cash flows and current period accruals. Ball and Shivakumar (2002) posit this test as an alternative to Basu's persistence test. Dechow (1994) demonstrates that accruals reduce noise in cash flows and that accruals and cash flows are negatively correlated. Ball and Shivakumar expect that economic losses are anticipated by accruals and therefore are less likely to be immediately realised as cash than economic gains. Accordingly, conservatism implies asymmetry in the relation between accruals and cashflows which is examined using the following two regressions:

$$\Delta ACC_{it} = \alpha_0 + \beta_0 \Delta CFO_{it} \quad (5)$$

Where:

$\Delta ACC_{it}$ = change in accruals for firm *i* in fiscal year *t* i.e., $ACC_{it} - ACC_{it-1}$. Accruals are calculated as the difference between operating income and cash from operations for any year *t*, deflated by $TASS_{t-1}$,

$\Delta CFO_{it-1}$ = change in cash from operations for firm *i* in fiscal year *t* deflated by $TASS_{t-1,}$

$TASS_{t-1}$ = beginning of period total assets for firm *i* in fiscal year *t*.

I then expand this simple model of changes in accruals to include a dummy variable denoting whether the change in cashflows is positive or negative.

$$\Delta ACC_{it} = \alpha_0 + \alpha_1 DCFO_{it} + \beta_0 \Delta CFO_{it} + \beta_1 \Delta CFO_{it} * DCFO_{it} \quad (6)$$

Where:

$DCFO_{it}$ is a dummy change variable, taking the value of one (1) if $\Delta CFO_{it} < 0$; equals zero (0) otherwise.

Conservatism would imply a higher positive relation between changes in accruals when cash flows have decreased as it is likely the negative impact on earnings was recognised in a prior period i.e., that $\beta_1$ is positive.

The impact of audit quality is examined in two ways. The key regressions outlined above (2, 4 and 6) are re-performed on separate sub-samples of Big Six and non-Big Six clients. This provides some indication of whether the conservatism relation is different for the two groups. The second component of the audit quality analysis involves further extending the "expanded" regressions (2, 4 and 6) to incorporate intercept and slope coefficients for the effect of differential audit quality. These regressions are as follows:

$$OI_{it} = \alpha_0 + \alpha_1 DRET_{it} + \alpha_2 DB6_{it} + \alpha_3 DRET_{it} * DB6_{it} + \beta_0 RET_{it}$$
$$+ \beta_1 RET_{it} * DRET_{it} + \beta_2 RET_{it} * DB6_{it} + \beta_3 RET_{it} * DRET_{it} * DB6_{it} \quad (7)$$

Where:

$DB6_{it}$ is a dummy change variable, taking the value of one (1) if the auditor is a Big Six audit firm; equals zero (0) otherwise.

The impact of audit quality is shown by the sign and significance of the coefficients $\alpha_2$, $\alpha_3$, $\beta_2$ and $\beta_3$. If high quality auditors are associated with firms that report more conservative earnings the $\beta_2$ and $\beta_3$ coefficients should be significant and positive, indicating greater asymmetric timeliness in the recognition of good and bad news for these firms.

$$\Delta Y_{it} = \alpha_0 + \alpha_1 DY_{it-1} + \alpha_2 DB6_{it} + \alpha_3 DY_{it-1}*DB6_{it} + \beta_0 \Delta Y_{it-1}$$
$$+ \beta_1 \Delta Y_{it-1}*DY_{it-1} + \beta_2 \Delta Y_{it-1}*DB6_{it} + \beta_3 \Delta Y_{it-1}*DY_{it-1}*DB6_{it} \quad (8)$$

Regression (8) measures the impact of audit quality on the persistence of earnings increases and declines. More conservative earnings would imply that declines in earnings are one-period shocks, hence reverse almost immediately, while increases in earnings continue in subsequent periods. If there is an increase in the reversal of earnings declines, and in the persistence of earnings increases due to higher quality auditing the $\beta_2$ and $\beta_3$ coefficients should be significant and negative.

$$\Delta ACC_{it} = \alpha_0 + \alpha_1 DCFO_{it} + \alpha_2 DB6_{it} + \alpha_3 DCFO_{it}*DB6_{it} + \beta_0 \Delta CFO_{it}$$
$$+ \beta_1 \Delta CFO_{it}*DCFO_{it} + \beta_2 \Delta CFO_{it}*DB6_{it} + \beta_3 \Delta CFO_{it}*DCFO_{it}*DB6_{it} \quad (9)$$

The final regression measures whether the negative correlation between changes in accruals and cashflows is stronger for firms with a high quality auditor. Again if higher audit quality is associated with greater conservatism I would expect the $\beta_3$ coefficient to be significant and

positive. This would indicate that where cash flows decline and the auditor is high quality, the accruals do not increase to offset the decline in cash flows.

### 3.2 Data sources

The data for this paper is obtained from two sources. Financial statement data is obtained from the Aspect Financial Database. Operating income $OI_{it}$ is operating profit after tax (item 100). Net income $NI_{it}$ is calculated as operating income plus (minus) extraordinary items (item 104). Operating cash flow $CFO_{it}$ is cash flow from operations (item 820). Cash flow from operations and investments $CFOI_{it}$ is calculated as the sum of $CFO_{it}$ and cash flow from investments (item 870). Change in net income $\Delta Y_{it}$ is calculated as $OI_{it} - OI_{it-1}$. To control for heteroskedasticity all accounting variables are scaled by the beginning of financial year market value of equity $MVE_{it-1}$ obtained from the SPPR database and adjusted for capital adjustments and dividend distributions (Christie, 1987).[9] Auditor data is obtained from the Who Audits Australia? database.

Share returns are measured from three months after the first trading day of the financial year *t* to three months after the last trading day of the financial year *t* using share price data collected from the SPPR database, consistent with Basu. That is, returns are estimated for the 12 month 'inter-announcement period' commencing 3 months after fiscal year end *t-1*, and ending 3 months after fiscal year end *t*. The model also includes a dummy return variable $DRET_{it}$ to proxy for good news and bad news. Thus, if the firm's stock return is less than zero, $DRET_{it}$ is equal to 1. A Big Six auditor is also indicated through use of a dummy

[9] SPPR stands for share-price and price relative database and is maintained by the University of Western Australia.

variable, with value 1 if a Big Six auditor audits the firm's financial statements, zero otherwise.

The sample consists of all firm years ending June 30 with financial statement information is Aspect for the period 1993-2000. [10,11] Firms with any variables missing are then excluded from the sample. In addition, consistent with Basu et al. (2001), all financial institutions (ASX industry codes 161-162) are excluded. Finally to control for the impact of extreme observations, observations above and below the 99$^{th}$ and 1$^{st}$ percentiles respectively based on the key variables: OI, NI, ΔOI, CFO, CFOI, IRET and ACCRUAL are deleted from the sample. The final sample used in the principal analysis consists of 3,695 firm-year observations, ranging from a high of 555 firm years in 1997 to a low of 342 firm years in 1999.[12]

3.3 Descriptive Statistics

Table 1 shows descriptive statistics for the pooled sample. Some points to note include the fact that although mean operating income is $8,244,000 the median is slightly negative at $-160,000. This reflects the fact that approximately 53% (1,973/3,695) of observations are loss years. An annual breakdown of the descriptive statistics reveals that the loss observations are fairly equally distributed with all years containing between 45% and 55% loss observations. The pooled statistics also show that both mean and median stock returns for the

[10] Ball et al., (2000) Table 1, Panel B, shows that the majority of Australian companies (78%) financial year-end is June 30.

[11] Our sample begins in 1993 for the following reasons. First, AASB 1026, "Statement of Cash Flows " came into effect year ending 30 June 1992. Therefore from 1992 we can obtain cash flow from operations and cash flow from operations and investments using the direct method. This overcomes the difficulties estimating cash flows using the balance sheet method identified by Collins and Hribar (2002). Second, the current definition of extraordinary items under AASB 1018, "Income Statement" came into effect year ending 30 December 1992. Therefore from 1993 the classification of extraordinary items is consistent.

[12] The results are generally robust to the inclusion of firm years with extreme values.

sample are positive. Due to the median share return being positive, but the median accounting income being negative, it is likely that some of the predicted relationships between earnings and share prices will be distorted, confounding the key tests of earnings timeliness.

Table 2 provides a breakdown of the descriptive statistics for the Big Six and Non-Big Six auditees. Comparisons of the key variables for the two sub-samples are made to investigate any significant differences between the two groups. A t-test for differences in means reveals that, consistent with prior literature, Big Six auditees are larger and have higher income. They also have more negative accruals than their non-Big Six counterparts[13]. However, they have slightly smaller (i.e., less negative) accruals relative to total assets, although this difference is only significant at 10%. The only variable which exhibits no difference between the two groups is the share return. Wilcoxon Z tests of differences in the medians show similar statistically significant differences between the two samples. The breakdown of loss years is approximately 62% of Non-Big Six auditee observations report a loss, as compared with only 47% of Big Six auditees – a relationship evidenced by the higher operating and net income for Big Six auditees.

## 4. Results

Preliminary results are reported below for the basic conservatism analysis (regressions 1-6) and some sub-sample analysis for the differences between Big Six and Non-Big Six auditees in Panel A of tables 3, 4 and 5. These results are extended to the auditor analysis (regressions 7-9) in Panels B of .

[13] This finding, is consistent with the evidence of Francis, Maydew and Sparks (1999) that firms with higher accruals will hire a high quality auditor to signal earnings credibility.

## 4.1 Timeliness Tests

Table 3 presents the basic results in relation to the measures of timeliness. The first regression represents the basic relation between earnings and returns. The $\beta_0$ coefficient is positive and significant implying a positive relation between earnings and each of the return measures, however the adjusted $R^2$ of this basic regression (0.24%) indicates extremely low explanatory power. Separately estimating this basic regression (not reported) for the positive and negative return sub-samples (good and bad news sub-samples respectively) indicates that even the basic regression has much higher explanatory power for the bad news firms. This basically indicates that the relation between earnings and returns is strongest for bad news firms and negligible for good news firms.

To explicitly incorporate the impact of bad news on the earnings-return relation I estimate the expanded regression with dummy variables for negative returns and an interaction term for the dummy variable and the signed return to allow for differentiation in the relation between good and bad news. Interestingly when I allow for this variation I find that the $\beta_0$ coefficient becomes negative. This most likely reflects the fact that meidan stock returns for the sample are positive, while median income is negative. Of greater interest however is the sign and magnitude of the $\beta_1$ coefficient which is positive and significant, indicating a much stronger relation between earnings and returns where contemporaneous stock prices contain "bad news". Further, the magnitude of this effect swamps the slight negative $\beta_0$ coefficient so that the combined effect ($\beta_{0+}\beta_1$) is positive. Although the $\beta_1$ coefficient is significant, and there is a marked increase in the adjusted $R^2$ for the expanded regression the explanatory power is still fairly low, especially when compared with the results of Basu (1997). This may be due to

institutional differences between Australia and the US which result in a weaker relation between earnings and stock returns.

Table 3, Panel A also presents separate regressions for Big Six and Non-Big Six auditees. Although the regressions still have fairly low explanatory power, the effect is the same as for the pooled sample in Panel A. Consistent with Taylor and Taylor (2003) the timeliness results support the conclusion that there is asymmetry in the relation between earnings and returns, dependent on the extent to which contemporaneous stock returns reflect good or bad news. This timeliness arises due to the recognition of accruals and results in earnings which are more conservative than cash flow measures.

Panel B of Table 3 presents the results of regression (7), which is the expanded model of conservatism to incorporate dummy variables to investigate the impact of audit quality on the asymmetric timeliness of earnings in revealing good vs bad news. The significant positive coefficient on $\alpha_2$ indicates that there is a higher association between earnings and stock returns where the auditor is a Big Six auditor. This implies that regardless of the information content of earnings there is an intercept shift, however the magnitude is very small relative to the coefficient on $\beta_1$. Of the interaction terms, only the $\beta_3$ coefficient is statistically significant, providing weak evidence that where economic news (stock returns) are negative and there is a Big Six auditor, there is an increased association between earnings and stock returns consistent with news-based conservatism. That is, bad news for Big Six auditees does appear to register in accounting income in a more timely fashion.

## 4.2 Earnings Persistence

Tests of the serial relation between earnings provide a second test of conservatism. Basu (1997) investigates the relation between current and lagged changes in earnings to examine whether "bad accounting news" proxied by a decline in earnings, is more likely to reverse, as compared to "good accounting news" (an increase in earnings). I present results from similar tests in Table 4. Given the high incidence of loss years in this sample it is likely that overall the relation between current and prior earnings changes is fairly weak. The basic regression has an adjusted $R^2$ of 15.64% and the $\beta_0$ coefficient is –0.2715 suggesting a weak negative correlation between current and prior earnings changes, implying increases and declines in earnings all reverse. As mentioned previously, given the high incidence of loss years this result is unsurprising.

The expanded regression incorporates a dummy variable for negative earnings changes occurring in *t-1*, and an interaction for the magnitude of the earnings change, and the negative change dummy. This expanded regression shows far greater explanatory power (adjusted $R^2$ = 27.81%) and $\beta_1$ is significant and negative. The negative $\beta_1$ indicates that earnings declines typically do reverse. However, although of a much smaller magnitude the coefficient on $\beta_0$ is still significant and negative. The net effect appears to be that both increases and declines in earnings reverse, however declines reverse more quickly.

The results of the persistence tests provide some evidence of conservatism through the early recognition of "bad accounting news", which reverses in subsequent periods. The general lack of evidence to indicate income increases persist is likely attributable to the high incidence of loss years in the sample and is not inconsistent with conservatism. The sub-

sample partitions in Panel A for Big Six and non-Big Six auditees indicate that the basic relationship of $\beta_1$ remains negative (i.e., declines reverse), but the $\beta_0$ coefficient for Big Six clients is no longer significant.

Expanding the early regressions in Panel B to incorporate the effect of audit quality yields no statistically significant coefficients on any of the audit variables. The basic relation of $\beta_0$ and $\beta_1$ being negative still holds in this expanded regression, however there is no evidence to indicate that the quality of the auditor has any association with the persistence of increases and declines in earnings.

### *4.3 Accruals and Cash flows*

Table 5 presents results of tests of the relation between the change in accruals for the current year and the change in cash flows in the current year. If earnings are more conservative than cash flows it is due to the recognition of accruals. Conservatism implies that positive cash flows should be recognised as economic gains when realised, while economic losses should be recognised immediately and often before the full negative cash flow effect flows through. Consistent with Ball and Shivakumar (2002) I find that in a basic regression (5) of change in accruals on the change in cash flows, $\beta_0$ is negative although in this sample it is not significant. This suggests that changes in accruals do not reflect a statistically significant reversal of changes in cash flows. On expanding the regression (equation 6) the results are similar disappointing. The adjusted $R^2$ remains low at only 1.71% and only $\alpha_1$ is significant, at 10%. Similar results are observed for the separate Big Six and Non-Big Six sub-samples.

The lack of results continues when the regression is extended in Panel B to show the effect of audit quality on the relationship. The failure to observe any statistically significant relationship in the earlier tests means that is unsurprising that this expanded regression (equation 9) similarly demonstrates no significant relationship between changes in cash flows and changes in accruals.

## 5. Additional Analysis and Implications of the Results

Overall the pooled sample results are consistent with those of Taylor and Taylor (2003). Although the third tests fails to find any significant evidence of conservatism, the evidence does suggest that news-based conservatism exists in this sample of Australian companies. However in all but 1 test (timeliness), there is no evidence to indicate that auditor quality plays any direct role in earnings conservatism. Contrary to the theoretical expectation that a Big Six auditor provides a high quality audit with a conservative greater conservative bias than their non-Big Six counterparts, the evidence suggests that there is essentially no difference in the level of conservatism in earnings for clients of either level of quality of auditor.

Robustness checks of the effect of using alternate definitions of income (net income as opposed to operating income for Table 3, changes in net income for Table 4) also fail to produce any significant differences between Big Six and non-Big Six auditees. Alternative measures of share returns, such as market adjusted or fiscal year returns also do not substantially alter the reported results.

There are a number of possible reasons for this result. The first is the possibility that the auditor quality measure is not sufficiently sophisticated to identify true cases of high quality auditing. The use of a finer measure such as industry specialty may result in a finding that there are different levels of conservatism enforced by high and low quality auditors. Another possibility is that the level of conservatism in earnings is entirely independent of the auditor and driven by the firm, independent of the quality of auditor they choose. Alternately, endogenous variables which drive both auditor choice and earnings conservatism may confound tests which attempt to capture the specific effect of one on the other. A final possibility is that auditors do not impose any conservatism bias on earnings – that conservatism is driven entirely by the firms and the accounting choices of managers.

It is interesting however to note that the characteristics of firms in this sample indicate significant differences between the two groups. It is therefore interesting to observe virtually no differences in conservatism across the two groups. This lends support to the contention that correlated omitted factors, other than audit quality, are also affecting the extent of conservatism. In order to investigate this possibility a number of additional tests could be performed to investigate whether partitions such as those in Taylor and Taylor (2003) can reveal any evidence that differential audit quality is associated with differential conservatism. Taylor and Taylor (2003) investigate the role of pervasive conservatism, proxied by market-to-book ratio and firm size, proxied by total assets, in exacerbating or mitigating news-based conservatism. They provide some evidence that these factors are associated with different levels of conservatism, particularly using the asymmetric timeliness metric. Similar partitions for this sample may reveal that there is some impact of audit quality within certain contexts,

such as where market-to-book ratio is high, implying the firm is not inherently conservative in its application of accounting standards.

## 6. Conclusions

This study investigates the impact, if any, of audit quality on news-based earnings conservatism. Preliminary regressions provide evidence of earnings conservatism consistent with the results of Taylor and Taylor (2003). However extension of these results to incorporate audit quality suggests that there is essentially no difference in the extent earnings conservatism for firms with high or low quality auditors, as proxied by the distinction between Big Six and Non-Big Six auditors.

This result (or rather lack of a result) may be attributable to a number of factors including failure to adequately proxy audit quality, a correlated omitted variables problem. Alternately it may simply reflect the fact that auditor quality does not alter the inherently conservative nature of accounting earnings, which is driven rather by a combination of accounting standards and the endogenous impact of contracting, political, litigation and taxation issues affecting managerial incentives when selecting accounting policies. Further testing will be undertaken to investigate which of these explanations is most likely.

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## TABLE 1
## Descriptive Statistics for pooled sample, excluding outliers[a]

| Variables | Mean | Median | Standard Dev. | Min | Max |
|---|---|---|---|---|---|
| Operating Income ($ 000) | 8244 | -160 | 81802 | -865400 | 3673000 |
| Net Income ($ 000) | 8255 | -163 | 81879 | -865400 | 3673000 |
| CFO ($ 000) | 19967 | 61 | 136121 | -101599 | 6547000 |
| Raw Accrual ($ 000) | -11722 | -643 | 72981 | -2874000 | 112800 |
| Accrual | -0.0815 | -0.0469 | 0.2123 | -1.3665 | 0.7887 |
| Inter-Ann Return (%) | 17.47% | 0.62% | 75.86% | -79.34% | 455.56% |
| Mkt Capitalisation ($ 000) | 182589 | 13073 | 981480 | 178 | 37141586 |
| Total Assets ($ 000) | 268706 | 17046 | 1498682 | 42 | 41358001 |
| Revenue ($ 000) | 200328 | 7507 | 998256 | 0 | 20019900 |
| Auditor | 0.6016 | 1.0000 | | 0.0000 | 1.0000 |

[a] Sample consists of 3,695 observations selected from Aspect Database over 1993-2000 All firms financial year-end is 30 June. Observations missing one or more variables have been eliminated. All financial institutions have been deleted. The top and bottom 1% of observations based on the variables: OI, NI, CFO, CFOI, ΔOI, IRET and ACCRUAL (for the pooled sample) are excluded from the analysis.

| | |
|---|---|
| Operating Income | = annual operating income after tax |
| Net Income | = annual net income after tax |
| CFO | = annual cash flow from operations |
| Raw Accrual | = Operating income minus cash from operations i.e., $OI_t - CFO_t$ |
| Accrual | = Operating income minus cash from operations, scaled by beginning of period total assets i.e., $OI_t - CFO_t / TA_{t-1}$ |
| Inter-Ann Return | = share returns from three months after the previous fiscal year to three months after the current fiscal year |
| MVE | = market value of equity at the beginning of the financial year |
| Total Assets | = total assets of the firm at the beginning of the financial year |
| Revenue | = sales revenue for the period |
| Auditor | dummy variable =1 if auditor is a Big 5 firm or 0 otherwise. |

## TABLE 2

**Descriptive Statistics for Big Six and Non-Big Six auditee sub-samples[a]**

| | Big Six Auditees (n=2,223) | | | Non-Big Six Auditees (n=1,472) | | | | |
|---|---|---|---|---|---|---|---|---|
| Variables | Mean | Median | Std Dev. | Mean | Median | Std Dev. | Students T | Wilcoxon Z |
| Operating Income ($ 000) | 11278 | 182 | 69723 | 3663 | -337 | 97086 | -2.60*** | -8.60*** |
| Net Income ($ 000) | 11269 | 173 | 69867 | 3704 | -343 | 97096 | -2.58*** | -8.53*** |
| CFO ($ 000) | 27610 | 716 | 101824 | 8424 | -146 | 175063 | -3.80*** | -9.95*** |
| Raw Accrual ($ 000) | -16332 | -1050 | 68336 | -4761 | -361 | 78998 | 4.60*** | 9.16*** |
| Accrual | -0.0759 | -0.0455 | 0.2049 | -0.0900 | -0.0500 | 0.2228 | -1.94* | -1.31 |
| Inter-ann Return (%) | 16.86% | 1.86% | 73.25% | 18.38% | 0.00% | 79.67% | 0.58 | -0.98 |
| Mkt Capitalisation ($ 000) | 256873 | 19550 | 958081 | 70405 | 7813 | 1005772 | -5.62*** | -17.01*** |
| Total Assets ($ 000) | 401431 | 30136 | 1798942 | 68266 | 9363 | 827706 | -7.60*** | -17.59*** |
| Revenue ($ 000) | 272357 | 17111 | 975949 | 91549 | 1500 | 1021780 | -5.36*** | -14.71*** |

[a] Sample consists of 3,695 observations selected from Aspect Database over 1993-2000 All firms financial year-end is 30 June. Observations missing one or more variables have been eliminated. All financial institutions have been deleted. The top and bottom 1% of observations based on the variables: OI, NI, CFO, CFOI, ΔOI, IRET and ACCRUAL (for the pooled sample) are excluded from the analysis.

Operating Income = annual operating income after tax
Net Income = annual net income after tax
CFO = annual cash flow from operations
Raw Accrual = Operating income minus cash from operations i.e., $OI_t - CFO_t$
Accrual = Operating income minus cash from operations, scaled by beginning of period total assets i.e., $OI_t - CFO_t / TA_{t-1}$
Inter-Ann Return = share returns from three months after the previous fiscal year to three months after the current fiscal year
Mkt Cap = market value of equity at the beginning of the financial year
Total Assets = total assets of the firm at the beginning of the financial year
Revenue = sales revenue for the period
Auditor dummy variable =1 if auditor is a Big 5 firm or 0 otherwise.

[b] ***/**/* = significant at 1%/ 5%/ 10%

## TABLE 3

**Results from pooled cross-sectional regressions, excluding outliers, of beginning of period price deflated earnings on contemporaneous market adjusted stock returns**

**Panel A: Market Adjusted Fiscal Year Returns (All Firms, 3,695 observations)**

**Model 1: $OI_{it} = \alpha_0 + \alpha_1 DRET_{it} + \beta_0 IRET_{it} + \beta_1 IRET_{it} * DRET_{it}$**

| | N | $\alpha_0$ | $\alpha_1$ | $\beta_0$ | $\beta_1$ | Adj. $R^2$ |
|---|---|---|---|---|---|---|
| | Predicted Sign | (?) | (?) | (+) | (+) | |
| All firms | 3,695 | -0.0931<br>(-14.01)*** | | 0.0212<br>(2.28)** | | 0.24% |
| | | -0.0117<br>(-1.11) | -0.0112<br>(-0.70) | -0.0526<br>(-4.15)*** | 0.4007<br>(10.63)*** | 5.53% |
| Big Six | 2,223 | 0.0067<br>(0.52) | -0.0024<br>(-0.11) | -0.0434<br>(-2.49)** | 0.4454<br>(8.98)*** | 6.97% |
| Non-Big Six | 1,422 | -0.0444<br>(-2.53)** | -0.0218<br>(-0.88) | -0.0601<br>(-3.23)*** | 0.3225<br>(5.62)*** | 3.58% |

**Panel B: Fiscal Year Returns (Pooled Sample, 3,695 observations)**

**Model 2: $OI_{it} = \alpha_0 + \alpha_1 DRET_{it} + \alpha_2 DB6_{it} + \alpha_3 DRET_{it} * DB6_{it} + \beta_0 RET_{it} + \beta_1 RET_{it} * DRET_{it} + \beta_2 RET_{it} * DB6_{it} + \beta_3 RET_{it} * DRET_{it} * DB6_{it}$**

| $\alpha_0$ (?) | $\alpha_1$ (?) | $\alpha_2$ (?) | $\alpha_3$ (?) | $\beta_0$ (+) | $\beta_1$ (+) | $\beta_2$ (+) | $\beta_3$ (+) | Adj. $R^2$ |
|---|---|---|---|---|---|---|---|---|
| -0.0444<br>(-2.52)** | -0.0218<br>(-0.88) | 0.0511<br>(2.34)** | 0.0195<br>(0.60) | -0.0601<br>(-3.21)*** | 0.3225<br>(5.63)*** | 0.0167<br>(0.65) | 0.1229<br>(1.62)* | 6.11% |

[a] Sample consists of 3,695 observations selected from Aspect Database over 1993-2000 All firms financial year-end is 30 June. Observations missing one or more variables have been eliminated. All financial institutions have been deleted. The top and bottom 1% of observations based on the variables: OI, NI, CFO, CFOI, ΔOI, IRET and ACCRUAL (for the pooled sample) are excluded from the analysis.

$OI_{it}$ = annual operating income after tax deflated by beginning of period market capitalisation

$IRET_{it}$ = share returns from three months after the previous fiscal year to three months after the current fiscal year

$DRET_{it}$ = dummy return variable; =1 if $RET_{it} < 0$; = 0 otherwise

$DB6_{it}$ = dummy variable = 1 auditor is a Big Six audit firm.

[b] ***/**/* = significant at 1%/ 5%/ 10%

## TABLE 4

## Persistence of price-deflated earnings changes, excluding outliers, conditional on prior period "earnings news"

**Panel A: Change in Operating Income (All Firms, 3,298 observations)**

**Model 1: $\Delta OI_{it} = \alpha_0 + \alpha_1 DY_{it-1} + \beta_0 \Delta OI_{it-1} + \beta_1 \Delta OI_{it-1} * DY_{it-1}$**

| | N | $\alpha_0$ | $\alpha_1$ | $\beta_0$ | $\beta_1$ | Adj. $R^2$ |
|---|---|---|---|---|---|---|
| Predicted Sign | | (?) | (?) | (-) | (-) | |
| All firms | 3,298 | 0.0164<br>(3.06)*** | | -0.2715<br>(-7.73)*** | | 15.64% |
| | | -0.0373<br>(-6.44)*** | -0.0092<br>(-0.64) | -0.0524<br>(-2.22)** | -0.5350<br>(-7.57)*** | 27.81% |
| Big Six | 1,989 | -0.0362<br>(-5.14)*** | -0.0064<br>(-0.36) | -0.0395<br>(-1.26) | -0.5648<br>(-6.56)*** | 32.06% |
| Non-Big Six | 1,309 | -0.0395<br>(-3.94)*** | -0.0111<br>(-0.43) | -0.0678<br>(-1.84)* | -0.4864<br>(-3.94)*** | 21.58% |

**Panel B: Change in Operating Income (Pooled Sample, 3,298 observations)**

**Model 2: $\Delta OI_{it} = \alpha_0 + \alpha_1 DY_{it-1} + \alpha_2 DB6_{it} + \alpha_3 DY_{it-1} * DB6_{it} + \beta_0 \Delta OI_{it-1} + \beta_1 \Delta OI_{it-1} * DY_{it-1} + \beta_2 \Delta OI_{it-1} * DB6_{it} + \beta_3 \Delta OI_{it-1} * DY_{it-1} * DB6_{it}$**

| $\alpha_0$ (?) | $\alpha_1$ (?) | $\alpha_2$ (?) | $\alpha_3$ (?) | $\beta_0$ (-) | $\beta_1$ (-) | $\beta_2$ (-) | $\beta_3$ (-) | Adj. $R^2$ |
|---|---|---|---|---|---|---|---|---|
| -0.0395<br>(-3.92)*** | -0.0111<br>(-0.43) | 0.0033<br>(0.27) | 0.0048<br>(0.15) | -0.0678<br>(-1.84)* | -0.4864<br>(-3.93)*** | 0.0283<br>(0.59) | -0.0784<br>(-0.52) | 27.82% |

[a] Sample consists of 3,298 observations selected from Aspect Database over 1993-2000 All firms financial year-end is 30 June. Observations missing one or more variables have been eliminated. All financial institutions have been deleted. The top and bottom 1% of observations based on the variables: OI, NI, CFO, CFOI, ΔOI, IRET and ACCRUAL (for the pooled sample) are excluded from the analysis.

- $\Delta OI_{it}$ = change in annual operating income for fiscal year *t* deflated by beginning of period market capitalisation
- $\Delta OI_{it-1}$ = change in annual operating income for fiscal year *t-1* deflated by beginning of period market capitalisation
- $DY_{it-1}$ = dummy change variable; = 1 if $\Delta OI_{it-1} < 0$; = 0 otherwise
- $DB6_{it}$ = dummy variable = 1 auditor is a Big Six audit firm.

[b] ***/**/* = significant at 1%/ 5%/ 10%

## TABLE 5

**Results from pooled cross-sectional regressions, excluding outliers, of beginning-of-period asset-deflated change in accruals on change in cash from operations, conditional on change in cashflows**

**Panel A: Accruals (All Firms, 3,438 observations)**

**Model: $\Delta ACC_{it} = \alpha_0 + \alpha_1 DCFO_{it} + \beta_0 \Delta CFO_{it} + \beta_1 \Delta CFO_{it} * DCFO_{it}$**

| | N | $\alpha_0$ | $\alpha_1$ | $\beta_0$ | $\beta_1$ | Adj. $R^2$ |
|---|---|---|---|---|---|---|
| Predicted Sign | | (?) | (?) | (-) | (+) | |
| All firms | 3,438 | 0.0226<br>(3.01)*** | | -0.0856<br>(-0.54) | | 0.15% |
| | | -0.0432<br>(1.64) | 0.0884<br>(2.84)* | 0.1788<br>(0.64) | -0.4080<br>(-1.27) | 1.71% |
| Big Six | 2,056 | -0.0526<br>(-1.61) | 0.0940<br>(2.44)** | 0.1966<br>(0.56) | -0.5573<br>(-1.28) | 2.25% |
| Non-Big Six | 1,382 | -0.0255<br>(-0.88) | 0.0639<br>(1.70)* | 0.1248<br>(0.35) | -0.2884<br>(-0.74) | 0.09% |

**Panel B: Accruals (Pooled Sample, 3,438 Observations)**

**Model 2: $\Delta ACC_{it} = \alpha_0 + \alpha_1 DCFO_{it} + \alpha_2 DB6_{it} + \alpha_3 DCFO_{it} * DB6_{it} + \beta_0 \Delta CFO_{it} + \delta_1 \Delta CFO_{it} * DCFO_{it} + \delta_2 \Delta CFO_{it} * DB6_{it} + \delta_3 \Delta CFO_{it} * DCFO_{it} * DB6_{it}$**

| $\alpha_0$ (?) | $\alpha_1$ (?) | $\alpha_2$ (?) | $\alpha_3$ (?) | $\beta_0$ (-) | $\beta_1$ (+) | $\beta_2$ (?) | $\beta_3$ (?) | Adj. $R^2$ |
|---|---|---|---|---|---|---|---|---|
| -0.0255<br>(-0.88) | 0.0639<br>(1.69) | -0.0271<br>(-0.62) | 0.0301<br>(0.56) | 0.1248<br>(0.35) | -0.2884<br>(-0.74) | 0.0718<br>(0.14) | -0.2689<br>(-0.46) | 1.73% |

[a] Sample consists of 3,438 observations selected from Aspect Database over 1993-2000 All firms financial year-end is 30 June. Observations missing one or more variables have been eliminated. All financial institutions have been deleted. The top and bottom 1% of observations based on the variables: OI, NI, CFO, CFOI, ΔOI, IRET and ACCRUAL (for the pooled sample) are excluded from the analysis.

$\Delta ACC_t$ = change in annual accruals for fiscal year *t* deflated by beginning of period total assets i.e., $ACC_t - ACC_{t-1} / TA_{t-1}$

$\Delta CFO_{it}$ = change in annual cash flow from operations for fiscal year *t* deflated by beginning of period total assets i.e., $(CFO_t - CFO_{t-1})/TASS_{t-1}$

$DCFO_{it}$ = dummy change variable; = 1 if $\Delta CFO_{it} < 0$; = 0 otherwise

$DB6_{it}$ = dummy variable = 1 auditor is a Big Six audit firm.

[b] ***/**/* = significant at 1%/ 5%/ 10%