IFRS adoption, financial reporting quality and cost of capital: a life cycle perspective

Ahsan Habib and Md. Borhan Uddin Bhuiyan
Massey University, Auckland, New Zealand, and
Mostafa Monzur Hasan
School of Economics and Finance, Curtin University, Perth, Australia

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Abstract

Purpose – This paper aims to investigate the impact of International Financial Reporting Standards (IFRS) adoption on financial reporting quality and cost of equity. The paper further investigates whether such association varies at different life cycle stages.

Design/methodology/approach – This paper follows the methodologies of DeAngelo *et al.* (2006) and Dickinson (2011) to develop proxies for the firms' stages in the life cycle.

Findings – Using both pre- and post-IFRS adoption period for Australian listed companies, the paper finds that financial reporting quality reduced and cost of equity increased because of the adoption of IFRS. The paper further evidences that financial reporting quality in the post-IFRS period increased cost of equity. Finally, the paper finds that mature firms produce a better quality of earnings, which result in lower cost of capital. The results indicate that a mature firm was benefited because of the adoption of IFRS.

Originality/value – The finding of this research is useful to the regulators and practitioners to understand the widespread benefit of IFRS adoption.

Keywords Financial reporting quality, IFRS, Cost of equity, Firm life cycle

Paper type Research paper

1. Introduction

The purpose of this paper is to investigate the effect of mandatory adoption of International Financial Reporting Standards (hereafter IFRS) on financial reporting quality and the cost of equity conditional on firm life cycle stages in Australia. The International Accounting Standards Board (IASB) promulgated IFRS, and these have gained worldwide acceptance as a common set of reporting standards, as is evident given that the vast majority of countries has adopted IFRS as their de-facto reporting standards. However, the debate on whether the adoption of IFRS has actually improved the information environment of the adopting countries remains unresolved. Proponents argue that the adoption of a single set of reporting standards:

- eliminates or reduces set-up costs in developing national accounting standards;
- improves financial statement comparability[1]; and
- reduces information asymmetry and the cost of capital.

Empirical research evidence that this last feature may occur because IFRS enhances higher information quality lowers either the estimation risk of future returns or the information asymmetries between managers and outside investors, resulting in lowering of the required rates of return (Barry and Brown, 1985; Diamond and Verrecchia, 1991). However, critics

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argue that the "principle-based" IFRS does not prescribe detailed rules, leaving the task of actual accounting processing to the discretion of individual companies and auditors[2]. Therefore, transactions of a similar nature may be processed quite differently according to the way they are interpreted by each company. Adoption of IRFS will ultimately give companies more discretion over how they present their financial standing, leading to a diversification of processing formats (Barth *et al.*, 2008).

We test the implications of the mandatory adoption of IFRS in Australia to validate the findings in Christensen *et al.* (2013) in a single-country setting. If Christensen *et al.* (2013) are correct in concluding that IFRS did not provide any measurable benefits for countries that did not make substantive enforcement changes, then their finding should also hold for Australia, given the already strong regulatory regime in the pre-IFRS period. However, Christensen *et al.* (2013) only examined liquidity effects but not the effect of changes in financial reporting quality, if any, on the cost of equity in the post-IFRS regime. We believe that considering reporting quality and costs of capital together provides a better picture of the IFRS adoption effect.

Australia decided to adopt IFRS mandatorily, based on the presumption that adoption of a principles-based reporting standard would improve financial reporting quality by increasing the fundamental understandings that inform transactions and economic events (Carmona and Trombetta, 2008) and, hence, would reduce the cost of equity. However, no research has been done in Australia to validate this assumption, despite evidence that financial reporting quality impacts the cost of equity (Barry and Brown, 1985; Diamond and Verrecchia, 1991; Easley and O'hara, 2004; Francis *et al.*, 2004). An exception is Gray *et al.* (2009), who find that poor quality innate, but not discretionary, accruals increase the costs of debt and equity for Australian firms. However, their sample period spans from 1998 to 2005 and, hence, does not include the post-IFRS regime. In addition, their sample size is much smaller (1,362 firm-year observations) than the sample used in our study. Their finding of no association between discretionary accruals and cost of equity in the pre-adoption period may not necessarily hold in the post-adoption period because of increased earnings volatility and, hence, an increase in the cost of equity, because of the fair-value-based IFRS regime (Penman, 2007). We find that earnings quality as proxied by abnormal accruals has deteriorated post-IFRS, with an associated increase in the cost of equity.

We then extend our analysis by incorporating the organization life cycle as a moderating variable. Prior research on the financial reporting implications of IFRS, as well as the effect of IFRS adoption on the cost of equity, has generally ignored the organizational dynamism that potentially impacts both the financial reporting quality and the cost of equity (Suberi *et al.*, 2012; Hasan *et al.*, 2015). We use the firm life cycle stages as proxies for the firms' economic characteristics, which should have a first-order effect on financial reporting quality, rather than the accounting measurement process (Zimmerman, 2013). Dechow *et al.* (2010, p. 344) conclude that the:

> [. . .] existing research does not clearly distinguish the impact of a firm's fundamental earnings process on the decision usefulness [. . .] of its earnings, from the impact of the application of accounting measurement to the process.

From a life cycle perspective, we argue that mature firms are expected to have higher accounting quality as they have maturing growth options, higher assets in place and less uncertain operating environments (Suberi *et al.*, 2012) compared to early- and decline-stage firms. Mature firms also are less plagued with information asymmetry problems, the presence of which might encourage managers to manipulate accounting numbers and, hence, reduce the quality of accounting information (Schipper, 1989). However, it not ex ante

clear whether the adoption of IFRS will provide incremental benefits for firms at the mature stage of their life cycle.

A distinctive feature of the IFRS is that they are "principles-based" instead of "rules-based," allowing IASB to issue generic accounting standards. Principles-based standards allow more reporting discretion, and the question of whether such discretion will be used efficiently or opportunistically may be determined to a certain extent by the stability of the operating environment. We expect mature firms to use such principles-based standards to more accurately convey the underlying economics of transactions to investors, as they operate in an environment with fewer uncertainties and less information asymmetry. The Big Four accounting firms have stated that principles-based standards will encourage managers to use financial reporting as an act of communication rather than an act of compliance (DiPiazza *et al.*, 2006): an outcome that might be more applicable for mature firms with more predictable business models. On the other hand, the mandatory adoption of IFRS by mature stage firms may not have any discernible impact, given the already high-quality reporting provided by such firms. We, however, find support for the beneficial effect of IFRS, even for mature firms. Finally, we find that mature firms enjoy a lower cost of equity after the mandatory adoption of IFRS: a finding that is consistent with increased reporting quality in the post-IFRS regime for mature firms.

This research makes two contributions. *First*, we extend the prior literature on the financial reporting implications of the adoption of IFRS and extend this analysis to examine the impact of earnings quality on the cost of equity in a mandatory IFRS adoption environment. Prior research has considered these two related kinds of literature separately (Daske, 2006; Gray *et al.*, 2009). *Second*, we incorporate the firm life cycle, a hitherto unexplored contextual variable, in the investigation of the effect of the adoption of IFRS on earnings quality and their joint effect on the cost of equity. Our research responds to criticisms regarding the feasibility of a "one-size-fits-all" approach in mandating IFRS.

2. A brief review of the literature and the development of hypotheses

Ahmed *et al.* (2013a, 2013b) provide a meta-analysis of the value-relevance studies and conclude that the value relevance of earnings has generally increased, whereas the value-relevance of equity book values has not increased post-IFRS adoption. Another stream of research has investigated whether the adoption of IFRS had improved stock market liquidity and reduced the cost of equity capital. Daske (2006) tests this proposition but fails to find evidence in support of it. On the contrary, IFRS adoption actually increased the cost of equity. Daske (2006) argues that companies with little to gain from IFRS may choose to exploit principles-based IFRS to "box-tick" their way through the process with a minimum degree of compliance. However, in a subsequent study, Daske *et al.* (2008) analyze the economic consequences of the mandatory application of IFRS in 26 countries and generally find capital market benefits, but only in countries with strict enforcement and institutional environments that provide strong reporting incentives. Christensen *et al.* (2013) find that market liquidity increased around IFRS introduction but were concentrated in the EU and limited to five EU countries that concurrently made substantive changes in reporting enforcement. They found very little evidence of liquidity benefits in IFRS countries without substantive enforcement changes, even when they had strong legal and regulatory systems.

In 1996, the Australian Accounting Standards Board (AASB) resolved to pursue the development of an internationally accepted set of accounting standards to ensure compliance with the then international accounting standards (IAS). In April 2002, the AASB issued Policy Statement 4 *International Convergence and Harmonization Policy*, reiterating its goal of international convergence. A milestone event around that time saw the European

Parliament passing a resolution on March 12, 2002, requiring all firms listed on European Stock Exchanges to follow IASs for the first full reporting period ending on or after December 31, 2005. Australia's Financial Reporting Council issued a similar resolution in July 2002 to comply with the EU mandate. Thus, Australian firms, like EU firms, became among the first, worldwide, to mandatorily adopt IFRS (Chalmers *et al.*, 2011). The decision was driven predominantly by the argument that IFRS adoption would benefit capital markets by making financial statements more comparable with those prepared following IAS and by reducing firms' cost of equity capital[3].

Empirical evidence on whether the mandatory adoption of IFRS has improved financial reporting quality in Australia, however, is inconclusive. Ahmed and Goodwin (2007) and Goodwin *et al.* (2008) conclude that aggregate differences between IFRS and Australian Generally Accepted Accounting Principles (AGAAP) have no incremental information for the price in their samples. Chalmers *et al.* (2011), on the other hand, find that value-relevance of earnings (equity book values) increases (does not change) in the post-IFRS regime. Ji and Lu (2014) document a decline in the value relevance of intangibles in the post-IFRS period. However, the positive relationship between the value relevance and the reliability of intangibles has remained unchanged in the post-adoption period.

2.1 International Financial Reporting Standards adoption and financial reporting quality

The production of high-quality financial information is a crucial element for the efficient functioning of the capital markets (Ball, 2001). Financial reporting provides the primary source of independently verified information about the performance of managers to the capital providers (Sloan, 2001). This facilitates efficient resource allocation decisions by signaling to change investment opportunities to managers and outside investors, disciplining self-interested managers to invest in value-maximizing projects, and reducing firms' cost of capital (Bushman and Piotroski, 2006). Bushman and Smith (2001, p. 304) argue that the efficiency of capital allocation depends upon:

> [. . .] the extent to which managers identify value creating and destroying opportunities, the extent to which managers are motivated to allocate capital to value-creating investments and withdraw capital from value-destroying investments, and the extent to which capital is available to invest in value-creating opportunities.

The financial reporting system, mainly financial accounting information, is expected to facilitate capital allocation decisions through any of these channels. The efficacy of the financial reporting system, however, is contingent upon identifying the financial reporting objectives and developing a rigorous set of accounting standards that is compatible with those reporting objectives, as well as upon certain institutional factors (e.g. corporate governance and the existence and enforcement of laws governing investor protection and disclosure standards) that ensure strict enforcement of accounting standards (Ball, 2001; Ball *et al.*, 2003).

IFRS has now become a common global reporting framework. Proponents of a common set of accounting standards argue that IFRS:

- improves transparency by enhancing the global comparability and quality of financial information;
- strengthens accountability by reducing the information gap between the shareholders and management; and
- contributes to economic efficiency by helping investors to identify risks and opportunities across the world[4].

The impediments to the realization of such benefits include communication and interpretation barriers, permissible alternative accounting treatments and preparer incentives, a desire to maintain the sovereignty of accounting standard setting and differences in institutional and legal regimes that impact IFRS compliance and enforcement (Ahmed *et al.*, 2013a, 2013b). IFRS should have a positive effect on accounting quality because principles-based IFRS are potentially more difficult to circumvent. An analytical model by Trombetta (2001) shows that stricter rules-based regimes perform worse than their more flexible counterparts because a strict regulatory regime prescribes a one-size-fits-all formula for firms operating under entirely different circumstances. This uniformity involves an informational cost because it reduces the amount of information available to decision-makers. In addition, IFRS restricts managerial discretion relating to accounting alternatives and, hence, reduces the extent of accounting manipulation. However, the inherent flexibility in principles-based standards could provide more significant opportunities for earnings management. In addition, IFRS could restrict effective accounting alternatives that are most appropriate for communicating the underlying economics of business (Barth *et al.*, 2008).

We do not intend to provide a comprehensive review of the literature that investigates the effect of the IFRS on financial reporting system (useful reviews include Ball, 2006; Brown, 2011; Brüggemann *et al.*, 2013; Soderstrom and Sun, 2007). Instead, we briefly review the strand of literature that examines the effect of IFRS on earnings management and the cost of equity, as these are our questions of interest.

Studies that find better-quality financial reporting, as proxied by less earnings management, in the post-IFRS regime include Iatridis and Rouvolis (2010), Latridis (2010), Zéghal *et al.* (2011), Barth *et al.* (2008), Houqe *et al.* (2012), Cai *et al.* (2014) and Christensen *et al.* (2015). Cai *et al.* (2014) find that high-divergence countries[5] with higher levels of enforcement benefit more (less earnings management) than high-divergence countries with lower levels of enforcement. Chen *et al.* (2010) find an improvement in the financial reporting quality in the post-IFRS period for firms in the EU. Horton *et al.* (2013) find that, after mandatory IFRS adoption, forecast accuracy increases significantly more for mandatory adopters relative to non-adopters and voluntary adopters courtesy of increased comparability brought about by IFRS.

On the other hand, some studies fail to find any improvement in financial reporting quality in the post-IFRS period. For example, Ahmed *et al.* (2013a, 2013b) evidence a significant increase in accrual aggressiveness following the adoption of IFRS, as do Paananen and Lin (2009) and Van Tendeloo and Vanstraelen (2005). Lin *et al.* (2012) find that IFRS adoption results in more earnings management, less timely loss recognition and less value relevance for a sample of German high-tech firms. Kabir *et al.* (2010) find that accruals quality and the ability of earnings to predict one-year-ahead cash flows have not improved following the adoption of IFRS in New Zealand[6].

In Australia, Goodwin *et al.* (2008) find no evidence that IFRS earnings are of higher quality. Jeanjean and Stolowy (2008) find that first-time IFRS adopting firms in Australia showed relatively persistent earnings management (proxied by meeting or beating earnings targets) after the mandatory adoption of IFRS. However, Chua *et al.* (2012) find that the pervasiveness of earnings management through income smoothing has reduced in the post-IFRS era. However, the authors use a constant sample retrieved from the top 500 firms on the Australian Securities Exchange that was present in both the pre- and post-IFRS period, thereby introducing selection and survivorship bias. Their sample size, too, was small (a total of 1,376 firm-year observations). Our study differs from Chua *et al.* (2012), as we use a much larger sample and a more extended post-adoption period, examine the financial

reporting effect on cost of equity after the mandatory adoption of IFRS and use firm life cycle to explicitly test for the effect of IFRS for firms during different life cycle stages.

Based on the preceding review, it becomes evident that academic research provides inconclusive evidence on the effect of IFRS on financial reporting quality. On the one hand, the benefit of improved accounting quality following IFRS adoption should also be evident for Australia, which enjoys strong law enforcement and investor protection, two key institutional requirements for a successful implementation of IFRS (Ball, 2001). On the other hand, mandating such a radical change in financial reporting is less likely to increase firms' incentives to benefit from IFRS adoption. In particular, the widespread application of fair value reporting within the principles-based IFRS system may encourage more earnings manipulation as fair value introduces price bubble into financial statements, which leads to volatility in earnings (Penman, 2007). Daske *et al.* (2013) find very little evidence of liquidity benefits in IFRS countries without substantive enforcement changes, even when they have strong legal and regulatory systems, e.g. Australia. The following hypothesis tests this proposition:

H1. Mandatory adoption of IFRS affects financial reporting quality in Australia.

2.2 International Financial Reporting Standards adoption, financial reporting quality and firm life cycle

The preceding hypothesis implicitly assumes that IFRS adoption affects financial reporting quality uniformly. However, firms pass through different life cycle stages and, hence, experience a variation in financial reporting environments including financial reporting practices. We use firm life cycle stages as proxies for the firms' economic characteristics which should have a first-order effect on financial reporting quality, rather than the accounting measurement process (Zimmerman, 2013; Dechow *et al.*, 2010).

Each stage in the firm life cycle enforces unique characteristics and demands that entail organizational structures, personnel, leadership styles and decision-making processes appropriate to meet the requirements (Kazanjian, 1988). Extant studies show that firm life cycle has an impact on shaping firms' economic and financial decisions (Bender and Ward, 1993; Fama and French, 2001; DeAngelo *et al.*, 2006; Habib and Hasan, 2017; Hasan *et al.*, 2015). Evidence in the accounting literature also suggests that investors' valuation of firms and the pricing of accruals and cash flows are a function of the life cycle stages of the firm (Anthony and Ramesh, 1992; Hribar and Yehuda, 2015).

The theoretical underpinning for the variation in financial reporting quality during life cycle stages rests on the notion that the value of a firm can be represented by its present value of assets-in-place, resulting from past investments, and the present value of future profitable investments or growth opportunities (Myers, 1977). The value of assets-in-place relative to the value of growth opportunities changes as a firm develops through its life cycle and is expected to differ in each of the life cycle stages (Black, 1998). For early stage and growth firms, value consists almost exclusively of the uncertain future cash flows from growth opportunities, rather than of the firm's assets-in-place. However, as the firm matures, its growth opportunities are financed and converted into assets (and liabilities) and the fraction of value attributable to its assets-in-place increases relative to that of its growth opportunities. Throughout the firm life cycle, although firms are required to report the same information, differential value relevance of accounting information occurs because the set of value relevant attributes about future cash flows for the two components of assets-in-place and growth opportunities is different in each life cycle stage (Black, 1998).

Mature firms have a long existence in the market and they are more closely followed by analysts and investors. Moreover, these firms have maturing growth options, higher assets in place and less uncertain operating environments (Quinn and Cameron, 1983; Suberi *et al.*, 2012). Hence, these firms suffer from less information asymmetry, which also curbs managerial opportunities for manipulating financial reporting. From a life cycle perspective, it not ex ante clear whether the adoption of IFRS will provide incremental benefits for firms at the mature stage of their life cycle. More principles-based IFRS allow greater reporting discretion than rules-based standards (Schipper and Vincent, 2003), which allows the disclosure of more value-relevant information and opens up avenues for more opportunistic reporting because of the inherent subjectivities in principles-based standards (Herz, 2003). We expect mature firms to use such principles-based standards to convey the underlying economics of transactions to investors more accurately, as they operate in an environment with fewer uncertainties and less information asymmetry. Hence, the adoption of IFRS may further improve the financial reporting quality of mature firms. On the other hand, the mandatory adoption of IFRS by mature stage firms may not have any discernible impact, given the already high-quality reporting provided by such firms.

Firms at the earlier stage of the life cycle, on the other hand, have relatively higher economic uncertainty, fewer assets in place and greater growth potential compared to firms in the mature stage. Growth opportunities are real options that a firm has, or may create, to make future investments that earn a rate of return in excess of its opportunity cost of capital (Myers, 1977). Thus, a distinguishing feature of growth opportunities is that their value depends on future managerial discretion. Compared to mature stage firms, financial performance and uncertainty associated with growth firms are relatively higher (Myers and Majluf, 1984), leading to poor-quality earnings compared to firms in the mature stage (Suberi *et al.*, 2012). Application of more principles-based IFRS in the environment of operating uncertainties and higher information asymmetries experienced by early-stage firms may obfuscate the value-relevant component of IFRS and, hence, impair reporting quality. Therefore, we propose that compared to mature firms, the application of IFRS by early-stage firms will have a detrimental effect on financial reporting quality. Based on the preceding discussion, we develop the following hypothesis:

H2. IFRS adoption by mature stage firms will improve (or will not worsen) financial reporting quality in the post-IFRS period.

2.3 Mandatory International Financial Reporting Standards adoption, cost of equity and financial reporting quality

One of the espoused benefits of IFRS adoption is a reduction in the cost of capital brought about by better quality financial reporting. Higher information quality either lowers the estimation risk of future returns (Barry and Brown, 1985) or lowers the information asymmetries between managers and outside investors, thus lowering the required rates of return (Diamond and Verrecchia, 1991). However, this association between financial reporting quality and cost of capital, measured either within an economic regime (Botosan, 1997) or across different accounting regimes (Leuz and Verrecchia, 2000), is still inconclusive. Armstrong *et al.* (2010) argue that one set of uniform accounting standards is likely to improve information quality and reduce managerial discretion with a beneficial effect on the cost of raising external funds. IFRS requires more accounting disclosure than local accounting standards (Ding *et al.*, 2007), ensures greater accessibility toward

information in favor of stakeholders and, hence, reduces information asymmetry and improves the quality of accounting disclosures. Investors are able to monitor managerial performance better and demand a lower risk premium, resulting in a reduced cost of capital (Feldman *et al.*, 1997). Sengupta (1998) argues that lender and underwriters consider the firm's disclosure policy in their estimation of default risk and reduce the cost of debt when a timely and credible disclosure is made. Francis *et al.* (2004) use both accounting- and market-based earning attributes and find that better information quality reduces the cost of capital. This stream of literature would suggest a decline in the cost of capital for firms adopting IFRS, as high-quality financial reporting courtesy of IFRS would reduce information asymmetry and, hence, the cost of capital.

However, the evidence from mandatory IFRS adoption suggests otherwise. Daske (2006) finds no evidence that adopting IFRS *per se* leads to the economic benefits of lower cost of equity for adopting firms. Daske (2006) argues that companies with little to gain from IFRS may choose to exploit any inherent flexibility in IFRS implementation and "box-tick" their way through the process with a minimum degree of compliance. There are several reasons why IFRS adoption is expected to increase the cost of capital. Ball (2001) notes that the improvement of accounting standards will amount to little more than "window-dressing," unless it is accompanied by significant changes in the reporting infrastructure. However, replacing an existing reporting infrastructure characterized by high-quality local accounting standards with IFRS may render little benefit in terms of reducing the cost of capital. The fact that Australia had both a high-quality financial reporting environment and a strong enforcement regime, even before the mandatory adoption of IFRS, may have little impact on the cost of raising external finance. Using a survey on 305 Australian firms, Morris *et al.* (2014) identified that a majority of respondents did not feel that IFRS adoption would lower the cost of capital because of higher implementation costs and lack of expertise. Actually, there is a risk that the cost of equity could increase in the post-IFRS regime, as the widespread application of fair value reporting within the principles-based IFRS system introduces a price bubble into financial statements, generating more volatile earnings (Penman, 2007) and, hence, a higher required rate of return. Hence, deteriorating financial reporting quality after the adoption of IFRS may actually increase the cost of equity. The following hypothesis is, therefore, developed:

H3. The mandatory adoption of IFRS will affect the cost of equity through the mediating channel of financial reporting quality.

2.4 Mandatory International Financial Reporting Standards adoption, cost of equity and financial reporting quality: life cycle impact

The above hypothesis, like H_1, does not incorporate life-cycle effects on the variation in the cost of equity. Resource-based theory suggests that the resource base and capabilities of mature firms are large, diverse and rich, whereas those of young and declining firms are small, concentrated and limited. Moreover, mature firms are relatively stable, more closely followed by analysts and investors and associated with better financial reporting quality and less information asymmetry (Hasan *et al.*, 2015). This resource base, with its accompanying superior competitive advantages and capacities, helps mature firms to benefit from cheaper and easier sources of finance. More specifically, because the life cycle affects the perceived fundamental and information risk of the firm, firms in the mature stage of their life cycle should be in a better position to raise adequate capital at a comparatively lower cost. As argued in the development of *H2*, mature firms are more likely to use principles-based IFRS to convey value-relevant information accurately, thereby further

decreasing information risk associated with poor-quality earnings (Easley and O'hara, 2004; Francis *et al.*, 2004).

H4. Superior financial reporting quality associated with mature stages reduces the cost of equity capital: an effect that is more pronounced for the post-IFRS adoption period.

3. Research design

3.1 Sample selection process

We choose "Global Vantage" to collect financial accounting information, which began with an initial sample of 7,915 firm-year observations over the period 2001-2012, with required data for calculating the performance-matched Kothari model (a proxy for financial reporting quality) and relevant control variables (firm size, leverage, sales growth and operating cash flows). Corporate governance variables such as auditor specialization, board independence proportion, audit committee members independence and audit opinion are collected from the Securities Industry Research Centre of Asia-Pacific. Missing life cycle data reduces the sample to 7,002 firm-year observations. We use 2001-2005 as the pre-adoption period and 2006-2012 as the post-adoption period. We perform our main analyses using this timeline. However, a gradual transition from AGAAP to IFRS took place in 2005, and this year may belong to a distinct category. We, therefore, re-analyze the data using 2001-2004 as the pre-adoption and 2006-2012 as the post-adoption period in an additional test. We should also mention that the post-adoption regime includes the global financial crisis (GFC) period spanning from 2007 to 2009. However, Australia is among the few developed countries that were least affected by the GFC. The Australian GDP increased by more than 16.5 per cent over the three-year period of 2007-2009[7]. We are, therefore, confident that our results are not biased because of the GFC regime.

Our sample size for testing for the effect of financial reporting quality on the cost of equity conditional on IFRS adoption (H_3) is significantly smaller than the base sample primarily because of the data required for estimating COE_PEG values. We have a usable sample of 2,821 firm-year observations.

3.2 Measurement of financial reporting quality

Different proxies for operationalizing financial reporting quality have been used over the years by academic researchers (Dechow *et al.*, 2010). Rather than define "quality of financial reporting," prior literature has focused on factors such as earnings management, financial restatements and fraud, which clearly inhibit the attainment of high-quality financial reports. The presence of these factors has been used as evidence of a breakdown in the financial reporting process. We consider financial reporting manipulation, as evidenced by accruals management, to proxy for financial reporting quality. We use earnings management as a measure of accounting quality for several reasons. *First*, earnings management measures should be particularly responsive to the use of discretion and firms' reporting incentives, increasing the power of our tests. *Second*, the measures are widely used and have been shown to produce plausible rankings of earnings informativeness (Wysocki, 2004; Lang *et al.*, 2006).

We develop the following regression model to examine the effect of the mandatory adoption of IFRS on financial reporting quality (test of *H1*).

$$|DAC| = \gamma_0 + \gamma_1 POST + \gamma_2 SIZE + \gamma_3 LEV + \gamma_4 LOSS + \gamma_5 OCF + \gamma_6 SALEGR + \gamma_7 ROA + \gamma_8 INDDIR + \gamma_9 ACMEM + \gamma_{10} GCOPIN + \gamma_{11} AUDSPEC + SECTOR\ DUMMIES + \varepsilon \quad (1)$$

where |DAC| is the absolute discretionary accruals calculated using the performance-matched model proposed by Kothari *et al.* (2005). We use absolute instead of signed |DAC| because managers could manage earnings through income-increasing as well as income-decreasing techniques (Schipper and Vincent, 2003). To estimate |DAC|, we use the cross-sectional modified Jones model, controlling for firm performance (Dechow *et al.*, 1995; Kothari *et al.*, 2005). We estimate the following model for all firms in the same sector (using the GICS), with at least eight observations in a sector in a particular year:

$$\frac{ACC_t}{TA_{t-1}} = \gamma_0 \left(\frac{1}{TA_{t-1}}\right) + \gamma_1 \left[\frac{\Delta SALE_t - \Delta RECEIVABLE_t}{TA_{t-1}}\right] + \gamma_2 \left(\frac{PPE_t}{TA_{t-1}}\right) + \gamma_3 (ROA_{t-1}) + \varepsilon_t \quad (2)$$

where ACC is total accruals calculated as earnings before extraordinary items and discontinued operations minus operating cash flows; TA is total assets in year $t-1$; ΔSALES is change in sales from year $t-1$ to year t; ΔRECEIVABLE is change in accounts receivable from year $t-1$ to year t; PPE is gross property plant and equipment; and ROA is the prior year's return on assets measured as earnings before extraordinary items and discontinued operations divided by total assets for the previous year. The coefficient estimates from equation (2) are used to estimate the non-discretionary component of total accruals (NDAC) for our sample firms. The discretionary accruals are then the residual from equation (2), i.e. DAC = ACC-NDAC.

POST is a categorical variable coded 1 if the firm-year observations pertain to fiscal years 2006 and onward (post-adoption period), and zero otherwise. We include a number of firm-specific control variables found to affect discretionary accruals. Firm size (*SIZE*), measured as the natural log of total assets, may be negatively associated with earnings management because larger firms have more sophisticated internal control systems and are audited by high-quality auditors. In contrast, larger firms may be more likely to manage earnings than small-sized firms, as the former face more pressures to meet or beat the analysts' expectations (Barton and Simko, 2002); large-sized firms have greater bargaining power with auditors; and auditors are more likely to waive earnings management attempts by large clients (Nelson *et al.*, 2002). Firm leverage (*LEV*), measured as total debt over total assets, is expected to be associated with discretionary accruals positively, as Park and Shin (2004) suggest firms that face financial constraints have an incentive to adjust earnings upward to avoid a potential loss from disclosing a financial difficulty. Dechow *et al.* (2012) find that a lower quality of earnings is associated with poor performance, so we expect a positive coefficient for *LOSS*, an indicator variable that equals 1 if the firm's net income before extraordinary items is negative, 0 otherwise. Operating cash flows (*OCF*), measured as OCF divided by total assets, and discretionary accruals should be negatively related because of a negative relationship between accruals and cash flows (Subramanyam, 1996). Firm growth opportunities (SALEGR), measured as the change of sales compared to the previous financial year, are expected to have a positive association, as growth firms are found to use discretionary accruals to signal private value-relevant information

(Skinner and Sloan, 2002). Audit quality (*AUDSPEC*), an indicator variable that equals 1 if the firm is audited by an industry specialist auditor, and 0 otherwise, is expected to be negatively related to discretionary accruals because Becker *et al.* (1998) find that high-quality audits constrain earnings management. Further, we consider audit opinion (GCOPIN) as firm which experiences a going concern audit opinion are likely to engage in earnings adjustment. Finally, the strength of corporate governance, proxied by the independence of the audit committee (*ACMEM*) and board independence (*INDDIR*), will likely impact earnings management.

If the mandatory adoption of IFRS improves (worsens) financial reporting quality, then we should expect a negative (positive) coefficient on $\gamma_1 POST$.

We develop the following regression specification to test H_2:

$$\begin{aligned} |DAC| = {} & \gamma_0 + \gamma_1 RETA + \gamma_2 POST + \gamma_3 RETA * POST + \gamma_4 SIZE + \gamma_5 LEV \\ & + \gamma_6 LOSS + \gamma_7 OCF + \gamma_8 SALEGR + \gamma_9 ROA + \gamma_{10} INDDIR \\ & + \gamma_{11} ACMEM + \gamma_{12} GCOPIN + \gamma_{13} AUDSPEC \\ & + SECTOR\ DUMMIES + \varepsilon_t \end{aligned} \tag{3}$$

RETA is the firm life cycle proxy, following DeAngelo *et al.* (2006), and is measured as the ratio of retained earnings (loss) to total assets. We expect the coefficient on RETA to be negative and significant following the theoretical arguments that the financial reporting quality of mature-stage firms is higher than for firms at other stages of their life cycle. The coefficient on POST could be positive or negative, depending on whether the principles-based IFRS constrain or accentuate earnings manipulation. Finally, a negative and significant coefficient on the two-way interactive variable RETA * POST would support H_2. We also run regression equation (3) for two RETA cohorts with the highest one-third of the RETA representing mature firms, whilst the bottom one-third represents the early stage firms.

We develop the following regression specification to test H_3, i.e. the effect of financial reporting quality on the cost of equity after the mandatory adoption of IFRS:

$$\begin{aligned} COE_{PEG} = {} & \gamma_0 + \gamma_1 |DAC| + \gamma_2 POST + \gamma_3 DAC * POST + \gamma_4 ZSCORE \\ & + \gamma_5 LEV + \gamma_6 BTM + \gamma_7 LOSS + \gamma_8 BETA + \gamma_9 ACMEM \\ & + \gamma_{10} GCOPIN + \gamma_{11} AUDSPEC + SECTOR\ DUMMIES + \varepsilon_t \end{aligned} \tag{4}$$

We expect the coefficient on |DAC| to be positive and significant, to suggest that poor-quality earnings (greater extent of earnings management) will increase information risk and, hence, the cost of equity (Francis *et al.*, 2005; Gray *et al.*, 2009). An increase in financial reporting quality would mean that the market is less likely to be misled by opportunistic earnings management behavior (Francis *et al.*, 2005). We are interested in the coefficient on the two-way interactive variable |DAC|*POST, which captures financial reporting quality in the post-IFRS period. If the adoption of IFRS improves (worsens) financial reporting quality, then the coefficient on this variable should be negative (positive), respectively. We control for a number of risk factors and firm characteristics likely to determine the cost of equity capital. Firm size reduces the cost of equity capital because large firms have a lower probability of default (Berger and Udell, 1995), are followed more by analysts and are more

liquid (Witmer and Zorn, 2007). We include Altman's (1968) Z score (*ZSCORE*) to control for the bankruptcy risk. Altman's Z score = 1.20 (Working Capital/Total Assets) + 1.40 (Retained Earnings/Total Assets) + 3.30 (EBIT/Total Assets) + 0.60 (MVE/Total Liabilities) + 0.999 (Sales/Total Assets). A higher score indicates better financial health and, hence, a lower probability of financial distress. We include leverage (*LEV*) as a proxy for the riskiness of the firm. The higher the level of leverage, the greater the perceived risk associated with the firm and, consequently, the higher the cost of equity capital (Fama and French, 1992; Gebhardt *et al.*, 2001; Modigliani and Miller, 1958). We use the book-to-market ratio (BTM) as a growth proxy. We also control for loss (*LOSS*), as the negative earnings stream of a firm could influence investors to consider that the firm will abandon its resources (Collins *et al.*, 1999). To address the risk, we control for the effect of systematic risk (BETA), as this is positively associated with the cost of equity capital (Harris and Marston, 1992; Lintner, 1965). Finally, we control three corporate governance proxies – audit committee independence (*ACMEM*), auditor opinion (*GCOPIN*) and auditor quality proxied by industry specialist auditor (*AUDSPEC*).

Our final analysis splits equation (4) by two different sample groups, namely, early-stage firms (RETA <median value) and mature firms (RETA >median value).

Positive and significant coefficients on |DAC|, POST and the interactive variable |DAC| * POST will imply that mandatory adoption of IFRS accentuates earnings manipulation risk, which will increase the cost of equity. However, to support H_4, we expect a negative coefficient that will imply that mandatory adoption of IFRS reduces discretionary accruals results in lower cost of equity. To control for potential heteroskedasticity and autocorrelation problems, the standard errors are clustered by firm/years to provide a more robust standard error estimation and reliable *t*-statistics (Gow *et al.*, 2010).

3.3 Estimation of cost of equity

Cost of equity can be measured using both the implied approach and the realized approach. The estimation of the implied cost of equity involves calculating the internal rate of return that equates the stock prices to the present value of forecasted cash flows (Hou *et al.*, 2012). On the other hand, the realized approach uses ex post stock returns to estimate the cost of equity. However, estimates based on ex post realized stock returns suffer from measurement errors, such as imprecise estimates of factor risk premium and risk loading (Fama and French, 1997). Hence, researchers are increasingly relying on the implied cost of equity capital. In line with previous studies, we use implied approaches to estimate the cost of equity, in particular, the Easton (2004) PEG measure. Botosan and Plumlee (2005) documented that Easton's (2004) PEG ratio model is the preferable measure of the cost of equity, as this measure dominates the other alternatives in the sense that they are consistently and predictably related to various risk measures.

4. Test results

Table I presents descriptive statistics. The mean (median) earnings quality proxied by the absolute value of performance-matched discretionary accruals is 10 per cent (5 per cent) of lagged total assets. Sample firms are low-leveraged (an average leverage ratio of 19 per cent) but high-growth firms, although there is significant variation in SALEGR among sample observations (a standard deviation of 5.12). The average scaled operating cash flow is −3 per cent of total assets and 43 per cent of the observations report negative earnings. About 21 per cent of the firm-year observations are audited by an industry specialist auditor. With respect to governance variables, we find that in the case of 10 per cent of the firm-year observations, auditor issued a going concern opinion. The audit committee has an average

Variable	N	Mean	S.D.	Min	Q_1	Q_2	Q_3	Max
$\|DAC\|$	7,002	0.10	0.12	0.00	0.02	0.05	0.12	0.66
SIZE	7,002	18.20	2.17	12.31	16.7	18.06	19.6	22.96
LEV	7,002	0.19	0.46	0.00	0.00	0.10	0.26	7.46
LOSS	7,002	0.43	0.50	0.00	0.00	0.00	1.00	1.00
OCF	7,002	−0.03	0.29	−1.65	−0.08	0.04	0.11	0.45
SALEGR	7,002	0.13	5.12	−0.88	−0.06	0.014	0.57	24.20
AUDSPEC	7,002	0.21	0.41	0.00	0.00	1.00	1.00	1.00
POST	7,002	0.58	0.49	0.00	0.00	1.00	1.00	1.00
RETA	7,002	−2.23	8.42	−80.15	−1.18	−0.11	0.13	0.53
COE_PEG	2,821	0.15	0.13	0.00	0.11	0.17	0.91	0.08
ZSCORE	2,821	5.54	13.37	−108.68	1.84	2.89	5.08	201.97
BTM	2,821	0.72	0.73	−1.37	0.53	0.88	5.00	0.29
BETA	2,821	1.10	0.93	−2.53	0.94	1.48	5.29	0.53
ACMEM	7,002	2.01	2.04	0.00	0.10	1.26	2.51	24.00
INDDIR	7,002	4.43	2.35	0.00	2.25	4.21	6.32	15.00
GCOPIN	7,002	0.10	0.31	0.00	0.00	0.00	0.00	1.00

Table I.
Descriptive statistics

of 2 independent members, with a maximum of 24. RETA displays substantial variation across the sample observations (a standard deviation of 8.42). The negative average RETA implies that many sample observations report negative retained earnings. The mean (median) cost of equity (COE_PEG) for the sample is 15.0 per cent (17.0 per cent). The mean values of ZSCORE are 5.54. Moreover, the mean (0.72) and median (0.88) BTM suggest that the sample firms have valuable growth opportunities. The mean BETA is 1.10, which is higher than that of Azizkhani *et al.* (2012) (1.02) and Hasan *et al.* (2015) (0.95).

Table II presents both the sector and yearly distribution of the sample observations. The sample is unevenly distributed across industries, with the largest samples being in the materials sector (28 per cent), followed by industrials (18 per cent) and consumer discretionary (15 per cent). We include sector fixed effects in all our regression specifications.

Table III Panel A presents the correlation analysis for the variables related to H_1 and H_2. Correlation analysis reveals that earnings quality is higher for mature firms with a correlation between |DAC| and RETA of −0.26 ($p < 0.01$). Larger firms have higher earnings quality, but high-leverage firms, loss-making firms and high-growth firms report more abnormal accruals ($|DAC|$). Interestingly, the correlation between |DAC| and POST is significantly positive (correlation 0.04, $P < 0.01$), implying that earnings quality decreased after the mandatory adoption of IFRS in Australia.

Table III Panel B presents the correlation analysis for the variables related to H_3 and H_4. The findings indicate that the correlations between the cost of equity and life cycle proxies are consistent with prediction. Mature firms enjoy a lower cost of capital (correlation between COE_PEG and RETA is −0.43). The cost of equity is significantly higher for firms with high absolute abnormal accruals compared to their low abnormal accruals counterparts ($\rho = 0.18, p < 0.001$). Interestingly, the pairwise correlation between COE_PEG and POST is positive and significant ($\rho = 0.03, p < 0.05$).

Table IV, Models (1)-(5) present regression results for the effect of mandatory IFRS adoption on financial reporting quality in Australia (H_1) and test whether this association is moderated by the firm life cycle stages (H_2). The positive and significant coefficient *POST* in Model (1) suggests that the adoption of IFRS has worsened financial reporting quality by increasing absolute discretionary accruals (coefficient 0.019, *t*-stat 6.41, $p < 0.001$). The coefficient implies a 1.9 per cent increase in absolute discretionary accruals in the

Sectors	GICS	Observations	(%)	Year	Observations
Energy	10	817	0.12	2001	580
Materials	15	2,013	0.28	2002	598
Industrials	20	1,254	0.18	2003	612
Consumer discretionary	25	1,069	0.15	2004	589
Consumer staples	30	373	0.05	2005	592
Health care	35	665	0.10	2006	587
Information technology	45	577	0.08	2007	600
Telecommunication service	50	161	0.02	2008	576
Utilities	55	113	0.02	2009	652
				2010	621
				2011	547
				2012	448
Total		7,002			7,002

Notes: GICS: Global Industry Classification Standard *Variable definitions*: $|DAC|$ is the absolute value of discretionary accruals, estimated using the following model for all firms in the same industry, with at least eight observations in an industry in a particular year:

$$ACC_t/TA_{t-1} = \gamma_0(1/TA_{t-1})\gamma_1\left[(\Delta SALES_t - \Delta RECEIVABLE_t)/TA_{t-1}\right]$$

$$+ \gamma_2(PPE_t/TA_{t-1}) + \gamma_3(ROA_{t-1}) + \varepsilon_t$$

where, ACC is total accruals calculated as earnings before extraordinary items and discontinued operations minus operating cash flows; TA is total assets in year $t-1$; $\Delta SALES$ is the change in sales from year $t-1$ to year t; $\Delta RECEIVABLE$ is the change in accounts receivable from year $t-1$ to year t; *PPE* is gross property plant and equipment; *ROA* is return on assets measured as earnings before extraordinary items and discontinued operations for the preceding year divided by total assets for the same year. The coefficient estimates from equation (2) are used to estimate the non-discretionary component of total accruals (*NDAC*) for our sample firms. The discretionary accruals is then the residual from equation (3), i.e. *DAC* = *ACC-NDAC*. *SIZE* is the natural log of total assets; *LEV* is firm leverage measured as the sum of short- and long-term debt over total equities; *LOSS* is an indicator variable coded 1 if earnings before abnormal items is negative, and zero otherwise; *OCF* is operating cash flows divided by total assets; *SALEGR* is the change of sales percentage in comparison to previous year; POST is an indicator variable coded 1 if the firm-year observations are from the post-IFRS period of 2006 to 2012, and zero otherwise; *RETA* is retained earnings as a proportion of total assets; *COE_PEG* is the implied cost of equity, estimated by the PEG model of Easton (2004); *ZSCORE* is Altman (1968) bankruptcy prediction score = 1.2(Working Capital/Total Assets) + 1.4(Retained Earnings/Total Assets) + 3.3(EBIT/Total Assets) + 0.6(MVE/Total Liabilities) + 0.999(Sales/Total Assets); *BETA* is a measure of systematic risk, extracted from Datastream. Datastream uses a five-year period and regresses the share price against the respective Datastream total market index using log changes of the closing price on the first day of each month. *INDDIR* is the proportion of independent outside directors to a total number of directors; *GCOPIN* is a dummy variable coded 1 if the firm-year observations had a qualified audit opinion including going concern opinion, and 0 otherwise; *ACMEM* is the proportion of independent director; *AUDSPEC* is auditor industry specialization measured by Dunn and Mayhew (2004)

Table II.
Sector distributions

post-IFRS-period (*POST*). Given the unconditional |DAC| mean of 10 per cent, the increase is economically significant as well. Our H_1 result, therefore, implies deterioration in financial reporting quality in the post-IFRS regime. The sign and significance of the control variables are generally consistent with theoretical predictions. Absolute discretionary accruals (|DAC|) is smaller for larger firms and firms with strong cash flows. However, |DAC| is greater for firms with high leverage and firms with more growth opportunities. With regard to the corporate governance variables, we find that firms that have received going concern

Variables (N = 7,002)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel A: correlation analysis among variables for testing H1 and H2												
|DAC| (1)	1.00											
RETA (2)	*−0.26*	1.00										
SIZE (3)	*−0.32*	*0.46*	1.00									
LEV (4)	*0.10*	*−0.43*	*−0.04*	1.00								
LOSS (5)	*0.24*	*−0.27*	*−0.55*	−0.01	1.00							
OCF (6)	*−0.25*	*0.60*	*0.52*	*−0.19*	*−0.53*	1.00						
SALEGR (7)	*0.13*	−0.03	*−0.08*	−0.02	*0.12*	*−0.06*	1.00					
AUDSPEC (8)	*−0.15*	*0.19*	*0.43*	0.00	*−0.25*	*0.20*	*−0.06*	1.00				
POST (9)	*0.04*	−0.01	*0.12*	−0.02	0.01	0.00	0.00	*−0.07*	1.00			
ACMEM (10)	*−0.05*	*0.18*	*0.09*	0.07	0.01	0.02	0.01	*0.08*	0.11	1.00		
GCOPIN (11)	*0.12*	0.03	*−0.02*	0.09	*0.17*	0.03	0.08	0.01	0.05	0.02	1.00	
INDDIR(12)	*−0.12*	*0.03*	*0.09*	0.01	0.03	0.09	0.05	*0.11*	0.02	*0.15*	0.03	1.00

Panel B: correlation analysis among variables for testing H3 and H4									
Variables (N = 2,821)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
COE_PEG (1)	1.00								
RETA (2)	*−0.43*	1.00							
|DAC| (3)	*0.18*	*−0.15*	1.00						
SIZE (4)	*−0.35*	*0.37*	*−0.16*	1.00					
LEV (5)	*−0.04*	*0.10*	*−0.07*	*0.06*	1.00				
BTM (6)	*0.14*	*0.04*	*−0.12*	*−0.33*	0.02	1.00			
LOSS (7)	*0.40*	*−0.51*	*0.17*	*−0.30*	*−0.11*	0.03	1.00		
BETA (8)	*0.25*	*−0.27*	*0.08*	*−0.18*	*−0.14*	*0.06*	*0.30*	1.00	
POST (9)	0.03	*0.07*	*0.08*	*0.13*	*−0.04*	*0.07*	*0.05*	*0.07*	1.00

Notes: Correlation coefficients in bold and italic are significant at the 1% level; Variables are defined in Table I

Table III.
Correlation analysis

opinion are likely to experience higher discretionary accruals (|DAC|). The model explains about 19 per cent of the variation in the dependent variable.

Table IV, Model (2) incorporates the firm life cycle as an additional explanatory variable. Although Model (1) documents a detrimental effect of IFRS adoption on financial reporting quality, it is not clear whether firms at different life cycle stages will experience it similarly. We use RETA as a proxy for firm life cycle (higher RETA implies mature firms) and find the interactive variable RETA * POST to be negative and significant in the Table IV of Model (2) (coefficient −0.003, *t*-stat -4.36, $p < 0.001$) suggests that although the mandatory adoption of IFRS has worsened financial reporting quality, the association is more pronounced for less mature firms. The coefficient on POST continues to be positive and significant. These together imply that although financial reporting quality has worsened post-IFRS, mature firms have been less affected by this transition. The evidence supports H_2. To test the sensitivity of our findings, we conduct an additional test using an alternative measure for the firm life cycle. We also use a dummy variable approach, whereby we create an indicator variable RETA_D coded 1 if the RETA is higher than the median, and zero otherwise. We find the interactive coefficient RETA_D * POST to be negative and significant (coefficient −0.022, *t*-stat −1.87, $p < 0.10$), implying that financial reporting quality improves for mature firms post-IFRS (Model 3). Additionally, we split the sample into three groups and rerun the regression equation (3) for the top one-third (mature firms) and the bottom one-third (early stage firms) of the RETA distribution and find the interactive variable RETA * POST to be positive and significant for the early-stage firms (bottom one-third) (the coefficient on 0.006, *t*-stat 3.22, $p < 0.001$) (Model 5). Taken together,

Table IV.
IFRS and financial reporting quality conditional on firm life cycle stages

Variables	Predicted sign	Full sample Model (1) |DAC|	Full sample Model (2) |DAC|	RETA_D>Median = 1, 0 otherwise Model (3) |DAC|	RETA cohort 3 (Mature firms) Model (4) |DAC|	RETA cohort 1 (early-stage firms) Model (5) |DAC|
Constant	?	0.312*** (15.81)	0.306*** (14.76)	0.311*** (14.52)	0.337*** (14.21)	0.303*** (10.52)
RETA	−	–	−0.006* (−1.80)	−0.016** (−2.08)	0.004 (0.18)	0.009 (1.32)
POST	?	0.019*** (6.41)	0.015*** (4.81)	0.039*** (3.97)	0.019*** (5.91)	0.019*** (3.39)
*RETA*POST*	−	–	−0.003*** (−4.36)	−0.022* (−1.87)	−0.003 (−0.69)	0.006*** (3.22)
SIZE	−	−0.011*** (−10.37)	−0.011*** (−9.67)	−0.027*** (−9.12)	−0.019*** (−10.24)	−0.019*** (−9.14)
LEV	+	0.007*** (2.17)	0.015* (1.77)	0.009** (2.02)	0.029*** (3.18)	0.031*** (3.19)
LOSS	+	−0.013*** (−3.25)	−0.011** (−2.94)	−0.006 (−0.94)	−0.003 (−0.67)	−0.005 (−1.73)
OCF	−	−0.003** (−2.84)	−0.004** (−2.26)	−0.029* (−1.72)	−0.051*** (−2.92)	−0.033** (−2.62)
SALEGR	+	0.002*** (5.21)	0.002*** (8.72)	0.003*** (4.52)	0.003*** (6.11)	0.004*** (4.21)
ROA	−	−0.060*** (−4.85)	−0.051*** (−4.42)	−0.003 (−0.75)	−0.003 −(0.88)	−0.003** (−2.10)
INDDIR	+	0.001 (1.46)	0.001 (1.31)	0.002 (1.33)	0.002 (1.28)	0.004 (0.33)
ACMEM	?	−0.003** (−2.40)	−0.002** (−2.35)	−0.004*** (−3.45)	−0.011* (−1.69)	−0.009* (−1.85)
GCOPIN	+	0.014** (2.68)	0.012** (2.22)	0.011** (2.14)	0.009** (2.33)	0.012** (2.09)
AUDSPEC	−	−0.004*** (−3.19)	−0.002** (−2.81)	−0.003*** (−3.51)	−0.002*** (−4.02)	−0.003*** (−3.22)
Sector FE		YES	YES	YES	YES	YES
Year FE		NO	NO	NO	NO	NO
Observations		7,002	7,002	7,002	2,346	2,347
Adj. R^2		0.19	0.17	0.16	0.13	0.15

Notes: Variable definitions are in Table I. Robust *t*-statistics in brackets. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.10$. The χ^2 test of the equality of coefficients on RETA between pre- and post-IFRS is rejected [χ^2 10.72, $p < 0.01$]

our empirical analysis in Table IV suggests that although the financial reporting quality deteriorates after the mandatory adoption of IFRS, such an effect is more pronounced for early-stage firms. Mature firms, on the other hand, experience an improvement in financial reporting quality in the post-IFRS regime.

Table V presents tests of the effect of financial reporting quality on the firm-level cost of equity capital and of whether this association varied between the pre and post-IFRS adoption regimes (H_3). Consistent with theoretical arguments that low-quality earnings increase information uncertainty, investors price-protect themselves by requiring a higher return. Hence, a positive association between low-quality financial reporting and the cost of equity is expected. The result reported under Model (1) is consistent with this proposition (coefficient |DAC| is 0.12 with an associated *t*-statistic of 5.68, $p < 0.001$). The coefficient on POST is positive and marginally significant (coefficient 0.007, *t*-stat 1.81, $p < 0.10$), suggesting an increase in the cost of equity after the adoption of IFRS. Daske (2006) too, documents a positive association between the two using data from the EU. The sign and significance of the control variable suggest that larger and financially solvent firms (ZSCORE) have a lower cost of equity, but firms making losses, and with a high beta, experience a higher cost of equity.

Model (1), however, does not explain whether the increase in the cost of equity in the post-IFRS period is because of deteriorating earnings quality (Model 1, Table V). Model (2) incorporates |DAC|, POST and the interaction between the two (|DAC| * POST) to discern whether deteriorating financial reporting quality in the post-IFRS period increases the cost of equity. We are interested in the coefficient and significance of the interactive variable |DAC| * POST. The coefficient will be positive (negative) if the cost of equity increases (decreases) post-IFRS adoption. Results reveal a positive and marginally significant coefficient on |DAC| * POST (coefficient 0.080, *t*-stat 2.01, $p < 0.05$). We also run the regression for the pre- and post-IFRS sub-periods. Interestingly, we find that low-quality financial reporting in the post-IFRS regime is primarily responsible for the positive association between |DAC| and the cost of equity (Model 1). The coefficient on |DAC| is 0.036 (*t*-stat 0.75) in the pre-IFRS period (Model 3, Table V) but increases to 0.11 (*t*-stat 3.74, $p < 0.001$) in the post IFRS period (Model 4, Table V). This evidence lends support to the notion of a detrimental effect of IFRS adoption in Australia, both in terms of low-quality reporting and, consequently, a higher cost of equity. The evidence lends support to H_3. The equality of the coefficient on absolute |DAC| between the pre- and post-IFRS periods is rejected ($\chi^2 = 2.79$, $p < 0.10$).

Table VI presents whether the mediating effect of IFRS (between the association of cost of equity and financial reporting quality) varies across the different stages of firm life cycle. Model (1) in Table VI includes |DAC| and POST in the same regression, along with their interactions (|DAC| * POST). We evidence the coefficients on |DAC| and POST are positive and significant as in Table V. We split the sample firms into two groups: early-stage firms (RETA<median of RETA) and mature firms (RETA>median of RETA). For early-stage firms, Model (1) documents a negative but insignificant coefficient on |DAC| * POST (coefficient −0.041, *t*-stat −1.10). However, for the mature firms, Model (2) evidences a negative and significant association between the cost of capital and post-IFRS period accruals (coefficient −0.008, *t*-stat −1.99, $p < 0.05$), suggesting that better quality earnings produced by mature firms translate into a lower cost of equity. Other control variables are mostly consistent with the theoretical prediction. The predictability of the ordinary least square regression model is approximately 29 per cent.

4.1 Additional test

4.1.1 Alternative life cycle proxy. We also use the life cycle methodology of Dickinson (2011), who relies on the economics literature in addressing the individual attributes of life cycle

Table V.
Financial reporting quality and cost of equity: IFRS effect

Variables	Predicted sign	Full sample Model (1) COE_PEG	Full sample Model (2) COE_PEG	Pre-IFRS (2001-2005) Model (3) COE_PEG	Post-IFRS (2006-2012) Model (4) COE_PEG
Constant	?	0.448*** (12.32)	0.450*** (12.27)	0.460*** (8.47)	0.427*** (6.72)
|DAC|	+	0.12*** (5.68)	0.071* (1.71)	0.036 (0.75)	0.111*** (3.74)
POST	?	0.007* (1.81)	0.005 (0.87)	–	–
|DAC| **POST*	?	–	0.08** (2.01)	–	–
SIZE	–	−0.016*** (−8.00)	−0.017*** (−9.97)	−0.016*** (−6.26)	−0.016*** (−6.61)
ZSCORE	–	−0.002*** (−8.58)	−0.002*** (−10.36)	−0.003*** (−6.98)	−0.002*** (−7.35)
LEV	+	−0.071*** (−5.05)	−0.082*** (−6.01)	−0.075*** (−6.93)	−0.074*** (−3.74)
BTM	+	0.016 (5.27)	0.015*** (4.86)	−0.004** (−2.01)	0.025*** (6.43)
LOSS	+	0.071*** (9.38)	0.096*** (14.04)	0.088*** (8.45)	0.103*** (11.89)
BETA	+	0.015*** (5.68)	0.017*** (6.13)	0.020*** (5.89)	0.006 (1.31)
ACMEM	–	0.002* (1.81)	0.003* (1.84)	0.001 (0.97)	0.003* (1.77)
GCOPIN	+	0.045*** (3.41)	0.046*** (3.42)	0.111*** (5.66)	0.121*** (3.41)
AUDSPEC	–	−0.004** (−2.17)	−0.003** (−2.37)	−0.002*** (−3.09)	−0.002** (−2.01)
Sector FE		YES	YES	YES	YES
Year FE		NO	NO	YES	YES
Observations		2,821	2,821	1,134	1,687
Adj. R^2		0.33	0.29	0.37	0.26

Notes: Variable definitions are in Table I. Robust *t*-statistics in brackets. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.10$. The χ^2 test of the equality of coefficients on DAC between pre- and post-IFRS is rejected ($\chi^2 = 2.79, p < 0.10$)

Variables	Predicted sign	RETA_D<Median Model (1) COE_PEG	RETA_D>Median Model (2) COE_PEG
Constant		0.450*** (12.27)	0.391*** (11.12)
|DAC|	+	0.044 (0.18)	0.20*** (4.46)
POST	?	0.011* (1.81)	0.006*** (3.03)
|DAC| *POST	−	−0.041 (−1. 10)	−0.008** (−1.99)
SIZE	−	−0.017*** (−2.98)	−0.019*** (−6.52)
Z_SCORE	−	−0.001*** (−0.008)	−0.002*** (−10.23)
LEV	+	−0.032*** (−6.18)	−0.0771*** (−5.49)
BTM	+	0.011*** (3.21)	0.010* (1.85)
LOSS	+	0.025*** (4.08)	0.097*** (14.30)
BETA	+	0.013*** (3.52)	0.013*** (5.11)
ACMEM	−	0.003 (0.94)	0.002 (0.18)
GCOPIN	+	0.75 (0.88)	0.034** (2.680)
AUDSPEC	−	−0.120*** (−2.98)	−0.004 (−0.81)
Sector FE		YES	YES
Year FE		NO	NO
Observations		128	2,693
Adj. R^2		0.27	0.29

Notes: Variable definitions are in Table I. Robust *t*-statistics in brackets. ***$p < 0.01$; **$p < 0.05$; *$p < 0.10$

Table VI. Financial reporting quality, IFRS adoption and cost of equity: life cycle perspective

theory, such as production behavior (Spence, 1981; Wernerfelt, 1985), learning/experience (Spence, 1981), investment, entry/exit patterns (Caves, 1998) and market share (Wernerfelt, 1985). Using these attributes, she develops a life cycle (LC) proxy based on the predicted behavior of operating, investing and financing cash flows across different life cycle stages and groups firms as: "introduction," "growth," "mature," "shakeout" and "decline"-stage firms. Untabulated results[8] show that absolute |DAC| is high for firms in the introduction (coefficient 0.042, *t*-stat 5. 83, $p < 0.001$), growth (coefficient 0.008, *t*-stat 2.31, $p < 0.05$) and decline (coefficient 0.062, *t*-stat 6.59, $p < 0.001$) stages compared to the mature stage of the firm life cycle. We then interact (untabulated results[9]) the life cycle variables with POST but find only the coefficient on DECLINE*POST to be positive and significant (coefficient 0.051, *t*-stat 3.41, $p < 0.001$). For the Dickinson (2011) proxy, we find the cost of equity to be high for firms in the introduction (coefficient 0.042, *t*-stat 3.91, $p < 0.01$), shakeout (coefficient 0.028, *t*-stat 3.51, $p < 0.001$) and decline (coefficient 0.092, *t*-stat 3.85, $p < 0.001$) stages of the firms' life cycle compared to firms in the mature stage.

4.1.2 Alternative sampling procedure. We rerun our analysis, imposing the restriction that sample observations have to be present during both the pre- and post-IFRS periods (continuing sample). The coefficient on POST continues to be positive and significant (Model 1, Table IV). For the cost of equity analysis, we find the coefficient on |DAC| to be positive and significant (coefficient 0.091, *t*-stat 1.78, $p < 0.10$) and that on RETA to be negative and significant (coefficient −0.05, *t*-stat −3.75, $p < 0.001$). The coefficient on the interaction variable |DAC| * POST is negative and significant (coefficient −0.17, *t*-stat −3.66, $p < 0.001$). This is consistent with the main results in Model (2) in Table VI.

4.1.3 Alternative International Financial Reporting Standards adoption regime. In our primary analysis, we considered the period 2001-2005 to be the pre-adoption period. However, given that 2005 has been considered to be the transition year, we reran our

analysis defining 2001-2004 to be the pre-IFRS period and excluded 2005 from the sample. Untabulated results reveal the interactive coefficient RETA*POST to be negative and significant (coefficient −0.002, *t*-stat −1.89, $p < 0.10$) following Model (2) in Table IV. The coefficient on the interaction variable |DAC| * POST is negative and significant (coefficient −0.24, *t*-stat −3.17, $p < 0.001$) following Model (2) in Table VI, for this alternative IFRS adoption timeline. Thus, our results are consistent with the original findings.

5. Conclusion

This research examines the effect of IFRS adoption on financial reporting quality and the cost of equity in a mandatory IFRS regime. We also use the firm life cycle to contextualize the impact of IFRS on financial reporting quality and cost of equity. Proponents argue that IFRS adoption will ensure improved comparability, reduced information asymmetry and lowered cost of equity. However, opponents argue that IFRS will encourage discretion for management and auditors. This inconclusive financial reporting setting motivates our research to examine the financial reporting implications of the adoption of IFRS.

We use Australia, which mandated the adoption of IFRS, as the setting for our investigation of this research question and, thus, ruled out the selection problem emanating from a voluntary IFRS adoption choice. We use abnormal accruals as a proxy for financial reporting quality and find that abnormal accruals increased following the adoption of IFRS: an indication of deteriorating financial reporting quality. Further, we examine whether the mandatory adoption of IFRS affects the cost of equity through the mediating channel of financial reporting quality and provide evidence that the deterioration in financial reporting quality post-IFRS increased the cost of equity. Finally, we examine whether IFRS adoption had an incremental beneficial effect in reducing the cost of equity for mature firms and demonstrate that IFRS benefit mature firms by incrementally lowering the cost of equity. Our overall findings suggest that there has been an improvement in accounting quality after the mandatory adoption of IFRS, but only for firms in the mature stage of their life cycle.

This research makes a number of contributions. *First*, we extend the prior literature on the financial reporting implications of the adoption of IFRS and extend this analysis to examine the impact of earnings quality on the cost of equity in a mandatory IFRS-adoption environment. *Second*, we incorporate the firm life cycle, a hitherto unexplored contextual variable, in the investigation of the effect of the adoption of IFRS on earnings quality and their joint effect on the cost of equity. Our research responds to criticisms regarding the feasibility of a "one-size-fits-all" approach of mandating IFRS.

Notes

1. Barth *et al.* (2012) document that, following IFRS adoption, IFRS firms and US Generally Accepted Accounting Principles (GAAP) firms exhibit higher accounting-system and value-relevance comparability, although some differences persist. Using a sample of UK firms, Brochet *et al.* (2013) document a decrease in information asymmetries following the introduction of IFRS, lending support to an increase in accounting comparability. Wang and Welker (2011) find larger information transfers for the post-IFRS adoption period and interpret this evidence as indicative of increased comparability. Yip and Young (2012) provide evidence of increased accounting comparability following IFRS adoption. Cascino and Gassen (2015), however, find that the overall comparability effect of mandatory IFRS adoption is not substantial.

2. The adoption of fair value measurement in developing IFRS makes firms disclose more information about their market risk, requiring auditors to spend additional time in verifying such estimations that are inherently uncertain, before expressing an opinion about the appropriateness of the financial statements. Of course, auditors could rely on external valuation specialists, but the

reasonableness of such valuation needs to be validated by the engagement team (Smith-Lacroix *et al.*, 2012).

3. For further details: www.frc.gov.au/bulletins/2002/04.asp
4. Available at: www.ifrs.org/about-us/who-we-are/ (accessed 30 June 2015).
5. Florou and Pope (2012) suggest that divergence captures inconsistencies between local GAAP and IFRS treatments.
6. Studies that find support for the beneficial effect of IFRS using international samples include Barth *et al.* (2008) (less earnings management, more timely loss recognition and more value relevance of accounting information) and Houqe *et al.* (2012) (earnings quality improves post-IFRS in countries with strong investor protection regimes). Horton *et al.* (2013) find that, after mandatory IFRS adoption, forecast accuracy increases significantly more for mandatory adopters relative to non-adopters and voluntary adopters, courtesy of increased comparability brought about by IFRS.
7. Available at: www.rba.gov.au/speeches/2010/sp-dg-200810.html (accessed 25 November 2018).
8. We regress the equation: $|\mathbf{DAC}| = \gamma_0 + \gamma_1 LC\ (Life\ Cycle\ proxy) + \gamma_4 SIZE + \gamma_5 LEV + \gamma_6 LOSS + \gamma_7 OCF + \gamma_8 SALEGR + \gamma_9 ROA + \gamma_{10} INDDIR + \gamma_{11} ACMEM + \gamma_{12} GCOPIN + \gamma_{13} AUDSPEC + SECTOR\ DUMMIES + \varepsilon_t$
9. We regress the equation: $|\mathbf{DAC}| = \gamma_0 + \gamma_1 LC\ (Life\ Cycle\ proxy) + \gamma_2 POST + \gamma_3 LC{*}POST + \gamma_4 SIZE + \gamma_5 LEV + \gamma_6 LOSS + \gamma_7 OCF + \gamma_8 SALEGR + \gamma_9 ROA + \gamma_{10} INDDIR + \gamma_{11} ACMEM + \gamma_{12} GCOPIN + \gamma_{13} AUDSPEC + SECTOR\ DUMMIES + \varepsilon_t$

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Corresponding author
Md. Borhan Uddin Bhuiyan can be contacted at: M.B.U.Bhuiyan@massey.ac.nz