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Accounting conservatism and voluntary corporate governance mechanisms by Australian firms

Kamran Ahmed[a], Darren Henry[b]

[a]*School of Accounting, La Trobe University, Melbourne, Vic 3086, Australia*
[b]*School of Economics and Finance, La Trobe University, Melbourne, Vic 3086, Australia*

Abstract

This study examines the relationship between voluntary adoption of selected corporate governance mechanisms and accounting conservatism for a sample of firms listed on the Australian Securities Exchange (ASX) over the 11-year period prior to the promulgation of the ASX Corporate Governance Council Good Governance Principles and Best Practice Recommendations in 2003. Using four accounting and market-based accounting conservatism measures, our results provide evidence of both conditional and unconditional conservatism in accounting reporting for Australian firms. We find that voluntary audit committee formation, increasing board independence and decreasing board size are positively associated with unconditional accounting conservatism and negatively related to the degree of conditional conservatism. Our results support the contention that firms voluntarily adopting perceived best practice corporate governance mechanisms employ unconditional accounting conservatism as a complimentary agency control device and are consistent with the observed negative association between the unconditional and conditional forms of accounting conservatism practice.

Key words: Conditional conservatism; Unconditional conservatism; Corporate governance; Board structure; Audit committee

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1. Introduction

Jensen and Meckling (1976) suggest that publicly traded firms can be thought of as a nexus of agency contracts between various involved stakeholders. External mechanisms, including the market for corporate control, the managerial labour market and institutional and block shareholder monitoring, were initially identified as potential agency control devices. More recently, corporate governance provisions, such as ensuring diversity in key leadership roles, optimising board functional size, greater board independence, the creation of board oversight and decision-making committees and the adoption of performance-dependent forms of executive compensation, have developed as further means of mitigating agency problems and associated costs. Evidence has also emerged of a direct association between corporate governance structure and accounting practice, with firms with stronger corporate governance structures encouraging the implementation of conservative accounting policies (Ball and Shivakumar, 2005; Ahmed and Duellman, 2007; and García Lara *et al*., 2009). This suggests that accounting conservatism plays a role as an agency deterrent and contracting mechanism.

To investigate this proposition, this paper examines the relationship between individual corporate governance attributes and accounting conservatism (a measure of reporting quality) using a sample of listed Australian firms during the period from 1992 to 2002. Emphasis is focused on board characteristics associated with the conduct and monitoring of managerial decision-making and the accounting reporting process, namely board of director size, the degree of board independence and the existence of a separate board audit committee. The time period employed deliberately precedes the release of a formal corporate governance framework in Australia, namely the Principles of Good Corporate Governance and Best Practice Recommendations introduced by the Australian Securities Exchange (ASX) Corporate Governance Council in April 2003. This represents an important period for examination because the responsibility resided with firms to voluntarily implement governance and monitoring frameworks in association with their underlying agency structures. The resulting expectation is for firms choosing to voluntarily implement rigorous (or perceived best practice) corporate governance structures to place increasing value on accounting conservatism as an agency control device.[1] Superior governance structure has been found to have a beneficial effect on corporate reporting quality in Australia and elsewhere. For example, in

[1] The term rigorous is used in the context of the voluntary corporate governance compliance regime pre-2003 in Australia to refer to companies that voluntarily adopt or implement practices that are recognised as being appropriate corporate governance actions. References in the paper made to 'better' or 'stronger' corporate governance structure are used in the same context.

Australia, Beekes and Brown (2006) and Kent and Stewart (2008) find that firms having better governance mechanisms make more informative disclosures to the securities market and disclose more information in annual reports during IFRS adoption, respectively. Using managerial discretionary accruals as another measure of reporting quality, Davidson *et al.* (2005), Koh *et al.* (2007) and Kent *et al.* (2010) report that greater board independence and increased audit committee independence and activity are negatively associated with discretionary accruals.

With regard to definition of accounting conservatism, it refers to the downward biasing of the book value of shareholders' equity (net assets) and earnings. This can be undertaken before or after difficult-to-verify news occurs (Basu, 1997). Conditional (or news-dependent) conservatism requires stricter verification requirements for good news relative to bad news, resulting in more timely recognition of losses compared to gains. This can be contrasted with unconditional (or news-independent) conservatism, which relates to the systematic understatement of book value or earnings numbers that is applied prior to (or independent of) related news release. For instance, a firm choosing to expense rather than capitalise research and development (R&D) expenditure is being more unconditionally conservative, compared to the initial capitalisation and subsequent amortisation or impairment of R&D expenditure, which is consistent with the application of conditional conservatism. This also suggests a negative association between the two forms of conservatism, with greater unconditional conservatism precluding more pronounced conditional conservatism measures and vice versa (Qiang, 2007).

Accounting conservatism enhances financial statement usefulness by reducing residual losses arising from asymmetric information between managers and other parties to the firm (Ahmed and Duellman, 2007). This is achieved by restricting managers' opportunistic payments to themselves and other parties, minimising agency problems associated with managerial investment decisions, improving the efficiency of debt and other contracting, better facilitating the monitoring of contracts and reducing litigation and political costs (Watts, 2003; and Ball and Shivakumar, 2005). Thus, accounting conservatism provides earlier monitoring and decision-useful information to directors, debtholders and regulators. We argue that these early warning signals through unconditional or conditional accounting conservatism are also valuable to shareholders for similar monitoring and agency reasons. Thus, firms with stronger governance frameworks are expected to demand the reporting of increasingly conservative accounting information for the above reasons.

There is some evidence of conditional conservative accounting practice by Australian firms (Ball *et al.*, 2000; Ruddock *et al.*, 2006; and Balkrishna *et al.*, 2007; Lai and Taylor, 2008).

However, the existence of unconditional accounting conservatism within Australian firms, the relationship between, and the underlying demand for, unconditional and conditional conservatism, and the influence of corporate governance

structure on conservative accounting practice are empirical questions that have not previously been examined. Providing answers to these questions represents the key contribution of this paper. Given the lack of a formal corporate governance regime during the period under investigation, it is hypothesised that the application of unconditional conservatism practices, as a pre-emptive agency mitigating device before any news occurs, is more prominent than later news-dependent actions reflecting conditional conservatism. Furthermore, Australian firms voluntarily contracting to best-practice corporate governance frameworks during this period are expected to exhibit greater unconditional conservatism and less resulting conditional conservatism.

The paper provides evidence of conditional and unconditional conservatism in accounting reporting by Australian firms, although conservatism is observed to decline over the sample period. We find that voluntary audit committee formation, increasing board independence and decreasing board size are positively associated with the extent of unconditional accounting conservatism, as measured by market- and accrual-based proxies. We find conflicting evidence in relation to conditional conservatism, with sample firms with smaller boards and separate board audit committees found to recognise good news on a more-timely basis. These results are found after controlling for other recognised determinants of accounting conservatism and other governance and ownership influences, unobserved firm heterogeneity and considering the potential endogeneity between corporate governance structuring and conservative accounting practice. These findings support the suggested negative association between unconditional and conditional conservatism and indicate that, in the period prior to the operation of a formal corporate governance regime in Australia, firms employed accounting conservatism, and particularly the unconditional form, as a part of their agency control frameworks.

The remainder of this paper is organised as follows. Section 2 outlines the basis for accounting conservatism and its determinants and reviews the prior literature examining the relationship between corporate governance and accounting conservatism. Section 3 discusses hypothesis development and research design, including definitions of the proxies used to measure accounting conservatism and specification of the empirical models being estimated. Section 5 provides sample selection, data collection and descriptive statistics information and presents the results for the four measures of accounting conservatism. In the final section, conclusions are drawn.

2. Accounting conservatism and corporate governance

2.1. Explanations for accounting conservatism

Accounting conservatism is a long-standing and pervasive property of financial reporting rules and practice, which refers to a prudent reaction by firms in dealing with uncertainty and risk inherent in business situations (FASB, 1980,

IASC, 1989).[2] Conservatism itself is embodied in prominent accounting principles, such as application of the 'lower of cost or market' doctrine in inventory valuation (Basu, 1995). In Australia, the previous Statement of Accounting Concept (SAC) 3 did not refer to conservatism or prudence as a key qualitative characteristic of financial statements. However, it made particular reference to prudence but indicated that there was no need to separately consider it as the concept is subsumed in that of reliability (Deegan, 2010, p. 69). The International Accounting Standards Board's (IASB) Framework adopted in Australia includes 'prudence' as a component of the broader qualitative characteristics of reliability.

Contracting, litigation, taxation and regulation arguments have been used to explain the presence of accounting conservatism (Watts, 2003; Ball and Shivakumar, 2005). Contracting motives for accounting conservatism are of most interest to the present study, as they directly relate to the firm's agency environment and corporate governance development. The use of conservative accounting numbers in contracts is advocated as being effective in mitigating agency costs. Conservative accounting makes managers less likely to undertake investment projects they expect *ex ante* to have negative-NPVs and also less likely to continue operating investments with *ex post* negative cash flows (Ball and Shivakumar, 2005). Furthermore, conservative accounting better facilitates *ex ante* debt pricing and the monitoring of debt contracts that can be written based on conservative numbers, which is also likely to lead to faster violation of associated debt covenants. An offsetting affect could be the forgoing of some positive-NPV projects because of resource unavailability resulting from covenant restrictions. However, avoiding negative-NPV projects is suggested to have superior agency and contracting consequences relative to forgoing positive-NPV projects (Watts, 2003).

Accounting conservatism provides obvious benefits in reducing exposure to litigation risk, consistent with the findings of Kellogg (1984) that firms and auditors are more likely to be sued for overstatement of net assets or earnings than for understatements. Unconditional conservatism, which results in earlier recognition of losses compared to conditional conservatism, is expected to be more

[2] See Bradbury (2006) for a list of different views of conservatism. For example, in Concepts Statement No. 2, FASB (1980) defined conservatism as 'prudent reaction to uncertainty to try to ensure that uncertainty and risks inherent in business situations are adequately considered', and then stated (¶93): 'Conservatism in financial reporting should no longer connote deliberate, consistent understatement of net assets and profits'. The International Accounting Standards Board (2001, ¶37) uses 'prudence', and defined it as 'the inclusion of a degree of caution in the exercise of judgments needed in making the estimates required under conditions of uncertainty, such that assets or income are not overstated and liabilities or expenses are not understated', and then stated (¶37) that 'the exercise of prudence does not allow, for example, the creation of hidden reserves or excessive provisions, the deliberate understatement of assets or income, or the deliberate overstatement of liabilities or expenses'.

strongly related to litigation risk for this reason. Similarly, accounting conservatism that has the outcome of understating taxable income numbers also lowers the present value of taxation payments. This can be achieved earlier and more systematically by the immediate expensing of certain items (such as R&D expenditure) or the use of accelerated depreciation or amortisation of assets. Thus, taxation considerations are expected to materialise primarily in the form of unconditional conservatism. It should be noted that the use of differing accounting methods can lead to large differences between taxable and accounting (book) income numbers. This is something that firms may want to avoid for political and litigation reasons, resulting in the tendency to lower reported accounting income in line with the understatement of taxable income, and the likelihood that many companies apply the same accounting methods for tax and annual income reporting.

Regulation or wider political cost reasons are also suggested as being aligned with accounting conservatism. The political cost hypothesis of Watts and Zimmerman (1978) suggests that firms choose accounting methods that minimise reported current earnings to lower their public profile and avoid political scrutiny. Similar arguments apply to industries subject to Government regulation and the recent Resources Super Profits Tax on the Australian mining industry proposed in the Henry Review of the taxation system in Australia is a prominent example of such political concerns. Thus, unconditional conservatism and, potentially, conditional conservatism are consistent with political cost motives.

Watts (2003) concluded that contracting efficiency can be enhanced by unconditional and conditional conservatism. Qiang (2007) identified that taxation and regulation reasons drive unconditional conservatism, contracting explanations are associated with conditional conservatism only and litigation risk can be impacted by both forms of conservatism. García Lara *et al.* (2009) report similar findings to Qiang (2007), although they show that taxation and regulation/political cost considerations can also induce conditional conservatism.

2.2. Prior literature examining accounting conservatism and corporate governance

There is a growing body of international research examining the association between board of director characteristics, and the wider corporate governance environment, and accounting conservatism. Bushman *et al.* (2004) examined the linkage between corporate governance mechanisms and earnings timeliness and concluded that board size and the proportion of outside directors are not associated with earnings timeliness. However, firms reporting less timely earnings are found to have other governance elements in place, such as equity-based incentive for executives and higher-quality directors. Beekes *et al.* (2004) found a significant positive association between the proportion of outside directors on UK boards and more timely reflection of bad news in earnings. Ahmed and Duellman (2007) examined the link between board attributes and accounting

conservatism and found strong evidence that the degree of board independence and outside board ownership positively affects conditional and unconditional accounting conservatism in the United States. García Lara *et al*. (2007) documented a positive relationship between the strength of board governance of Spanish firms, measured using various aggregate index formulations, and conditional conservatism.

In regard to overall corporate governance structure, García Lara *et al*. (2009) identified a positive relationship between the corporate governance status of US firms and conditional accounting conservatism. Lobo and Zhou (2006) report evidence of increasing accounting conservatism following the introduction of the Sarbanes-Oxley Act in the United States, and Bushman and Piotroski (2006) provide cross-country evidence that conditional conservatism (based on the speed of incremental bad news recognition) is more pronounced in countries providing stronger investor protection and higher-quality judicial systems. Thus, there is evidence indicating that corporate governance attributes, or overall structure, are positively associated with unconditional and conditional conservatism practice.

The contradictory viewpoint, however, is that accounting conservatism is one of a multitude of available agency and governance mechanisms and that firms select an optimal governance framework based on their underlying agency environment. This argument is consistent with corporate governance mechanisms and accounting conservatism being substitutes, although it could also be explained by corporate governance structure and accounting conservatism being endogeneously determined. There is also empirical support for this viewpoint. LaFond and Watts (2008) provide evidence consistent with conditional accounting conservatism being an increasing function of the level of information asymmetry, and Khan and Watts (2009) found that younger firms and riskier firms are more conservative. LaFond and Roychowdhury (2008) documented a negative relationship between conditional accounting conservatism and board (managerial) ownership, and Chi *et al*. (2007) concluded that accounting conservatism substitutes for other governance attributes in resolving agency problems evident in Taiwanese firms.

3. Research design, hypothesis development and empirical models

3.1. Board attributes and other explanatory variables

We focus on board composition, board size and voluntary formation of a board audit committee as important agency and governance attributes linked to the strategic decision-making and accounting reporting process, and examine the effect of these attributes on accounting conservatism. The composition and size of the board of directors has been the focus of much corporate governance debate in recent years. Board composition has been considered as highly important with regard to the ability to effectively monitor shareholders' interests.

Given that we assume shareholders are generally perceived to value conservative reporting, then the board of directors, as the representative of shareholders, is expected to advocate greater accounting conservatism. Implementing conservative practices is expected to be easier for a board at a strategic policy level as opposed to delayed responses following the realisation of specific news justifying an impairment or loss-recognition action.

Inside and outside (independent) directors may also have different incentives regarding conservative accounting reporting, depending on the nature of director remuneration. The existence of equity-linked compensation for executive directors, such as equity option plans or bonus share entitlements, whose vesting is linked to either accounting numbers or market-value targets, provides a disincentive for promoting conservative accounting actions. The remuneration of independent directors, on the other hand, is typically cash-based only. This is in line with corporate governance advocate bodies in Australia (such as the ASX Corporate Governance Council, Investment and Financial Services Association and Riskmetrics), which suggest that independent directors should not be remunerated in the same form as the executive directors that they monitor. Independent directors, therefore, are expected to perceive unconditional conservatism as an effective monitoring tool of executive directors' action. We expect more independent boards to promote the use of unconditional accounting conservatism, at the expense of conditional conservatism, as a means of ensuring shareholders' interests are upheld. This leads to the following hypotheses:

Hypothesis 1a: A positive relationship exists between the degree of board independence and measures of unconditional accounting conservatism.

Hypothesis 1b: A negative relationship exists between the degree of board independence and measures of conditional accounting conservatism.

The corporate governance literature generally suggests that smaller corporate boards are more effective monitors because they have a higher degree of membership coordination, reduced communication difficulties, lower information costs and a lower incidence of severe free-rider problems (Jensen, 1993; and Hermalin and Weibach, 2003). Alternatively, it has been argued that larger boards allow for specialisation within the board because of better allocation of duties based on expertise, thus enhancing monitoring (Ahmed and Duellman, 2007). As accounting conservatism provides decision-useful information for monitoring purposes and unconditional conservatism provides an earlier source of this information, smaller boards are expected to demand greater unconditional accounting conservatism and less conditional conservatism. Our expectations, therefore, are as follows:

Hypothesis 2a: A negative relationship exists between board size and measures of unconditional accounting conservatism.

Hypothesis 2b: A positive relationship exists between board size and measures of conditional accounting conservatism.

The primary purpose of the audit committee is to oversee the firm's financial reporting process.[3] The audit committee meets regularly with the firm's outside auditors and internal financial managers to review the firm's financial statements, audit process and internal accounting controls (Leung *et al.*, 2004). The provision of timely information to facilitate this monitoring process, and considerations associated with the content of formal audit charters and potential litigation risks related to audit reporting, is expected to drive firms with audit committees to generally demand more conservative accounting reporting and greater unconditional conservatism compared with conditional conservatism. Prior research suggests that the presence of an audit committee (McMullen, 1996), and audit committee expertise (Klein, 2002; Xie *et al.*, 2003; Bedard *et al.*, 2004; and Agrawal and Chadha, 2005), is associated with more reliable financial reporting, and Krishnan and Visvanathan (2008) found that the degree of accounting expertise on audit committees is positively related to unconditional accounting conservatism. From this, hypothesis expectations are as follows:

Hypothesis 3a: A positive relationship exists between the existence of a separate board audit committee and measures of unconditional accounting conservatism.

Hypothesis 3b: A negative relationship exists between the existence of a separate board audit committee and measures of conditional accounting conservatism.

We also incorporate other board and ownership characteristics to control for complementary or contrasting monitoring incentives that are not captured by the above three attributes. These are as follows: (i) the separation of the roles of chief executive officer from the board chairperson, (ii) the magnitude of board remuneration, (iii) director share ownership, (iv) institutional ownership and (v) external shareholder ownership. The separation of the positions of CEO and chairperson of the board provides a further proxy for the strength of outside director-monitoring incentives. This is because a dual role is likely to have more influence on director nomination and election, and control of the board, than if these positions are separated. Krishnan and Visvanathan (2008) found that the absence of CEO–chair duality, as an indicator of good governance, is positively associated with accounting conservatism, whereas Ahmed and Duellman (2007) identified no relationship between these variables. We also included board remuneration as a further board agency control and/or bonding device. Higher

[3] The emphasis is placed in this analysis on the existence of an audit committee as an appropriate governance attribute, rather than the existence and composition (or relative independence) of such a committee. This is because of the substantial degree of variation in audit and other committee formation by the sample companies during the analysis period, and the inability to operationalise composition characteristics for those companies not having these committees. Almost all sample firms had separately constituted board audit committees in place by the end of 2002, and the ASX Corporate Governance Council best practice recommendations include a number of requirements associated with audit committee composition.

board remuneration is expected to increase accounting conservatism because of less reliance on the value of equity-based compensation components and as a means of reducing dismissal risk (represented by the loss of directorship position caused by inappropriate decision-making, poor performance or financial distress).

Requiring or encouraging directors to own shares is perceived to be an effective means to better align the interests of directors and shareholders or alternatively to minimise the adverse agency consequences associated with the separation of ownership and control. This suggests that greater ownership bonds directors to more conservative accounting practice, although it is also possible that director ownership substitutes for other agency or governance mechanisms, consistent with the negative relationship between director ownership and conservatism identified by LaFond and Watts (2008).

Institutional investors play an important monitoring role and induce changes in real activities of the firms in which they invest. Nesbitt (1994), Smith (1996) and Del Guerico and Hawkins (1999) provide evidence that institutional investor monitoring reduces managerial self-serving behaviour, and O'Brien and Bhushan (1990) find that institutional investment increases firm analyst following. Hartzell and Starks (2003) show that institutional ownership is negatively related to the magnitude of executive remuneration and positively related to the degree of pay-for-performance sensitivity, and Chung *et al.* (2002) document a negative relationship between institutional ownership and the level of opportunistic earnings management. This suggests that there is a positive association between institutional holdings and the degree of accounting conservatism. Similar to institutional investors, other large external shareholders have equivalent incentives to monitor the actions and decision-making of corporate managers. Thus, the magnitude of external substantial shareholder ownership is expected to be positively related to the level of accounting conservatism.

3.2. Measures of accounting conservatism

Accounting conservatism measures vary depending on the researchers' definition of conservatism and the underlying research question(s) being addressed. Givoly *et al.* (2007) argue that Basu's (1997) measure captures only one possible source of conservatism and that it is negatively correlated with other market-based conservatism measures, such as the market-to-book ratio. They argue that any single measure of conservatism is insufficient to assess all dimensions of conservatism in the sample of interest. Therefore, we employ four proxies for accounting conservatism, incorporating both accounting-based and market-based measures.

3.2.1. Unconditional conservatism measures

First, following Givoly and Hayn (2000), we define accounting conservatism less formally as a selection criterion among accounting choices that leads to the minimisation of cumulative reported earnings. This variable is defined as the

difference between operating earnings and cash flows from operations, cumulated over a period of 3 years, and is called CON-ACC. Lower values for the CON-ACC variable, which imply greater understatement of earnings relative to cash flows, are consistent with greater unconditional conservatism. Beaver and Ryan (2000) take a balance sheet approach and use the Feltham and Ohlson (1995, 1996) definition of conservatism based on the degree of understatement of operating assets. This is operationalised using the book-to-market ratio and is called CON-MKT. The book-to-market ratio is an attractive variable to use as it incorporates conservatism over the life of the firm. The strength of this measure is that it reflects the cumulative effects of conservatism since the inception of the firm. However, it also reflects economic rents expected to be generated by firms' assets-in-place as well as future growth opportunities. Thus, it is important to control for economic rents and growth opportunities (Ahmed *et al*., 2002). Similar to above, firms with lower book-to-market ratios are perceived to be more unconditionally conservative.

3.2.2. Conditional conservatism measures

The third measure attempts to determine how quickly bad news is reflected in earnings, following Basu (1997). Basu (1997) defines conservatism as asymmetric verification of gains and losses and uses the earnings/returns relation to investigate accounting conservatism. Assuming that returns reflect good and bad news consistently, if firms are conditionally conservative they would recognise bad news earlier than good news, so the earnings/returns coefficient is higher for negative returns relative to positive returns. The fourth measure is an accrual-based test of loss recognition following Ball and Shivakumar (2005), who estimate a similar piecewise-linear relation between accruals and cash flows.

3.3. Measures of independent variables

This section provided the definitions for the independent variables outlined in Section 3.1. In terms of the main variables of interest, board independence (BRDIND) is measured by the number of independent directors on the board relative to the total number of board members.[4] Board size (BRDSIZE) is

[4] Directors are classified as independent if they are not currently, and have not within the last 3 years been, employed by the company in an executive role and are not a substantial shareholder or an officer or affiliate of a substantial shareholder of the company. Independence also requires that directors are not a principal adviser or consultant to the company or work for a firm acting in such a capacity are not a relative or descendent by birth or marriage of company founders or have any other material business or related party relationship with the company. This definition of independence is consistent with those put forward by the ASX Corporate Governance Council (2003) and the Investment and Financial Services Association (2002).

represented by the natural logarithm of the total number of board members. The natural logarithm is employed because of the substantial variation in board membership across the sample, as documented in Table 1. The existence of an audit committee (AUDCOMM) is represented by an indicator variable coded 1 if a separately constituted board audit committee was in operation during the period, otherwise 0.

In relation to the control variables, CEO–chairperson duality (CEOCHAIR) is represented by an indicator variable coded 1 if the CEO is also the chairperson of the board of directors, otherwise 0. Board remuneration (REMUNERATION) is measured as the natural logarithm of total benefits paid to all board members in the relevant year. Director share ownership (DIROWN) is measured as the percentage of total company equity capital (excluding shares attributable to underlying share bonus and option plans) held by all company directors at the annual report date. Institutional share ownership (INSTOWN) is measured as the total percentage shareholding of all institutional shareholders within the top 20 shareholders of the company at the annual report date.[5] External share ownership (EXTOWN) is measured as the sum of all individual shareholdings greater than 5% of total company issued equity capital held by shareholders that are not company directors or institutional investors at the annual report date.[6]

Further, we control for taxation and litigation risk, as discussed in Section 2.1., and firm size, capital structure, growth and profitability attributes. Firm size (COMPSIZE) is calculated as the natural logarithm of total revenue at the end of the financial year.[7] Givoly *et al.* (2007) documented that the asymmetric timeliness measure for large firms is significantly smaller than for small firms. This finding is consistent with prior research that predicted a positive relation between firm size and conservatism because of greater public scrutiny and political costs (Watts and Zimmerman, 1978; Basu, 2005). So, we expect a positive relationship for this variable.

Firm capital structure (LEVERAGE) is calculated as the book value of total debt to the book value of total assets at the end of the financial year. Watts and Zimmerman (1978) argued that highly levered firms tend to follow aggressive

[5] Investors classified as institutional shareholders include life and non-life insurance companies, fund management companies, superannuation and pension funds, listed investment companies and investment and unit trusts. Bank and other nominee company shareholdings are excluded, unless they are recognised as being institutional shareholder accounts.

[6] This 5% substantial shareholding threshold is employed as it is the minimum ownership level at which the Listing Rules of the ASX require ultimate shareholder notification to be made to the involved company and the market.

[7] Similar results are found in the regression analysis when alternative measures, such as market capitalisation, total assets or total capital employed, were used to proxy for firm size.

Table 1
Descriptive statistics for the dependent and independent variables for the overall sample period from 1992 to 2002

	Mean	Median	Standard deviation	Minimum	Maximum
Accruals (CON-ACC)	−0.059	−0.052	0.098	−1.551	0.627
Book-to-market ratio (CON-MKT)	0.627	0.589	0.369	−1.694	2.733
Returns	0.035	0.046	0.353	−1.303	1.116
Earnings	0.036	0.080	0.289	−1.646	0.534
Board independence	0.564	0.583	0.237	0.000	1.000
Board size	8.093	8.000	2.651	2.000	20.000
Audit committee	0.910	1.000	0.286	0.000	1.000
CEO–chair duality	0.176	0.000	0.376	0.000	1.000
Remuneration ($000)	2759.200	1461.000	5589.400	37.000	98,686.000
Director ownership	0.057	0.002	0.137	0.000	0.787
Institutional ownership	0.233	0.225	0.127	0.000	0.752
External ownership	0.225	0.065	0.278	0.000	0.878
Total revenue ($M)	2343.200	746.600	4194.600	0.6050	29,305.000
Leverage	0.523	0.521	0.238	0.001	2.674
Growth (%)	11.198	5.834	39.685	−224.405	467.825
Cash flows	0.114	0.116	0.113	−0.761	1.553
Tax (%)	24.336	29.422	8.127	11.065	40.216
Litigation	−0.001	−0.375	1.435	−2.930	11.900

Accuals, the difference between operating profit after tax and cash flows from operations, cumulated over a 3-year period centred on year t and scaled by average total assets; Book-to-market ratio, the ratio of the book value of equity to the market value of equity at the end of year t; Returns, the cumulative daily raw return from 3 months after the end of the previous year (t−1) through to 3 months after the end of the current fiscal year t; Earnings is operating income before tax in year t scaled by the market value of equity at the end of year t; Board independence, the proportion of the total number of board members that are classified as independent directors; Board size, the total number of board members; Audit committee, a dummy variable indicating the existence of a separately constituted board audit committee; CEO–chair duality, a dummy variable indicating the existence of duality in CEO and board chairperson roles; Remuneration, the sum of the total benefits paid to all board directors; Director ownership, the percentage of total company equity capital held by all company directors at the annual report date; Institutional ownership, the total percentage shareholding of all institutional shareholders within the top 20 shareholders of the company; External ownership, the sum of all individual non-institutional and non-director shareholdings exceeding 5% of company issued equity capital; Total revenue, the sum of all revenue sources; Leverage is calculated as the book value of debt divided by the book value of total assets; Growth, the percentage annual growth in total sales; Cash flows is operating cash flows scaled by average total assets; tax is total tax expense divided by operating profit; and Litigation is the first-factor loading extracted from a principal component analysis of firms' standard deviation of returns, share turnover, market value of equity and a dummy variable indicating f the firm belongs to the technological industry.

(earnings increasing) accounting policies. Firms with larger levels of debt are expected to be closely monitored by external debtholders, who also demand a higher level of verification in reported earnings. This suggests that highly levered

firms follow a more cautious approach in their accounting reporting (Watts, 2003; Ball *et al.*, 2008). Following Ahmed and Duellman (2007), we include annual operating revenue growth (GROWTH) to control for firms' growth options, and we expect the coefficient on this variable to be negative. We include operating cash flows (CFO) in the model as a proxy for profitability, with this variable calculated as operating cash flows scaled by lagged average total assets over a 3-year period. We expect cash flows to be negatively associated with all measures of conservatism. Taxation (TAX) is measured as total tax expenses divided by operating profit, with a positive relationship expected between taxation expense and conditional and unconditional conservatism. Litigation risk (LITIGATION) is proxied, similar to Qiang (2007), by the first factor extracted from a principal components analysis incorporating the following elements: firms' standard deviation of returns, share turnover, market value of equity and a dummy variable $=1$ if the firm belongs to the technological industry and 0 otherwise.

3.4. Empirical models to measure conservatism

We estimate the following empirical model explaining unconditional conservatism, incorporating the three primary governance attributes of interest (board composition, board size and audit committee existence) and the eleven control variables outlined earlier, initially using OLS regression analysis:

$$\begin{aligned}\text{CON-ACC}_{it} \text{ or } \text{CON-MKT}_{it} = {} & \alpha + \beta_1 \text{BRDIND}_{it} + \beta_2 \text{BRDSIZE}_{it} \\ & + \beta_3 \text{AUDCOMM}_{it} + \beta_4 \text{CEOCHAIR}_{it} \\ & + \beta_5 \text{REMUNERATION}_{it} + \beta_6 \text{DIROWN}_{it} \\ & + \beta_7 \text{INSTOWN}_{it} + \beta_8 \text{EXTOWN}_{it} + \beta_9 \text{COMPSIZE}_{it} \\ & + \beta_{10} \text{LEVERAGE}_{it} + \beta_{11} \text{GROWTH}_{it} + \beta_{12} \text{CFO}_{it} \\ & + \beta_{13} \text{TAX}_{it} + \beta_{14} \text{LITIGATION}_{it} + \sum_{1}^{11} \text{Yr} \\ & + \sum_{1}^{4} \text{In} + \varepsilon \end{aligned} \quad (1)$$

where Yr is a set of 11-year dummy variables, In is a set of four industry classification dummy variables, and α and e are constant and error terms, respectively. The definitions for the dependent and independent variables are provided earlier.

We use two methods of estimating conditional conservatism, following Basu (1997) and Ball and Shivakumar (2005), to investigate the effect of the three corporate governance attributes, namely BRDIND, BRDSIZE and AUDCOMM,

on asymmetric timeliness. Our first model is based on Basu (1997), and modified by Ahmed and Duellman (2007):

$$\begin{aligned}\mathrm{Ear}_{it} = {} & \alpha + \beta_1 \mathrm{D}_{it} + \beta_2 \mathrm{Ret}_{it} + \beta_3 \mathrm{D}_{it} * \mathrm{Ret}_{it} + \beta_4 \mathrm{BRDIND}_{it} \\ & + \beta_5 \mathrm{BRDIND}_{it} * \mathrm{Ret}_{it} + \beta_6 \mathrm{BRDIND}_{it} * \mathrm{D}_{it} * \mathrm{Ret}_{it} \\ & + \beta_7 \mathrm{BRDSIZE}_{it} + \beta_8 \mathrm{BRDSIZE}_{it} * \mathrm{Ret}_{it} \\ & + \beta_9 \mathrm{BRDSIZE}_{it} * \mathrm{D}_{it} * \mathrm{Ret}_{it} + \beta_{10} \mathrm{AUDCOMM}_{it} \\ & + \beta_{11} \mathrm{AUDCOMM}_{it} * \mathrm{Ret}_{it} + \beta_{12} \mathrm{AUDCOMM}_{it} * \mathrm{D}_{it} * \mathrm{Ret}_{it} \\ & + \text{Other Governance, Ownership and Control Variables} \\ & + \sum_{1}^{11} \mathrm{Yr} + \sum_{1}^{4} \mathrm{In} + \varepsilon \end{aligned} \tag{2}$$

where Ear_{it} is operating income in year t scaled by the market value of equity at the end of the year t, Ret_{it} is the cumulative daily return from 3 months after the end of the previous fiscal year ($t-1$) through to 3 months after the end of the current fiscal year t, and D_{it} is an indicator variable set $=1$ if Ret_{it} is <1, 0 otherwise. Other variables are defined earlier. Based on prior results, we expect D_{it}*Ret_{it} to be positive (Basu, 1997). Based on our hypothesis expectations that the corporate governance attributes are positively related to the degree of unconditional conservatism and negatively related to the degree of conditional conservatism, we expect β_6 and β_{12} to be negative, and β_9 to be positive. We do not offer predictions for the other interaction variables.

Our second measure of asymmetric timeliness is a piecewise linear relation between cash flows and accruals developed by Ball and Shivakumar (2005). They, following Basu (1997), argue that accruals incorporate a conservatism role, where economic losses are more likely to be recognised on a timely basis as unrealised accrued charges against income. In contrast, economic gains are more likely to be recognised when realised and hence accounted for on a cash basis. If current CFO changes are correlated with future CFO changes, then negative correlation between cash flows and accruals is less in the case of losses (Dechow, 1994). The model is as follows:

$$\begin{aligned}\mathrm{ACC}_{it} = {} & \alpha + \beta_1 \mathrm{DCFO}_{it} + \beta_2 \mathrm{CFO}_{it} + \beta_3 \mathrm{DCFO}_{it} * \mathrm{CFO}_{it} \\ & + \beta_4 \mathrm{BRDIND}_{it} + \beta_5 \mathrm{BRDIND}_{it} * \mathrm{CFO}_{it} \\ & + \beta_6 \mathrm{BRDIND}_{it} * \mathrm{DCFO}_{it} * \mathrm{CFO}_{it} + \beta_7 \mathrm{BRDSIZE}_{it} \\ & + \beta_8 \mathrm{BRDSIZE}_{it} * \mathrm{CFO}_{it} + \beta_9 \mathrm{BRDSIZE}_{it} * \mathrm{DCFO}_{it} * \mathrm{CFO}_{it} \\ & + \beta_{10} \mathrm{AUDCOMM}_{it} + \beta_{11} \mathrm{AUDCOMM}_{it} * \mathrm{CFO}_{it} \\ & + \beta_{12} \mathrm{AUDCOMM}_{it} * \mathrm{DCFO}_{it} * \mathrm{CFO}_{it} \\ & + \text{Other Governance, Ownership and Control Variables} \\ & + \sum_{1}^{11} \mathrm{Yr} + \sum_{1}^{4} \mathrm{In} + \varepsilon \end{aligned} \tag{3}$$

where ACC_{it} is accruals for firm i, calculated as the difference between operating profit after tax and cash flows from operations, cumulated over a 3-year period centred on year t, and deflated by average total assets. CFO_{it} is operating cash flows scaled by average total assets for firm i. $DCFO_{it}$ is a dummy variable set $=1$ if CFO is negative, otherwise 0. We predict a negative coefficient for the cash flows variable (β_2), as in Dechow (1994) and Dechow *et al.* (1998). Conditional conservatism arising from asymmetry in the treatment of good and bad cash flow news is reflected in a higher positive relation between accruals and cash flows when cash flows are negative, as it is likely that the negative impact of earnings was recognised in a prior period (Ball and Shivakumar, 2005; Balkrishna *et al.*, 2007). Consequently, we expect a positive incremental coefficient (β_3) on the $DCFO_{it}$*CFO_{it} variable for negative cash flows. As in Equation (2), based on voluntary corporate governance structuring positively impacting on unconditional conservatism and decreasing the level of subsequent conditional conservatism, we expect the interaction terms β_6 and β_{12} to be negative and β_9 to be positive. We offer no prediction for the other interaction variables.

4. Sample and data description and results

4.1. Sample selection and data collection

Sample selection in this paper involved the random selection of 120 companies out of the largest 300 companies, based on market capitalisation value, listed on the ASX as at the end of June 1996. Listed property and investment trusts, banking and regulated utilities companies were excluded because they have differing governance, financing and ownership structures. The analysis is conducted for the 11-year reporting period from 1992 through to 2002 and information, if available, was collected annually for each company over this period. The overall sample represents approximately ten per cent of companies listed on the ASX, although these sample firms represent a considerably larger proportion of overall ASX market capitalisation.[8] Of a possible maximum of 1320 firm-level yearly observations, complete data are available for 1080 firm-level observations. These are broadly categorised into manufacturing, mining, finance, retail and miscellaneous industries to control for industry effects in the regression analysis. Missing observations are predominantly associated with companies being removed from the ASX, mainly because of takeover during the period, and necessary information related to particular variables not being available from data sources.

Data on corporate governance characteristics, including board composition and committee structure, director remuneration and ownership information,

[8] There were 1135 companies listed on the ASX as at 31st December 1996 and, at this date, the total market capitalisation of the ASX was $615,368 million. The 120 sample companies, based on their 1996 market capitalisation values, represented approximately 43 per cent of this overall market capitalisation.

were hand-collected using annual report document images accessed from the Connect4 Annual Report database or the Thomson Research database. Director independence classification was based on information provided in Directors' profiles, statements of interests in Directors' Reports and financial statement notes disclosing related party transactions. Ownership figures for institutional and external investors were calculated using the data provided in the mandatory shareholding and top 20 shareholder list information required to be disclosed in annual report documents by the ASX Listing Rules. Financial information for companies was accessed from the Thomson Financial Company Analysis database and share price information used for determining annual firm return and risk measures were obtained from the Securities Industry Research Centre of Asia-Pacific ASX Daily Data database.

4.2. Descriptive statistics

Table 1 provides descriptive statistics for the dependent and independent variables for the overall sample period. The accounting-based conservatism measure, Accruals (CON-ACC), has a mean value of −0.059 with a median value of −0.052. The mean for firm book-to-market ratios (CON-MKT) is 0.627, with the median value being 0.589, suggesting that the variable distribution is not widely dispersed. The mean (median) value for returns and earnings are 0.035 (0.046) and 0.036 (0.080), respectively, and there is no evidence of extreme outliers based on the range across the respective minimum and maximum values. These descriptive values, and particularly the negative mean and median CON-ACC statistics, indicate the existence of overall conservatism in financial reporting by sample firms. Furthermore, earnings levels and ratios and accruals are negatively skewed, and raw and abnormal return and operating cash flow variables are positively skewed, which is consistent with the asymmetric timeliness of earnings and accruals (Basu, 1997).[9]

In regard to the explanatory variables for the overall sample period, the average corporate board comprised independent director representation of approximately 56 per cent and in < 20 per cent of firm-level annual observations was the CEO also the board chairperson. Both mean and median board sizes approximated eight members, and the average board was paid total annual benefits of $2,706,200 annually. The median value for board remuneration of $1,461,000 suggests some diversity in board remuneration across sample firms and over time, which is also evident from the minimum and maximum values ranging from

[9] We also examine the time series nature of accounting conservatism by examining annual trends in the accruals and book-to-market ratio variables for sample firms and estimating yearly regressions of the base models of Equations (2) and (3). This analysis generally reveals evidence of declining accounting conservatism by firms over the sample period. These results are not reported in the paper; however, they are available from the authors on request.

$37,000 to about $99,000,000. In regard to the formation of audit committees, approximately 90 per cent of firm-level sample observations had separately constituted audit committees in existence over the period from 1992 to 2002. Mean director ownership across firm-level observations was 5.70 per cent, although this figure is inflated by the inclusion of a number of family-controlled firms, with the median director ownership level being < 0.10 per cent. Institutional and substantial external shareholder ownership averaged approximately 23 per cent over the period, although the institutional ownership percentage is expected to be understated because of the exclusion of nominee holdings and not accounting for institutional shareholdings outside of the largest twenty shareholders.

Table 2 provides Pearson pairwise correlation coefficients for the independent variables. Expected significant correlation coefficients that are evident include the positive correlations between firm size (COMPSIZE) and board size (BRDSIZE) and leverage use (LEVERAGE). There is also evidence of correlation among the corporate governance variables included in the analysis, with the degree of board independence (BRDIND) being positively correlated with board size (BRDSIZE) and the existence of audit committees (AUDCOMM), and negatively correlated with the presence of CEO–chairperson duality (CEOCHAIR). Also, board independence (BRDIND) is positively correlated with the magnitude of institutional ownership (INSTOWN) and negatively related to director (DIROWN) and external ownership (EXTOWN) interests. The nature of these correlation coefficients is generally in line with agency theory and monitoring ideals. Interestingly, board remuneration (REMUNERATION) is not highly correlated with any of the other governance-related variables and is most strongly, and positively, related to firm size (COMPSIZE).

4.3. Accounting-based and market-based conservatism and board attributes

The results based on OLS regressions of various specifications of Equation (1), after controlling for year and industry classification, are presented in Table 3. The dependent variable in models 1 and 2 is cumulative accruals over a 3-year period (CON-ACC). Model 1 shows that only audit committee existence is significantly related to accounting accruals. The regression coefficient (*t*-value) is −0.040 (−3.38), suggesting that the presence of an audit committee is associated with greater unconditional conservatism. Board independence and board size do not have a statistically significant relation to unconditional accounting conservatism. When we estimate the model including the control variables specified in Equation (1), the audit committee indicator variable remains negative and statistically significant, and the board size variable is positive and close to being statistically significant at the 1 per cent level.

With respect to the control variables, the coefficient on director ownership is positively associated with accruals, suggesting that higher director ownership leads to less conservative accounting which is consistent with the substitute argument put forward by LaFond and Watts (2008). The negative coefficient on the

Table 2
Pearson pairwise correlation coefficients for the independent variables for the overall period from 1992 to 2002

	BRDIND	BRDSIZE	AUDCOMM	CEOCHAIR	REMUNERATION	DIROWN	INSTOWN	EXTOWN	COMPSIZE	LEVERAGE	GROWTH
BRDIND	1.000										
BRDSIZE	0.181**	1.000									
AUDCOMM	0.219**	0.176**	1.000								
CEOCHAIR	−0.309**	−0.084**	−0.114**	1.000							
REMUNERATION	0.086**	0.483**	0.255**	0.027	1.000						
DIROWN	−0.274**	−0.120**	−0.096**	0.360**	−0.029	1.000					
INSTOWN	0.380**	0.111**	0.135**	−0.101**	0.119**	−0.137**	1.000				
EXTOWN	−0.441**	−0.195**	−0.136**	0.003	−0.197**	−0.145**	−0.532**	1.000			
COMPSIZE	0.279**	0.543**	0.325**	−0.184**	0.490**	−0.203**	0.172**	−0.188**	1.000		
LEVERAGE	0.192**	0.116**	0.172**	−0.140**	0.206**	0.005	−0.004	−0.067*	0.345**	1.000	
GROWTH	0.009	0.014	−0.050	0.097**	−0.025	0.066*	−0.009	−0.048	−0.030	−0.006	1.000
CFO	−0.056	−0.040	0.031	0.001	−0.051	−0.032	0.059	0.079**	0.007	−0.098**	0.039
Tax	0.019	0.049	0.003	−0.018	−0.007	−0.010	0.061*	−0.024	0.052	0.045	0.005
Litigation	0.121**	0.252**	0.121**	0.041	0.385**	−0.013	−0.035	−0.097**	0.339**	0.229**	−0.032

	CFO	Tax	Litigation
CFO	1.000		
Tax	0.082**	1.000	
Litigation	−0.132**	0.011	1.000

** and * indicate statistical significance at the 1% and 5% levels, respectively. BRDIND, board independence; BRDSIZE, board size; AUDITCOM, audit committee existence; CEOCHAIR, CEO–chair duality; REMUNERATION, board remuneration; DIROWN, director ownership; INSTOWN, institutional ownership; EXTOWN, external ownership; COMPSIZE, company size; LEVERAGE, the leverage ratio; GROWTH, the percentage annual growth rate in sales; CFO, operating cash flows; Tax, the effective tax rate; Litigation, firm litigation risk. The full definitions of variables are provided in Table 1.

Table 3
Regression results of accrual-based and market-based conservatism

	Accrual-based CON-ACC		Market-based CON-MKT	
	1	2	3	4
Intercept	−0.065 (−0.69)	−0.092 (−0.64)	0.680 (1.82)	0.579 (1.37)
Board Independence	−0.011 (−0.85)	0.017 (1.12)	0.011 (0.23)	0.073 (1.06)
Board size	0.012 (1.33)	0.031** (2.81)	0.079* (2.28)	0.184** (2.98)
Audit committee	−0.040** (−3.38)	−0.024* (−2.21)	−0.127** (−2.70)	−0.107* (−2.24)
CEO–chair Duality		0.005 (0.16)		−0.008 (−0.22)
Remuneration		0.023 (0.55)		−0.004 (0.19)
Director ownership		0.076* (2.37)		0.005 (0.72)
Institutional ownership		0.028 (0.92)		0.034 (0.94)
External ownership		0.067 (1.75)		0.065 (1.46)
Firm size		−0.028 (0.63)		−0.006 (0.50)
Leverage		−0.002* (−1.95)		−0.012* (−2.19)
Growth		0.037 (1.42)		−0.034 (−1.09)
Cash flows		−0.403** (17.32)		−0.431** (−4.22)
Tax		−0.008 (−0.31)		0.015 (0.50)
Litigation		−0.123** (−3.91)		−0.092** (−2.65)
N = 1076, 1992–2002				
Adjusted R^2	0.079	0.294	0.079	0.123
Model's F value and (Sig)	6.190 (0.000)	16.442 (0.000)	5.777 (0.000)	7.240 (0.000)
Highest VIF	2.143	2.663	2.169	2.753

Table 3 (continued)

** and * indicate statistical significance at the 1% and 5% levels, respectively. The results presented are from estimating Equation (1):

$$\begin{aligned}\text{CON-ACC}_{it} \text{ or } \text{CON-MKT}_{it} = {} & \alpha + \beta_1 \text{BRDIND}_{it} + \beta_2 \text{BRDSIZE}_{it} + \beta_3 \text{AUDCOMM}_{it} + \beta_4 \text{CEOCHAIR}_{it} + \beta_5 \text{REMUNERATION}_{it} \\ & + \beta_6 \text{INSTOWN}_{it} + \beta_7 \text{EXTOWN}_{it} + \beta_8 \text{COMPSIZE}_{it} + \beta_9 \text{LEVERAGE}_{it} + \beta_{10} \text{GROWTH}_{it} + \beta_{11} \text{CFO}_{it} + \beta_{12} \text{TAX}_{it} \\ & + \beta_{13} \text{LITIGATION}_{it} + \sum_{1}^{11} \text{Yr} + \sum_{1}^{4} \text{In} + \varepsilon.\end{aligned}$$

CON-ACC, the difference between operating profit after tax and cash flows from operations, cumulated over a 3-year period centred on year *t*, and scaled by average total assets; CON-MKT, the ratio of the book value of equity to the market value of equity at the end of year *t*; Board independence, the proportion of the total number of board members that are classified as independent directors; Board size, the natural logarithm of the total number of board members; Audit committee, a dummy variable indicating the existence of a separately constituted board audit committee; CEO–chair duality, a dummy variable indicating the existence of duality in CEO and board chairperson roles; Remuneration, the natural logarithm of the sum of the total benefits paid to all board directors; Director ownership, the percentage of total company equity capital held by all company directors at the annual report date; Institutional ownership, the total percentage shareholding of all institutional shareholders within the top 20 shareholders of the company; External ownership, the sum of all individual non-institutional and non-director shareholdings exceeding 5% of company issued equity capital; Firm size, the natural logarithm of total revenue; Leverage, the book value of debt divided by the book value of total assets; Growth, the percentage annual growth in total sales; Cash flows is operating cash flows scaled by average total assets; Tax is total tax expense divided by operating profit; and Litigation, the first-factor loading extracted from a principal component analysis of firms' standard deviation of returns, share turnover, market value of equity, and a dummy variable indicating if the firm belongs to the technological industry.

Leverage variable suggests that highly leveraged firms are subject to stricter monitoring as reflected by the adoption of more-conservative accounting policies. The Cash Flows variable is significantly negatively ($P < 0.01$) associated with CON-ACC, suggesting that the higher the operating cash flows the lower the accruals (Dechow, 1994). The Litigation variable is statistically significantly negative, which indicates that the prospect of litigation encourages firms to adopt conservative accounting policies and supports the arguments of Watts (2003).

Models 3 and 4 in Table 3 employ firm book-to-market ratios as the dependent variable (CON-MKT). The results are generally similar to models 1 and 2, in that audit committee existence is significantly negative in models 3 and 4. The coefficients on the Board Size variable are also positive and statistically significant in models 3 and 4, consistent with larger boards adopting less-conservative accounting practice. The board independence variable is, however, not positive and statistically significant in model 4. With respect to the control variables, we again find that the Cash Flows, Leverage and Litigation variables are significantly positively ($P \leq 0.05$) (based on the negative regression coefficients) related to unconditional conservatism, in model 4 but director ownership lost significance. All of the models in Table 3 are statistically significant in explaining the degree of unconditional conservatism, with the explanatory power of the CON-ACC and CON-MKT models, including the control variables, approximating 30 and 12 per cent, respectively. The results provide support for Hypotheses 2a and 3a, but not Hypothesis 1a, and suggest that firms implementing good governance structures employ accounting-based and market-based unconditional accounting conservatism as complementary agency mechanisms.

4.4. Asymmetric timeliness of earnings

Table 4 reports the results of pooled regressions estimating the effects of the three board attributes on the asymmetric timeliness of earnings. The first three columns show results based on unadjusted market returns, while the next three columns shows results for market-adjusted returns. Consistent with previous research (for example, Basu, 1997; Balkrishna *et al.*, 2007), we find that the returns variable alone is statistically significant ($P \leq 0.01$, not reported) and when bad news is incorporated in the model with the asymmetric timeliness interaction (D_{it}*Ret_{it}), the coefficient is highly significant and positive, which suggests that sample firms, on average, are news-dependent conservative. Model 2, which includes only the three board characteristics and their interaction terms with the bad news indicator variable, shows that board independence, board size and audit committee existence are not associated with asymmetric timeliness of earnings (conditional conservatism).

However, when the other control variables are included in model 3, the interaction variable involving audit committee existence (AUDCOMM*Ret*DRet) is found to be negative and statistically significant, indicating asymmetric timeliness of earnings recognition and the existence of an audit committee delaying the

Table 4
Regression results of asymmetric timeliness of earnings

	Unadjusted returns			Market-adjusted returns		
	1	2	3	4	5	6
Intercept	0.227 (0.85)	0.252 (0.93)	0.135* (0.554)	0.275 (0.31)	0.320 (1.15)	0.208 (−0.85)
Ret	−0.081 (−1.83)	−0.266* (−1.98)	−0.317** (−2.62)	−0.138** (−2.75)	−0.307 (−1.89)	−0.039** (−2.65)
DRet	0.055* (2.35)	−0.028 (−0.34)	0.029 (0.39)	0.042 (1.79)	−0.007 (0.08)	0.009 (012)
DRet*Ret	0.612** (9.59)	1.115** (4.886)	1.305** (6.334)	0.390** (6.35)	1.120** (5.10)	1.132** (6.35)
BRDIND		−0.057 (−0.81)	0.094 (1.37)		0.001 (0.10)	0.110 (1.57)
BRDIND*Ret		0.333 (1.77)	0.283 (0.45)		0.275 (1.53)	0.303 (1.90)
BRDIND*Ret*DRet		−0.023 (−0.09)	−0.272 (−1.15)		−0.108 (−0.40)	−0.312 (−1.30)
BRDSIZE		0.005 (0.89)	0.015** (2.83)		0.001 (1.45)	0.010 (1.57)
BRDSIZE*Ret		−0.002 (−0.11)	0.007 (0.49)		0.002 (0.61)	0.009 (0.49)
BRDSIZE*Ret*DRet		−0.030 (−1.21)	−0.034 (−1.54)		−0.038 (−1.38)	−0.039 (−1.63)
AUDCOMM		−0.020 (−0.37)	−0.015 (−0.32)		−0.036 (−0.62)	−0.025 (−0.48)
AUDCOMM*Ret		0.043 (0.39)	0.023 (0.29)		0.039 (0.31)	0.009 (0.91)
AUDCOMM*Ret*DRet		−0.358 (−1.88)	−0.421* (−2.51)		−0.331 (−1.74)	−0.405* (−2.37)
Industry and year	Yes	Yes	Yes	Yes	Yes	Yes
Interaction variables	No	Yes	Yes	No	Yes	Yes
Control variables	No	No	Yes	No	No	Yes
N = 1076, 1992–2002						
Adjusted R^2	0.121	0.134	0.322	0.082	0.117	0.321
Model's F value and (Sig)	9.199 (0.000)	7.915 (0.000)	13.800 (0.000)	6.100 (0.000)	6.150 (0.000)	14.080 (0.000)

Table 4 (continued)

** and * indicate statistical significance at the 1% and 5% levels, respectively. The results presented are from estimating Equation (2):

$$\begin{aligned}\mathrm{Ear}_{it} = {} & \alpha + \beta_1 \mathrm{D}_{it} + \beta_2 \mathrm{Ret}_{it} + \beta_3 \mathrm{D}_{it} * \mathrm{Ret}_{it} + \beta_4 \mathrm{BRDIND}_{it} + \beta_5 \mathrm{BRDIND}_{it} * \mathrm{Ret}_{it} + \beta_6 \mathrm{BRDIND}_{it} * \mathrm{D}_{it} * \mathrm{Ret}_{it} + \beta_7 \mathrm{BRDSIZE}_{it} \\ & + \beta_8 \mathrm{BRDSIZE}_{it} * \mathrm{Ret}_{it} + \beta_9 \mathrm{BRDSIZE}_{it} * \mathrm{D}_{it} * \mathrm{Ret}_{it}, + \beta_{10} \mathrm{AUDCOMM}_{it} + \beta_{11} \mathrm{AUDCOMM}_{it} * \mathrm{Ret}_{it} + \beta_{12} \mathrm{AUDCOMM}_{it} * \mathrm{D}_{it} * \mathrm{Ret}_{it} \\ & + \text{Other Governance, Ownership and Control Variables} + \sum_{1}^{11} \mathrm{Yr} + \sum_{1}^{4} \mathrm{In} + \varepsilon.\end{aligned}$$

Ear is operating income in year t scaled by the market value of equity at the end of the year t; Ret, the cumulative daily return from 3 months after the end of the previous fiscal year ($t - 1$) through to 3 months after the end of the current fiscal year t, and DRet, an indicator variable set $= 1$ if Ret is < 1, 0 otherwise; BRDIND, the proportion of the total number of board members that are classified as independent directors; BRDSIZE, the natural logarithm of the total number of board members; AUDCOMM, a dummy variable indicating the existence of a separately constituted board audit committee.

early recognition of bad news (or alternatively speeding up the recognition of good news). Comparing these results with those in Table 3, we find that audit committee existence is associated with significantly greater unconditional conservatism and significantly lower conditional conservatism, consistent with the arguments by Beaver and Ryan (2005) and Qiang (2007) of a negative interrelationship between the two forms of conservatism.

The results from re-estimating Equation (2) using market-adjusted returns are reported in models 4 to 6 in Table 4 and show effectively the same results as those reported using unadjusted returns. Voluntary formation of an audit committee is again associated with lower conditional conservatism, by speeding up the recognition of good return news relative to bad news. All of the models in Table 4 are statistically significant, and the adjusted R^2 values vary between 12 and 32 per cent.

4.5. Asymmetric timeliness of accruals

Table 5 reports the results for the model based on Ball and Shivakumar (2005) to measure asymmetric timeliness of accruals, which is modified to measure incremental conservatism associated with the three board attributes. Following Balkrishna *et al.* (2007), we estimate the basic cash flows (CFO) and accruals model (not reported) and find that CFO is significantly negative, suggesting that when accruals are lower, cash flows are higher. Model 1, which reports CFO, the dummy indicator for negative cash flows and their interaction term (DCFO*CFO), shows that CFO is still significantly negative but the interaction term DCFO*CFO is positive and statistically significant ($P \leq 0.01$). These results are consistent with those of Ball and Shivakumar (2005) for UK firms and Balkrishna *et al.* (2007) for Australian firms,[10] suggesting that accruals play a significant mitigating role when cash flows are negative. The incremental mitigating effect of negative cash flows is 11.3% (53.3–42.0), which suggest that the negative relation between accruals and cash flow is less pronounced when cash flow is negative, consistent with asymmetrically more unrealised loss recognition via accruals than gain recognition (Ball and Shivakumar, 2005).

Model 2 is estimated including the board independence, board size and audit committee existence variables and their interactions with the dummy variable indicating negative cash flow outcomes, to measure incremental conditional conservatism associated with bad news (negative CFOs). The interaction variables relating to board independence and audit committee existence are not statistically significant, indicating no incremental conservatism, whereas the interaction term associated with board size is positive and statistically significant. This is consistent with larger boards asymmetrically increasing the speed of recognition

[10] The coefficient of 0.420 ($t = 5.734$, $N = 1080$) on DCFO*CFO is similar to Balkrishna *et al.* (2007) who obtained a coefficient of 0.4624 ($t = 13.01$, $N = 6178$).

Table 5
Regression results of asymmetric timeliness of accruals

	1	2	3
Intercept	0.012 (0.15)	−0.071 (−0.87)	−0.112 (−1.20)
CFO	−0.533** (−18.89)	0.268 (1.84)	0.418** (2.81)
DCFO	−0.043** (−3.48)	−0.036** (−2.85)	−0.026* (−2.07)
DCFO*CFO	0.420** (5.73)	−1.499** (−3.82)	−1.700** (−4.33)
BRDIND		0.004 (0.18)	0.056* (2.48)
BRDIND*CFO		−0.140 (−1.09)	−0.272* (−2.14)
BRDIND*DCFO*CFO		0.320 (0.61)	0.556 (1.08)
BRDSIZE		0.049** (3.61)	0.077** (5.12)
BRDSIZE*CFO		−0.413** (−4.66)	−0.457** (−5.20)
BRDSIZE*DCFO*CFO		0.925** (3.60)	0.979** (3.86)
AUDCOMM		−0.039** (−2.69)	−0.033* (−2.33)
AUDCOMM*CFO		0.070 (0.85)	0.084 (1.06)
AUDCOMM*DCFO*CFO		0.103 (0.64)	0.025 (0.16)
Industry and year	Yes	Yes	Yes
Interaction variables	No	Yes	Yes
Control variables	No	No	Yes
N = 1076, 1992–2002			
Adjusted R^2	0.313	0.345	0.389
Model's F value and Significance	28.280 (0.000)	22.060 (0.000)	19.570 (0.000)

** and * indicate statistical significance at the 1% and 5% levels, respectively. The results presented are from estimating Equation (3):

$$\begin{aligned}\mathrm{ACC}_{it} = {} & \alpha + \beta_1 \mathrm{DCFO}_{it} + \beta_2 \mathrm{CFO}_{it} + \beta_3 \mathrm{DCFO}_{it} * \mathrm{CFO}_{it} + \beta_4 \mathrm{BRDIND}_{it} \\ & + \beta_5 \mathrm{BRDIND}_{it} * \mathrm{CFO}_{it} + \beta_6 \mathrm{BRDIND}_{it} * \mathrm{DCFO}_{it} * \mathrm{CFO}_{it} + \beta_7 \mathrm{BRDSIZE}_{it} \\ & + \beta_8 \mathrm{BRDSIZE}_{it} * \mathrm{CFO}_{it} + \beta_9 \mathrm{BRDSIZE}_{it} * \mathrm{DCFO}_{it} * \mathrm{CFO}_{it} + \beta_{10} \mathrm{AUDCOMM}_{it} \\ & + \beta_{11} \mathrm{AUDCOMM}_{it} * \mathrm{CFO}_{it} + \beta_{12} \mathrm{AUDCOMM}_{it} * \mathrm{DCFO}_{it} * \mathrm{CFO}_{it} \\ & + \text{Other Governance, Ownership and Control Variables} + \sum_{1}^{11} \mathrm{Yr} + \sum_{1}^{4} \mathrm{In} + \varepsilon.\end{aligned}$$

ACC, accruals and is calculated as the difference between operating profit after tax and cash flows from operations, cumulated over a 3-year period centred on year t, and deflated by average total assets; CFO, operating cash flows scaled by average total assets; DCFO, a dummy variable set = 1 if CFO is negative, otherwise 0; BRDIND, the proportion of the total number of board members that are classified as independent directors; BRDSIZE, the natural logarithm of the total number of board members; AUDCOMM, a dummy variable indicating the existence of a separately constituted board audit committee.

of bad cash flow news and greater conditional conservatism. This provides support for Hypothesis 2b, where smaller boards increasingly employ unconditional conservatism rather than conditional conservatism. The results in model 3 provide for consistent conclusions after controlling for the other governance, ownership and contracting variables.

4.6. Sensitivity and robustness tests

We conduct various sensitivity tests for the models estimated in Tables 3–5, which do not modify the overall conclusions associated with the three governance-related variables of interest (board independence, board size and audit committee existence). These modifications include using the Ahmed and Duellman (2007) accruals measure adjusted for depreciation as the dependent variable in the models in Tables 3 and 5 and including additional governance-related control variables in the regression models. These additional variables include dummy variables to indicate outstanding options on issue to executive directors and the existence of separately constituted board remuneration and nomination committees. These variables were not statistically significant in any of the models estimated.

Analysis of annual averages for the corporate governance attributes identified that an overwhelming majority of sample companies had formed an audit committee by 1996. To ensure that high voluntary compliance with this governance attribute does not bias the model results, we divide the sample into pre-1996 and post-1996 periods and estimate the models (Equation 1) in Table 3 separately and find that the AUDCOMM variable is statistically significant in both periods.[11]

The other major form of robustness testing of our results involved re-estimating all of the regression models using a panel-based fixed-effect specification. This model estimation includes firm-specific and year fixed effects, with the industry dummy variables being time- and firm invariant and subsumed into the firm fixed-effect components. This is an important robustness check as the sample has a relatively long time-series element, where there is scope for substantial modification to firm operating and governance structures and also to firm accounting policy choice. It is also possible that unobserved firm heterogeneity could represent an omitted variable in the OLS specification of the models, even after including time and industry dummies. The overall model results (not provided, but available from the authors), and particularly the conclusions relating to the influence of board composition, board size and audit committee existence on conditional accounting conservatism (asymmetrical timeliness of earnings and accruals), are generally similar when estimated using the fixed-effect specification.

The major difference in the fixed-effect model results is that, in the unconditional conservatism models, after controlling for unobserved firm heterogeneity, the coefficients for the board independence variable become negative and statistically significant. The board independence coefficients (t-values) are −0.043

[11] For example, the coefficients (t-values) on the AUDCOMM variable are −0.041 (−2.789) and −0.049 (−1.961) and −0.089 (−1.883) and −0.553 (−5.389) during the pre-1996 and post-1996 periods when the dependent variables are CON-ACC and CON-MKT, respectively. Detailed results are available from the authors.

(−1.92) and −0.167 (−2.14) in the full fixed-effect CON-ACC and CON-MKT models, respectively, suggesting that greater board independence results in increased unconditional conservatism. Combined with the continued statistical significance of the audit committee formation and board size variables, this provides stronger evidence that voluntary corporate governance structuring by firms bonds them to practicing greater unconditional accounting conservatism.

Another concern is the potential endogeneity between governance and other contracting variables and accounting reporting practice generally and accounting conservatism particularly in this paper. Using the panel structure of the data, we employ the strict test of exogeneity suggested by Wooldridge (2002, p. 285) to formally test for the endogeneous determination of governance attributes and unconditional accounting conservatism.[12] This process involves estimating traditional fixed-effect models augmented with leading values of the potentially endogeneous variables, which allows for the examination of the existence of a dynamic relationship between conservatism proxies and the governance variables. We run various specifications of this exogeneity test, including (i) testing the strict exogeneity of the three governance attributes only, (ii) including the other contracting and control variables as exogeneously determined and (iii) treating all the governance, contracting and other control variables as potentially endogenous,[13] and find no evidence of an endogenous relationship between any of our governance attributes and the accounting conservatism measures.

5. Summary and conclusions

This study has evaluated the influence of voluntary corporate governance mechanism adoption by Australian companies on accounting conservatism practice. The descriptive results indicate the existence of both unconditional and conditional conservatism in financial reporting by sample firms during the analysis period, although firms appear to have become less conservative in their reporting practices over the period. The results in relation to the determinants of unconditional conservatism indicate that greater board independence,[14] smaller-sized boards and the existence of an audit committee increase the extent of understatement of earnings and book values. These findings hold for both the accrual-based and market-based measures of unconditional conservatism and suggest

[12] It is problematic to use Wooldridge's (2002) strict test of exogeneity on the conditional conservatism model constructs due to the incorporation of the multiple interaction variables in these models. As such, conclusions regarding the presence of endogeneity are based on the unconditional conservatism model analysis.

[13] Note that the year dummy variables were included in all of these three different model specifications.

[14] Based on the fixed-effect model results for the unconditional conservatism measures.

that firms that voluntarily contract to stronger governance platforms also employ greater unconditional conservatism.

Different findings are observed, however, when conditional conservatism is investigated. The analysis indicates that smaller-sized boards and the existence of an audit committee are associated with quicker asymmetric timeliness recognition of good cash flow and share return news, respectively, and that greater board independence has no influence on the asymmetric timeliness of earnings or accruals. Thus, we find that voluntary adoption of good governance practices by sample firms is associated with higher unconditional conservatism and less news-based conservatism activity, and that unconditional accounting conservatism represents a complimentary monitoring and agency-control device to other corporate governance attributes.

These findings provide new evidence of the prominence of unconditional conservatism practice by Australian firms and suggest that adoption by companies of the governance regime proposed by the ASX Corporate Governance Council will potentially lead to greater unconditional accounting conservatism practice. The findings of adoption of corporate governance attributes being positively related to unconditional conservatism and negatively related to conditional conservatism are most similar to those of Ahmed and Duellman (2007), although the latter study found positive relationships for both forms of conservatism and support the negative relationship between levels of unconditional and conditional conservatism suggested by Beaver and Ryan (2005) and Qiang (2007). They do, however, conflict with much of the literature which suggests that only conditional conservatism provides contracting efficiency benefits. It is suggested that the unique agency environment in Australia (Henry, 2010), and the focus on a time-period before the existence of a formal corporate governance framework, is likely to explain the greater reliance on unconditional conservatism as a pre-emptive agency control mechanism. Whether this changes after 2003 is an empirical issue worthy of further examination.

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