EFFECTS OF AUDIT QUALITY ON EARNINGS QUALITY AND COST OF EQUITY CAPITAL: EVIDENCE FROM INDIA

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Effects of Audit Quality on Earnings Quality and Cost of Equity Capital: Evidence from India

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Abstract

In this paper, using a large sample covering the 10 years from 1998 to 2009, we examine the impact of audit quality on the earnings quality (discretionary accruals and income smoothing) and cost of equity capital of Indian firms. We find evidence that firms employing high quality auditors experience higher earnings quality and lower cost of equity capital. We find that firms belonging to business groups have higher earnings quality and lower cost of equity capital than their non-business group counterparts. The results do not change after utilising alternative proxies for audit quality, earnings quality and cost of equity. Our findings contribute significantly to the literature on the role of audit quality as an effective monitoring mechanism as reflected in firm level earnings quality and cost of equity capital of listed firms in India which has distinct institutional features in relation to ownership structures and operations.

Key words: India, Corporate Sector, Earnings Management, Income smoothing, Cost of Equity Capital, Audit Quality.

JEL Classification: M40, M41, M42.

Effects of Audit Quality on Earnings Quality and Cost of Equity Capital: Evidence from India

1. Introduction

In this paper, using a large sample of Indian corporations over ten years, we examine the monitoring role of external auditors on financial reporting quality and firms' cost of equity. Financial reporting quality and the role of auditors have become an important issue following recent scandals involving large Indian companies. For example, ineffective corporate boards have allowed company corruption such as tunnelling of wealth to occur, and this has become a problem for regulatory bodies because it deprives shareholders of dividends and accurate information regarding firms' performance and financial position (Ghosh 2011). Chakrabarti (2005) reveals that some Indian business groups have even channelled substantial amounts of money via the ownership pyramid, totally depriving minority shareholders of their rightful gains.[1] Many founding members have been caught manipulating earnings and appropriating wealth from shareholders (for example, Satyam Computer Services & Ketan).

To improve financial reporting quality the Institute of Chartered Accountants of India (ICAI) has modified some accounting standards requiring firms to disclose additional information concerning related-party transactions, segment income (revenue, profit, and capital employed), deferred tax liabilities or assets, and consolidation of accounts in 2001-2002 (Standard & Poor's 2009). However, it has been alleged that although there an adequate regulatory framework to monitor corporate operations including financial reporting and auditing is now in place in India, monitoring is proving not be as effective as it should be, resulting in mistrust within the corporate sector and a higher level of information asymmetry (Ghosh 2011; Goswami 2002). Further, Ghosh (2011) notes a lack of reliance on domestic

[1] Depriving minority shareholders of their rightful gains substantiates concerns expressed by Bertrand, Metha and Mullainathan (2002) that weak corporate law and careless enforcement mechanisms promote the risk of minority shareholders being expropriated.

auditors to provide assurance in India – most probably due to concerns around the quality of service offered to corporations. This situation has prompted external auditors to take on a more effective role in providing high quality assurance services and Indian corporations with a better governance structure (Standard & Poor's 2009; Topalova 2004). The value of quality auditing arises because external auditors put constraints on managerial opportunistic behaviour and reporting discretion and, therefore, reduce information risk (Chen, Chen, Lobo and Wang 2011).

Although several studies have examined the effect of audit quality on financial reporting credibility in many countries (Becker, DeFond, Jiambalvo, and Subramanyam 1998; Khurana and Raman 2004; Teoh and Wong 1993), their results cannot be generalised to other countries such as India which has a distinctive and unique securities market and institutional setting. In an emerging market context, Chen et al. (2011) examined the effect of audit quality on earnings management and cost of capital of state-owned and non-state-owned enterprises in China; however, China's institutional setting is distinctively different from that of India. For example, in India, along with government controlled public sector units (PSUs), there are multinational companies (MNCs) where foreign parent companies are the majority shareholders, and Indian business groups exist where the "promoters" (together with their friends and relatives) are the dominant shareholders. This latter group of firms plays a very important role in the Indian corporate sector, constituting about one-third in terms of number of companies, and over two-thirds in terms of revenue and profits (Chittoor, Dhole, and Lobo 2012).

This unique structure of family firms gives rise to a different type of agency costs known as "horizontal" agency costs between controlling shareholder groups – in particular, "promoters" and the affiliated business group – and potentially leads managers to act on behalf of the controlling family, but not necessarily on behalf of the shareholders (Chakrabarti,

Subramanian, Yadav, and Yadev 2012). Furthermore, in family firms and stand-alone firms it is very typical for ownership and management not to be segregated. This leads to informality in governance policies and inadequate controls (Standards and Poor's 2009). A further distinction is that the accounting and auditing profession in India is based on the British corporate tradition of competence and professional judgement and has operated as such for 100 years (since the Indian Companies Act of 1913). On the other hand, China's auditing profession was influenced by the then Soviet Union and is still influenced by the Ministry of Finance via the China Institute of Certified Practising Accountants (CICPA), although the profession has changed markedly over the last 30 years by following the Western model. In India, only Indian qualified chartered accountants (CAs) (except for UK qualified CAs) are allowed to audit company accounts, while in China this rule does not apply.

Although Chittoor et al. (2012) examined earnings quality of Indian corporations, our paper is different in that we address the role of quality of managerial absolute discretionary accruals, income smoothing and cost of capital. Chittoor et al. examined, among other things, whether or not high quality auditors (as a proxy for earnings quality) are appointed by Indian Business Groups (BG).

Following previous studies (Becker et al. 1998; Chen et al. 2011), we use the magnitude of absolute discretionary accruals (|*DACCR*|) and income smoothing as a direct benchmark for the absolute magnitude of 'economic income' and information risk to determine the role of audit quality in India in earnings quality. We also utilise *ex ante* cost of equity capital (K_e) to assess the valuation implications of audit quality, with the rationale that higher audit quality should lead to smaller equity capital costs, due to reduced information risk. We do this by analysing a sample of 7,308 firm-year observations for |*DACCR*|, *In_Sm* and K_e drawn from several industrial sectors. After controlling for a number of firm-specific variables including whether companies belong to business groups, we find that the coefficient on high quality

auditors is significantly negatively associated with absolute discretionary accruals, income smoothing and sample firms' cost of capital. Several sensitivity tests – including alternative proxies for audit quality, such as Top 8 and audit fees, and an alternative measure of discretionary accruals, income smoothing and cost of equity – do not change our main findings.

Our study contributes to existing literature on the role high quality auditors' play in constraining managerial discretionary accounting policy choices and income smoothing. It examines an emerging market context characterised by a less litigious environment where the penalty for corporate fraud is very low compared to other jurisdictions, and the professional accounting bodies most of the time condone audit failure, leading to lack of trust in and credibility of financial reporting (Chakrabarti 2005). By examining the capital market effect of employing high quality auditors in the form of cost of equity capital, we also extend the important work of Fan and Wong (2005) and Chen et al. (2011) in the context of Asia's second largest economy, India. Our study also generates new evidence to support previous claims that business groups experience lower discretionary accruals in their reported earnings, lower income smoothing and lower cost of equity capital.

The rest of this paper is organised as follows. In section 2 we discuss the development of the stock market and the role of auditing in the Indian economy. In section 3 we develop our hypotheses. In section 4 we describe our sample and data collection processes, and develop our proxies for audit quality and measurement of earnings management and cost of equity capital. In section 5 we provide our model specifications. In sections 6 and 7 we discuss the results of our main and additional tests. In section 8 we present our conclusions and limitations of the study.

2. Background

2.1 Development of the stock market in India

From a state controlled economy, the Indian economy has undergone major restructuring and reform over the past sixty years, initially upon separation from British rule in the late 1940s, and then with liberalisation of the corporate sector in the early 1990s. The liberalisation of the economy and movement towards globalisation have sparked the growth of a strong investment culture, reduced dependence on state-owned enterprises, and generated a proliferation of private enterprises led by groups of entrepreneurial families. Since 1997 the Indian economy has experienced an average growth of 7% per annum; the number of listed corporations has increased exponentially (there are currently 6335 listed companies on the Bombay Stock Exchange (BSE) and the National Stock Exchange (NSE). The market capitalisation of listed companies as a percentage of gross domestic product (GDP) increased to 93.46% in 2010, with a total market capitalisation around US$598.3 billion (Rs 30.13 lakh crore) which is one-tenth of the combined valuation of the Asia region (The World Bank 2011). Associated with this rapid expansion of the economy, the government implemented wide-ranging changes in legislation and regulations, including the establishment of the Securities and Exchange Board in India (SEBI) in 1992, strengthened accounting regulatory and professional bodies, and gradually adopted and harmonised accounting standards issued by the International Accounting Standard Board (IASB) (Standard & Poor's 2009).

However, the economic advances made in India have resulted in many upheavals. Although the Indian government controlled most of the manufacturing activities by the 1970s, the banking sector to a significant extent still functioned as a private enterprise concern, but the process of privatisation following the adoption of liberal economic policies was hampered due to bureaucracy (Chakrabarti 2005; Goswami 2002). Later, the government encouraged the establishment of more private banks to foster competition and the Reserve Bank of India (RBI) reduced its direct interference with regard to credit and setting prices but enforced stronger disclosure norms and greater emphasis on: firstly, periodic RBI surveillance; and secondly, the

government-appointed directors on the boards of private banks. However, this process of appointing directors by RBI was gradually phased out, replaced by an emphasis on boards being elected rather than appointed from above.

In May 1992, the government abolished the Capital Issues (Control) Act 1947 and the Industries Development and Regulation Act, 1951, in their place establishing the Securities and Exchange Board of India (SEBI). Gradually becoming more powerful, SEBI, with a primary focus on regulating and monitoring stock trading, has played a crucial role in establishing the basic minimum ground rules of corporate conduct in India. Chakrabarti (2005, p. 18) states that the SEBI may even be "the single most important development in the field of corporate governance and investor protection in India".

The equity market in India is dominated by the Bombay Stock Exchange (BSE) and the National Stock Exchange (NSE), both located in Mumbai. The BSE is the oldest stock exchange in Asia (established in 1875) and has among the highest number of trades in the world. The NSE is a limited liability company owned by public sector financial institutions and now accounts for about two-thirds of stock trading in India, as well as nearly all of its derivatives trading. In 2010, the number of listed companies was about 6335 on the BSE and NSE combined. However, there is a market concentration of large corporations as the top 100 BSE companies represent nearly 86% of market capitalisation of the BSE. In comparison the top 100 NSE companies represented 57% of total market capitalisation of the NSE (ROSC 2004).

Equity investment, either through the initial public offerings (IPO) or the secondary market route, is growing rapidly. The capitalisation of the domestic stock market increased by approximately 30% and it reached US $931 billion in March 2008. There is also a trend toward international cross-listing by large Indian corporations, especially on the NYSE and Nasdaq which are reputed to maintain very high reporting standards, but the number is still very small

and only one company, Infosys Technologies Limited, has secured a spot on Nasdaq's Global (Standard & Poor's 2009).

Compared to the equity market, the Indian debt market is not developed. The market comprises two segments: government securities (G-Secs) and corporate debt, with the corporate debt amounting to about 14% of the total debt market. To increase the corporate debt market share several reforms have been undertaken directed at institutional development to enhance market activity, settlement and safety, enhancing liquidity and efficiency, and broadening investor base (Standard & Poor's 2009).

The ownership structure that Indian companies have poses challenges with regard to opportunities for finance and marketing as well as constraints with respect to governance. In a recent survey of the top 50 Indian companies that are listed on the Nifty Index, 54% of large Indian companies are controlled by a single family with as little as 12% to 20% of the voting shares (Standard & Poor's 2009) . This form of control is not common in most emerging countries because each entity is separately formed under the Companies Act and controlling rights spread across several friends and relatives and even across state-owned enterprises which remain traditionally passive, thus providing decision-making rights to promoters with relatively little ownership.

2.2 Auditing in India

The Companies Act, 1956 is the major statute governing the preparation of financial statements in accordance with the prevailing accounting standards and audit of the accounts prepared by companies in India. The Act itself is based on the Indian Companies Act, 1913 enacted by the British during the colonial period and has undergone several amendments with regard to formation, operations, and governance in order to improve the weak nature of corporate governance in India's corporate environment (Bertrand et al. 2002; Ghosh 2011). The Act of

1956 specifically requires the preparation, presentation, publication, and disclosure of financial statements; and an audit of all companies by a member of the Institute of Chartered Accountants in India (ICAI) formed under the Chartered Accountants Act 1949 (Ghosh 2011, p. 352).[2] The Income Tax Act 1961 requires an audited balance sheet and profit and loss statements, with a copy certified by a chartered accountant, to be submitted by all public companies with their tax returns.

The ICAI also puts responsibility on its members to examine compliance with prevailing accounting standards in the presentation of financial statements while conducting their audits, and its members are liable for disciplinary action under the provisions of Chartered Accountants Act of 1949 if he/she has not reported non-compliance (ICAI 2004). The 1949 Act was revised in 2003 in the wake of accounting irregularities in the US in the early 21st century, and sought to reconfigure the current regulatory regime and the disciplinary arrangements relating to the accounting profession in India (Ghosh 2011). Such reconfiguration was partly due to responses made relating to the Report on the Committee on Corporate Audit and Governance issued in late 2002 which, in light of corporate scandals abroad, looked closely at audit standards, management controls, and broad accounting effectiveness (Topalova 2004). Although enough legal provisions are in place, Chakrabarti (2005) notes that the ICAI has not been known to take action against erring auditors, creating a potentially serious issue surrounding the credibility of auditor actions and assurance services in India.

Recognising the need for audit service providers to provide effective and high-quality assurance of firms' performance to all shareholders and stakeholders, ROSC (2004) reviewed the role of auditing in India. The main areas of discussion included a need to more closely and effectively monitor and enforce compliance with requirements for timely and accurate

[2] Companies are required to disclose information on the equity shareholdings of individual promoters, financial institutions, foreign institutional investors, foreign holdings, other corporate bodies, top 50 shareholders, other shareholders, and remuneration to company officers (Topalova 2004).

disclosure of all material matters. Despite ROSC's (2004) review discussing some vital areas of disclosure and transparency, issues surrounding reliability on domestic audit service providers continue to prevail.

The market for audit services in India is dominated by local firms because the Big-4 audit firms' share is only 36% in India compared with other emerging countries such as Brazil (79%), China (14%), and Russia (43%) (Huber 2011). However, in recent years, the Big-4 global audit firms – Deloitte, Ernst & Young (E&Y), KPMG, and PricewaterhouseCoopers – have grown tremendously in India due to firms' perceptions that a relationship with one of the Big-4 will give investors a better impression of them (Gupta 2011). While market concentration by Big-4 auditing companies is not an issue in India, there are issues concerning market fragmentation because audit firms of varying sizes tend to audit listed firms. In India, however, Big-4 International audit firms are not allowed to audit accounts under their own name, so they form links with local Indian chartered accounting firms and recruit Indian chartered accountants. For example, Deloitte has tie-ups with C. C. Chokshi, E&Y with S. R. Batliboi & Associates, KPMG with Bharat S. Routh & Associates, and the Indian affiliates of PricewaterhouseCoopers include Price Waterhouse firms and Lovelock and Lewes for audit work (Gupta 2011). Although this arrangement has existed for a few decades, it has raised concerns about the legal liability of the international Big-4 audit firms in relation to audit work undertaken in India. This is because their local partners are legally liable in the eyes of the regulatory bodies. In order to differentiate themselves from local firms, Big-4 firms claim to follow and implement high quality auditing codes and standards set by their international head office.

With regard to the perception of international accounting firms versus local firms, the Chartered Accountants Action Committee (CAAC) published a *White Paper* in 2002. It states that the corporate and finance sectors and the government and policy makers in India implicitly

trust the Big-4 firms and their professed competence and ethical standards. However, this trust is considered to be "a type of colonial hangover" which leads to positive perceptions about Western institutions (Desai, Desai, Singhvi, and Munsif 2012, p. 153). Ghosh (2011) asserts that the services of domestic auditors may not be relied on in India; it is recognised that international audit firms operating in the country provide high-quality audit assurance services and, therefore, will rank in the top audit service providers in India. Whether such a positive perception associated with international audit firms translates into tangible benefits is an empirical question.

Perhaps the most important issue with regard to auditing in India is that of the tie-ups between local firms and the Big-4 firms. This issue is particularly prevalent due to the nature of audit control in India – very little; coupled with the fact that international audit firms (such as those of the Big-4) are not allowed to market their services in India (Layak and Mehra 2009). This creates the opportunity for companies to report fraudulently, as happened in the case of Satyam Computer Services. This fraud, in which PricewaterhouseCoopers failed to identify significant inflations in the value of assets and revenues earned by Satyam Computer Services, occurred due to little control over audit quality (Timmons and Wassener 2009) Evidently, the systems of "partner rotation" (in which clients are passed onto other partners) and "partner review" are not significant deterrents to the negligence of audit which exists because independent audit review is lacking in India (Layak and Mehra 2009).

3. Hypotheses Development

3.1 Effect of audit quality on discretionary accruals

Prior research consistently finds that high quality external audits act as a governance mechanism, and the utility of such monitoring is stronger when the corporate internal governance is weak (Desai et al. 2012). The governance mechanism in Indian corporations is

not as strong as in many developed countries, partly due to an informal governance structure and influential promoters making relational appointments to their company boards (Standard & Poor's 2009). The dominance of family business groups and appointment of senior executives from within the groups give rise to "horizontal agency costs" (as defined earlier) as distinct from "vertical agency costs" associated with diversified corporations. In both situations managerial opportunistic behaviour has been noted by academics and practitioners. As Goswami (2002, p. 93)[3] states, "[u]ntil the mid-1990s, India suffered from the worst of both types of agency costs. Dysfunctional economic and trade policies combined with low equity ownership allowed companies to thrive in uncompetitive ways." Further, tunnelling has remained an important opportunistic managerial behaviour in Indian family groups of corporations. Bertrand et al. (2002, p. 126) state that "[b]usiness groups have come under particular scrutiny for advancing their private interests at the expense of outside shareholders".

Chakrabarti (2005) and Godbole (2002) observe that corporate boards have largely been ineffective in monitoring the actions of management in India and instead, have largely functioned as rubber stamps for the promoters. The World Bank (2004) reports that institutional shareholding in India is yet to be developed as many institutional shareholders remain passive participants at company general meetings and are little involved in enforcing good governance standards, fail to exercise their status and voting power (The World Bank 2004). There is a lack of shareholder activism as most equity investors are relatively new with short-term perspectives and have limited knowledge of securities, thus providing opportunities for managerial discretion.

Managerial discretionary opportunism increases when executive compensation is tied to firm performance. In India, managerial compensation has traditionally been monitored by

[3] Goswami (2002) studied the boards of the top 100 listed private companies in India and found that most of these boards are numerically dominated by executive directors.

the SEBI, but in recent years this has been liberalised, allowing firms to set salaries based on fixed and variable components which include bonus options based on stock market performance. In a weak corporate governance environment managers can extract benefits by manipulating earnings and demonstrate rent-seeking behaviour (Chakrabarti et al. 2012).

The literature on earnings management (measured by discretionary accruals) is vast (see for example, Bhaumik and Gregoriou, 2009; Verbruggen, Christiaens, and Milis 2008)[4]. Focusing specifically on auditing and earnings management, a study by Xie, Davidson and DaDalt (2003) found that the level of earnings management is inversely related to the extent of audit committee independence. Utilising data on a cross-section of listed Indian manufacturing companies, Ghosh (2007) examined the relationship between internal monitoring through management, and external monitoring through auditors, and firm valuation. Findings revealed that internal monitoring and external monitoring were inversely related. More importantly, the analysis indicated that external monitoring led to an enhancement in firm value. Subsequently, with reference to quality of auditing, using a sample of non-financial companies, Ghosh (2011) found that firms with high discretionary accruals are more likely to be audited by domestic entities. Secondly, multiple auditors are more likely for firms with high discretionary accruals. Lastly, he found that smaller and newer firms are most likely to be associated with domestic auditors. Chen et al. (2011) hypothesise that in China higher audit quality will lead to greater reduction in earnings management and cost of equity capital for NSOEs than for SOEs. Using 3,310 firm-year observations over the years 2001 to 2004, Chen et al. (2011) detected support for the hypothesis, which they attributed to differential managerial incentives affecting both types of organisations.

[4] For audit and earnings management, see section 6.2.

A recent cross-country research on private firms in six European nations indicates that privately held companies engage less in earnings management when they have brand-name auditors. This suggests that high quality auditors have the incentive to constrain earnings manipulation (Tandeloo and Vanstraelen 2008).[5] Based on prior research and consistent findings, we propose that:

Hypothesis 1: *The level of discretionary accruals will be negatively associated with the quality of external audit.*

3.2 Effect of audit quality on income smoothing

Businesses may smooth their earnings for a variety of reasons, for example smoothing their earnings in order to show steady profit growth can keep current investors happy and confident in the company. Secondly, manipulating the accounting numbers can generate interest from new investors resulting the company receiving a cash injection. Thirdly and finally, companies may engage in income smoothing in order for management to pass on inside information to give investors a better picture of the company's financial health. Potential reasons as to why high quality auditors may have an impact on the level of income smoothing a company engages are as follows. Firstly, as noted by DeAngelo (1981) in the United States the top four accounting firms impose a higher level of earning quality in order to protect their brand reputation and minimise risk exposure. Secondly, Simunic and Stein (1987) contend that since the top four accounting firms are part of an international organisation that operates globally, therefore, have incentives to have a uniform reputation around the world. This would also apply to companies being audited by the Big-4 accounting firms in India. Evidence from past researchers such as Hogan and Jeter (1999) noted that audit quality reduces income smoothing. Furthermore, Bannister and Wiest (2001) concluded that better quality auditor limits the level

[5] It is expected that the quality of audit assurance will improve with a brand-name auditor. Furthermore, DeAngelo (1981), Palmrose (1986), Francis et al. (2004), and Carcello, Neal, Palmrose and Scholz (2011) all provide evidence that audit fees rise when audit quality improves.

of income smoothing. The results of the above research imply that high quality auditors can actually constrain the level of income smoothing businesses attempt to or can engage in.

Therefore, based on the preceding discussion, we propose that:

Hypothesis 2: *The level of income smoothing will be negatively associated with the quality of external audit.*

3.3 Effect of audit quality on cost of equity capital

Auditing reduces information risk faced by (uninformed) investors because it allows them to verify the validity of financial statements. If information risk is priced by investors, it is reasonable to argue that how investors perceive or price the information risk will vary with the effectiveness of auditing in reducing earnings management (Chen et al. 2011). A high quality auditor acts as a strong monitoring mechanism and conveys a positive signal to the market: it is expected that investors will reward those firms for mitigating information asymmetry and for bonding themselves to a higher degree of scrutiny. Numerous studies have investigated the effect of audit quality on risk and cost of equity capital.[6] As Chen et al. (2011) summarise, auditing largely serves as a monitoring device designed to improve information about firm performance. Essentially, the aim of auditing is to improve information quality by reducing information asymmetry between the firm and interested parties, in particular, investors. Put simply, the greater the potential risk of information asymmetry, the greater the value of high-quality audit assurance (Francis, LaFond, Olsson and Schipper 2004 & 2005). Moreover, if auditing is highly effective at constraining earnings management, the better audit quality will be at reducing information risk faced by investors (Chen et al. 2011). With higher audit quality

[6] Such studies include Ashbaugh and Warfield (2003), Easley and O'Hara (2004), Lambert, Leuz and Verrecchia (2007), and Ghosh (2011).

and reduced information risk investors can make more informed decisions and, therefore, will reduce their required rate of return on investment (Lambert et al. 2007).[7]

In India, governance is not as effective as it should be and consequently audits by high quality international firms send signals to investors about the quality of earnings, thus increasing their confidence. Furthermore, firms with better reputations voluntarily employ reputable auditors to signal their good performance and show that they have nothing to hide. All these factors provide efficient signals to the capital market participants and reduce risk associated with information uncertainty, which would translate into lower cost of capital.

Therefore, based on the preceding discussion, we propose that:

Hypothesis 3: *The cost of equity capital will be negatively associated with the quality of external audit.*

4. Research Methods

4.1 Data

Our initial sample comprised all Indian listed companies (listed on the BSE and the NSE) for the years 1998 to 2009. However, due to non-availability of information, we could only obtain 8,408 firm-year observations for accruals management ($|DACCR|$) test, income smoothing (*In_Sm*), cost of equity (*Ke)* test, and 7,370 firm-year observations for audit fees (*Ln_Fees)* test. Following prior research (Daske et al. 2008; Francis and Wang 2008), we excluded further observations from oil and gas, utilities, and financial services firms such as banks, insurance companies, and other financial institutions. Lastly, further observations with any variables registering in the top and bottom 1% were removed, as they were considered to be outliers. This left us with a final sample of 7,308 firm-year observations for ($|DACCR|$), *In_Sm, Ke*

[7] As Chen et al. (2011, p. 10) state, "the greater the information risk faced by investors, the greater the value of audit quality".

and 6,474 firm-year observations for *Ln_Fees*. Panel A of Table 1 summarises the details of our sample selection procedure and final sample size for $|DACCR|$, *In_Sm* and K_e.

[Insert Table 1]

Panel B of Table 1 shows the composition of our final sample for |DACCR|, In_Sm, Ke, and Ln_Fees for the years 1998 to 2009. For example, the composition of our final sample of 7,308 firm-years for |DACCR|, In_Sm, Ke, includes 242 in 1999, 187 in 2000, 189 in 2001, 188 in 2002, 222 in 2003, 375 in 2004, 504 in 2005, 597 in 2006, 1,576 in 2007, 1,614 in 2008, and 1,614 in 2009. On the other hand, the composition of our final sample of 6,474 firm-years for Ln_Fees includes 128 in 1998, 144 in 1999, 172 in 2000, 196 in 2001, 198 in 2002, 224 in 2003, 312 in 2004, 456 in 2005, 615 in 2006, 1,324 in 2007, 1,323 in 2008, and 1,382 in 2009. Panel C of Table 1 shows the distribution of firm-years across industries. The most heavily represented industries for earnings management, based on |DACCR|, In_Sm, Ke, include Industrial goods & services (28.4%), followed by Personal & household goods (12.2%), and finally, Chemicals (10.8%). The most heavily represented industries for audit fees, based on Ln_Fees include Industrial goods & services (28.8%), followed by Personal & household goods (12.7%), and finally, chemicals (10.1%).

4.2 Proxies for audit quality

As argued by Lennox (1999), large auditors are more likely to give an accurate qualification to companies based on their financial situation. His findings showed that small audit firms, with an inaccuracy rate of 3.41%, were 1.19% more likely to issue an incorrect qualification regarding a client's declaration of bankruptcy (or lack of) rather than large auditors. This suggests that audits from the Big-4 are likely to be more accurate than that of their smaller counterparts; however, the reason for this is unclear. Lennox (1999) suggests such accuracy

occurs due to maintaining a good reputation. In a profession where an ethical norm is somewhat hazy, this is of key concern to the Big-4 audit companies, as their revenues are built primarily around auditing. Another key factor as to why these differences occur between small and large auditors is the depth of specialisation that large auditing firms enjoy, such as the Big-4 (Lennox 1999). Within such corporations, specialisation leads to industry-specific knowledge, which, in turn, will increase the accuracy of audits in the future. This is primarily through more accurate placement on what Lennox (1999) describes as the "cut-off probability" – that is, the point which determines which companies are given unqualified, and which are given qualified, audit reports.

DeAngelo (1981) argues that size is a proxy for quality because no single client is important to a large audit firm. Large audit firms and their auditors have a greater reputation to lose if they misreport. Conversely, an audit firm with a small number of clients may logically conclude that they have more to gain by going along with their client and misreporting than rigorously following auditing standards and risking the potential loss of their client. In essence, DeAngelo (1981) concludes that larger audit firms have the incentive to provide higher quality audit services. However, given the recognition of the ineffective nature of audit standards historically, and the lack of punitive action taken against erring auditors in India, the arguments raised by DeAngelo (1981) may not be as applicable to the Indian setting. Although the legal and regulatory environment in India may not be as sophisticated as that in many Western nations, increased concern with litigation risk and loss of reputation from violating auditing regulations led to a series of reforms that began during the early 1990s. With various reforms, restructuring processes, and legal and regulatory amendments, large audit firms in India should be provided with ample motivation to differentiate themselves from smaller auditors.

Francis et al. (2004 & 2005) found that audit fees are higher for industry leaders, implying higher audit quality. Furthermore, higher audit fees imply higher audit quality either

through a more thorough auditing effort or through the auditor having greater expertise. DeFond, Francis and Wong (2000) found that the top three industry leaders in Hong Kong earn a premium relative to other Big-4 auditors, while Ferguson, Francis and Stokes (2003) concluded that the top two industry leaders in Australia earn a premium relative to other Big-4 auditors. Furthermore, Francis et al. (2005) document that the industry leader in the US has a fee premium relative to other Big-4 auditors. Consistent with these findings, that high audit fees relate to high audit quality, we proxy for audit quality by the level of audit fees.

Evidence from audit report studies supports the contention that the Big-4 auditors are of higher quality. Becker et al. (1998) and Francis, Maydew and Sparks (1999) indicate that clients of the Big-4 auditing companies have lower abnormal accruals. This implies less aggressive earnings management behaviour and, consequently, higher earnings quality. Consistent with these findings, Nelson, Elliott and Tarpley (2002) report evidence from one Big-4 accounting firm that auditors detect earnings management attempts and require clients to make appropriate adjustments. Francis and Krishnan (1999), Lennox (1999), and Weber and Willenborg (2003) report similar findings, providing evidence that Big-4 auditors report with greater accuracy than other firms, demonstrating higher audit quality. A related line of research, conducted by Simunic and Stein (1987) and Francis and Wilson (1988) argue that the large Big-8 international accounting firms have established brand name reputations and, therefore, are very motivated to protect their reputation by providing high-quality audits. With these findings considered, we use the Big-4 audit firms (Deloitte, Ernst & Young, KPMG, and PricewaterhouseCoopers) as measures of audit quality in India.

4.3 Measuring earnings quality

We employ two proxies for earnings quality. First, consistent with Becker et al. (1998), Reynolds and Francis (2000), and Chen et al. (2011), we use absolute discretionary accruals ($|DACCR|$), as it is assumed that the magnitude of discretionary accruals best reflects the

consequences of managerial earnings manipulation. Consistent with numerous other studies, such as Bartov, Gul and Tsui (2000), Xie et al. (2003), Bedard, Chtourou and Courteau (2004) and Kothari, Leone and Wasley (2005), we utilise the cross-sectional modified Jones (1991) model in order to derive a measure of discretionary accruals.[8]

$$TA_{it} / A_{it-1} = \alpha_0 (1 / A_{it-1}) + \alpha_1 (\Delta REV_{it} - \Delta REC_{it} / A_{it-1}) + \alpha_2 (PPE_{it} / A_{it-1}) + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

We use the fitted coefficients for α_o, α_1, and α_2, obtained from (1), to estimate *DACCR* as follows:

$$\left| \text{DACCR}_{it} \right| / A_{it-1} = TA_{it} / A_{it-1} - [\acute{\alpha}_0 (1 / A_{it-1}) + \acute{\alpha}_1 (\Delta REV_{it} - \Delta REC_{it} / A_{it-1}) + \acute{\alpha}_2 PPE_{it} / A_{it-1}] \ldots \quad (2)$$

Where TA_{it} is total accruals of firm *i* for period of *t*, scaled by beginning of year total assets, A_{t-1} is beginning of year total assets, $\left| DACCR_{it} \right|$ is the absolute discretionary accruals of firm *i* for the period *t*, scaled by the beginning of year total assets, ΔREV_{it} is change in revenue of firm i for period *t-1* to t scaled by beginning of year total assets, ΔREC_{it} is change in receivables of firm i for period *t-1* to t scaled by beginning of year total assets, PPE_{it} is gross property, plant and equipment of firm *i* for period t scaled by beginning of year total assets.

Our second measure is income smoothing. Wysocki (2004) suggests using closeness-to- cash as a benchmark because it provides a direct benchmark for the absolute magnitude of 'economic income'. This overcomes the problem of absolute discretionary accruals which fails to identify a benchmark for the underlying 'economic income'. Using cash flow to calculate earnings smoothness makes earnings smoothness popular to measure earnings quality.

Many researchers have used earnings smoothness as a measure of earnings quality (Leuz et al. 2003; Bowen et al. 2008 and Francis et al. 2004). However, there is disagreement in the literature about whether smoothness is desirable or not. Smoothness can be considered

[8] The modified Jones model is an extension by Dechow, Sloan and Sweeney (1995) of the original Jones (1991) model, which adjusts the change in revenues for the change in receivables in the event period. Furthermore, while Subramanyam (1996) argues that measurement problems persist in cross-sectional models, Bernard and Skinner (1996) state that such problems are common to all earnings management studies.

to be desirable earnings, which is derived from the idea that managers use their private information about future income to smooth out transitory fluctuation**[s?]** therefore they achieve a more representative reported earnings number (Francis et al. 2004). This is because current earnings are a good indicator of future earnings. However, Leuz et al. (2003) state that smoothness reflects the ability of managers to reduce the variability of reported earnings by altering the accounting standards. This allows managers to maintain benefits associated with capital market and earnings. Therefore, in this case earnings look smoother but they are of poor quality.

Earnings smoothness can be measured in several ways; both methods use the volatility of earnings and cash flows. We use a method similar to that of Leuz et al. (2003) who measure earnings smoothness as the ratio of the firm-level standard deviation of operating earnings to the firm-level standard deviation of cash flow from operations (both scaled by beginning total assets).

$$\text{Smooth} = \frac{\sigma\text{ (operating income/}\mathit{total\ asset})}{\sigma\text{ (Cash flow from operations/}\mathit{total\ asset})}$$

Where
Smooth = firm i's earnings smoothness in year *t*
CFO = firm *i*'s operating cash flows in year *t*
Operating Income =firm *i*'s operating income in year *t*

4.4 Measuring cost of equity capital

To estimate firm-specific *ex ante* cost of equity capital we utilise the modified PEG method proposed by Easton (2004). Botosan and Plumlee (2005) conclude that the modified PEG ratio approach is a preferable measure of cost of equity capital because it dominates the other alternatives in the sense that it is consistently and predictably related to various risk measures. Based on this evidence, we measure the cost of equity capital in our analysis as follows:

$$K_e = \sqrt{(eps_{t+2} - eps_{t+1} + K_e * Div_{t+1}) / P_t} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

where K_e is the cost of equity capital, eps_{t+1} is the one-year ahead forecast earnings per share, eps_{t+2} is the two-year ahead forecast earnings per share, Div_{t+1} is the one year ahead forecast dividend, and P_t is the fiscal year-end price per share.

5. Model specifications

We use the following models to test our hypotheses. Equations 4 and 5 are related to earnings quality: discretionary accruals and income smoothing. The rationale is that audit quality is directly related to level of earnings quality, proxied by $\left|\text{DACCR}\right|$ and income smoothing. We also employ the rationale that audit quality is related to cost of equity capital:

$$|DACCRit| = \alpha_0 + \alpha_1 GROUP_{it} + \alpha_2 Aud_{it}\,(Top\_4 \text{ or } Ln\_Fees) + \alpha_3 Ln\_Assets_{it} + \alpha_4 F\_Lev_{it} + \alpha_5 ROA_{it} + \alpha_6 L\_Loss_{it} + Year\ fixed\ effects + Industry\ fixed\ effects + \varepsilon \quad (4)$$

$$In\_Sm_{it} = \alpha_0 + \alpha_1 GROUP_{it} + \alpha_2 Audit_{it}\,(Top\_4 \text{ or } Ln\_Fees) + \alpha_3 Ln\_Assets_{it} + \alpha_4 F\_Lev_{it} + \alpha_5 ROA_{it} + \alpha_6 L\_Loss_{it} + Year\ fixed\ effects + Industry\ fixed\ effects + \varepsilon \quad (5)$$

$$Ke_{it} = \alpha_0 + \alpha_1 GROUP_{it+}\ \alpha_2 Audit_{it}\,(Top\_4 \text{ or } Ln\_Fees) + \alpha_3 Ln\_Assets_{it} + \alpha_4 F\_Lev_{it} + \alpha_5 ROA_{it} + \alpha_6 VOLATILITY_{it} + Year\ fixed\ effects + Industry\ fixed\ effects + \varepsilon \quad (6)$$

$\left|DACCR\right|$ is the absolute value of discretionary accruals of firm *i* in year *t* under the modified Jones model (Dechow et al. 1995). *GROUP* is 1 for a firm that belongs to a business group, 0 for a firm that is a non-business group in year *t*. We follow Chittoor et al. (2012) who contend that Indian firms affiliated with business groups have higher earnings quality than non-business group firms. They argue there are spill-over effects of earnings quality of one business group firm to other affiliates. Therefore, business group firms have the incentive to maintain high earnings quality so they do not transfer negative spill-over effects to other business group firms. To ensure the earnings quality of affiliate firms, some business groups may even have contracts stipulating how each affiliate should prepare and maintain its accounts. As Chittoor et al. (2012) discovered, business group firms are also more likely to engage top-10 auditors .To

determine the validity of their findings, we have chosen to include business groups as a variable to see if business group affiliation is associated with the quality of earnings and thus control for its effect. *Top_4* is 1 for Top 4 client firms, 0 for non-Top 4 client firms in year *t* and is expected to have a negative relationship with $/DACCR/$ (Francis & Wang 2008). *Ln_Fees* is the natural logarithm of audit fees of firm *i* in year *t* and is expected to have a negative relationship with $/DACCR/$ (Hribar et al. 2010). *Ln_Assets* and *F_Lev* are included as control variables as Klein (2002) documents that discretionary accruals are negatively associated with company *Ln_Assets* and positively associated with *F_Lev*. *ROA* is the net income before extraordinary items for firm i in year t scaled by total assets included as a control variable in order to take into account company growth (Lee, Lev and Yeo 2007). *L_Loss* takes the value of 1 if firm *i* in year *t* and *t-1* reports negative income before extraordinary items and 0 if otherwise in order to control for the performance of the company (Lee et al. 2007). Year dummies, a vector of dummy variables, indicates year. Industry dummies, a vector of dummy variables, indicates industry sector membership.

In_Sm is the firm i's earnings smoothness in year *t.* Similar to the discretionary accruals model we also included all the interest variables (*GROUP, Top_4 and Ln_Fees*) and control variables and expected to be consistent with earlier results.

On the other hand, *Ke* is the cost of equity of firm *i* in year *t* measured by the Easton (2004) model. *GROUP* is 1 for a firm that belongs to a business group, 0 for a firm that is a non-business group in year *t*. According to Chittoor et al. (2012), business groups have stringent corporate governance mechanisms, utilise the expertise of high quality auditors, have strong political influence as they are major economic contributors, and demonstrate superior economic stability. Using these characteristics as the rationale that business groups provide less risky investment options for potential shareholders, it can be argued that they have a lower cost of equity **[**As Chittoor et al. (2012, p. 4) argue, "[business groups] serve to reduce risks by

smoothing out income flows and reallocating resources among firms belonging to the same [business group]". *Top_4* is 1 for Top 4 client firms, 0 for non-Top 4 client firms in year *t* and is expected to have a negative relationship with cost of equity capital (Azizkhani et al. 2010). *Ln_Fees* is the natural logarithm of audit fees of firm *i* in year *t* and is expected to have a negative relationship with cost of equity capital (Francis and Krishnan 1999). *Ln_Assets* is included as a proxy for firm size (measured by the natural log of current year total assets) because larger firms have been found to have a lower cost of equity capital, possibly due to lower perceived risk (Bachoo, Tan & Wilson 2013; Botosan and Plumlee 2005). *F_Lev* is a proxy for financial leverage and is included because an increase in the proportion of debt in a firm's capital structure increases the riskiness of each unit of equity (Gebhardt, Lee & Swaminathan 2001; Modigliani and Miller 1958; Palea 2010). *ROA* is the proxy for firm growth and is expected to have a negative relationship with cost of equity capital (Azizkhani et al. 2010; Li 2010). *VOLATILITY* is a measure of a stock's average annual price movement to a high and low from a mean price for each year and is expected to have a positive relationship with cost of equity capital (Azizkhani et al. 2010; Li 2010). Industry dummies are included to proxy for differences in firms' inherent business risk, while year dummies control for variation in the underlying risk-free rate across time.

6. Results

6.1 Descriptive statistics

We provide detailed descriptive statistics of firm characteristics for both $|DACCR|$, *In_Sm* and K_e full samples, and also report further portioning based on audit quality in Table 2. Panel A reports descriptive statistics for our $|DACCR|$, *In_Sm* and K_e sample. The mean (median) value of the $|DACCR|$, *In_Sm* and K_e full sample is 0.0006 (-0.0016), 2.9801 (0.5871) and 0.1149 (0.0899) respectively. Of our full $|DACCR|$, *In_Sm* and K_e sample, 51% of firms belong to a business group. The Top 4 audit firms in India audit 17% of our sample firms.

Generally, our $|DACCR|$, *In_Sm* and K_e sample firms are financially healthy with various performance and risk measures, such as F_LEV, ROA and L_Loss, all indicating so.

[Insert Table 2]

6.2 Univariate correlations

We report Pearson pair-wise correlations for the variables in Table 3. Panel A reports the correlation matrix for our $|DACCR|$, *In_Sm* and K_e full sample of 7,308 firm-year observations. As expected, *GROUP* is positively correlated with Top_4 (0.032) and *Ln_Fees* (0.128) at 1% significance level. Consistent with Chittoor et al. (2012), the *GROUP* variable is also negatively correlated with $|DACCR|$, *In_Sm* and K_e (-0.062), (-0.024) and (0.028) respectively at 5% significance level. This suggests that when an Indian firm is affiliated to a business group there is an improvement in earnings quality and lower cost of equity capital through increased use of high quality audit assurance services. Observing the correlation between *Top_4* negatively correlated with $|DACCR|$, *In_Sm* and K_e, (-0.028), (-0.018) and (-0.012) at the 5%, 5% and 1% significance level, respectively. Similarly, *Ln_Fees* and $|DACCR|$, *In_Sm* and K_e are negatively correlated (-0.056), (-0.034) and (-0.148) at 1% significance level. In addition, *Top_4* and *Ln_Fees* are strongly and positively correlated (0.321) at 1% significance level. These findings suggest that as audit quality improves the level of audit fees increases, leading to a reduction in the level of earnings management when $|DACCR|$ is used as a proxy for earnings management.

6.3 Main results

[Insert Table 4]

6.3.1. Discretionary Accruals

The discretionary accruals analysis is reported in Table 4 (columns 2 and 3). Two regression models are reported in which each audit quality proxy is tested one at a time. Both models are

significant with adjusted R^2 values of 9.8% and 9.5%, respectively. Significance levels of individual coefficients are reported as two-tailed tests. As expected, the coefficient for the relationship between *Top_4* and discretionary accruals, is negative (*Top_4* = -0.010, p=0.001). Overall, this outcome supports the hypothesis that higher audit quality leads to reduced $|DACCR|$, and therefore, better earnings quality. Similarly, the coefficient for the relationship between *Ln_Fees* and discretionary accruals, is negative (*Ln_Fees*= -0.005, p=0.005). Overall, this result supports previous findings that higher audit quality coincides with higher audit fees and that higher audit fees equate to better earnings quality.[9] Observing the *GROUP* variable, our findings also provide support to claims that firms affiliated with business groups experience lower discretionary accruals (*GROUP* = -0.007, p=0.003 and *GROUP* = -0.006, p=0.016). This is expected because since group companies have more oversight scrutiny than non-group companies, it would be more damaging for them than non-group firms to be caught manipulating earnings. Finally, we find that the level of absolute discretionary accruals increases with *F_Lev* and *ROA* and decreases with *Ln_Assets and L_Loss,* indicating that as debt increases risk increases, therefore earnings management increases. Similar to this, companies increase their asset accumulation, risk decreases and as a result earnings management decreases.

6.3.2. Income Smoothing

The income smoothing analysis is reported in Table 4 (columns 4 and 5). Two regression models are reported in which each audit quality proxy is tested one at a time. Both models are significant with adjusted R^2 values of 18.47% and 20.98%, respectively. Significance levels of individual coefficients are reported as two-tailed tests. The coefficient on the relationship between *Top_4* and income smoothing is negative at (*Top_4* = -0.3310, p=0.030). Overall, this

[9] As supported by DeAngelo (1981), Palmrose (1986), Carcello, Hermanson, Neal and Riley (2002) and Francis et al. (2004).

result supports the hypothesis that higher audit quality is associated with lower income smoothing. Similarly, the coefficient for the relationship between *Ln_Fees* and income smoothing, is negative at (*Ln_Fees*= -0.3510, p=0.000). The *GROUP* variable provides support to claims that firms affiliated with business groups experience lower income smoothing (*GROUP* = -0.2914, p=0.016 and *GROUP* = -0.3030, p=0.000). This is because group companies have more certainty in the market compared to non-group companies. The control variables are in general consistent with earlier results.

6.3.3. Cost of Equity Capital

Finally, Table 4 (columns 6 and 7) reports the main results of our test of the overall relationship between audit quality and the cost of equity capital. Both models are significant with adjusted R^2 values of 32.5% and 34.5%, respectively. As hypothesised, the coefficient on *Top_4* is negative at (*Top_4* = -0.015, p=0.008), supporting the hypothesis that when an Indian firm is audited by a Top 4 auditor, the cost of equity capital is lower. Similarly, the coefficient for the relationship between *Ln_Fees* and cost of equity capital is also negative at (Ln_*Fees* = -0.007, p=0.014). The *GROUP* variable supports the claim that firms affiliated with business groups experience lower cost of equity capital (*GROUP* = -0.018, p=0.000 and *GROUP* = -0.025, p=0.000). This could be because since group companies are on average larger and are viewed as a safer option for investors, they are associated with lower risk than non-group companies. Finally, we find that the cost of equity capital increases with *F_Lev* and *VOLATILITY* and decreases with *Ln_Assets and ROA.*

7. Robustness tests

7.1. Alternative measure of audit quality

[Insert Table 5]

To determine the robustness of our main results we test our data using *Top_8* auditor as a proxy for audit quality. The purpose of this test is to ensure the strength of our findings beyond the

Top 4 audit firms working in India. Consistent with our initial findings, results in Table 5 support our hypothesis that higher audit quality leads to lower earnings management, lower income smoothing and lower cost of equity capital.

7.2. Excluding the global financial crisis period

[Insert Table 6]

Due to the volatile and inconsistent nature of the global economy during the recent global financial crisis (GFC), the inclusion of data beyond 2007 may lead to misleading results that do not accurately represent the effects of audit quality on discretionary accruals, income smoothing and cost of capital under a stable economy. To ensure the value of our results is not impaired by the sudden change in economic environment that occurred during the GFC, we have conducted a sensitivity analysis by removing GFC firm-year observations. Results reported in Table 6 are consistent with those initially reported in Table 4.

7.3. Alternative measure for discretionary accruals

[Insert Table 7]

To determine the robustness of our results for the calculation of $\left|DACCR\right|$, reported in the preceding section, we conduct a sensitivity analysis that means using the Jones (1991) model, instead of the modified Jones (1991) model, for calculating the relationship between our chosen variables and earnings management, proxied by $\left|DACCR\right|$. The results of the Jones (1991) model are consistent with those reported by the modified Jones model for all relevant variables. In particular, results for *GROUP*, *Top_4* and *Ln_Fees* are all consistent with those reported in our main findings and significant at 1% level.

We re-estimated Equation (5) by using Bloomberg cost of capital (derived by the CAPM) as an alternative proxy for the K_e in Indian Listed Companies. Results are also consistent with those initially reported in Table 6 and shows that higher audit quality leads to lower cost of equity capital.

We also exclude the bottom quartile of our cost of equity capital sample to ensure the validity of our findings with a modified sample. We do this because firms in the bottom quartile are less likely to benefit from high-quality reporting as they already have low cost of equity (Dhaliwal et al. 2009). The results are generally consistent with earlier findings.

8. Conclusion

This study provides new evidence from India on the effects of audit quality on earnings quality (measured by discretionary accruals, income smoothing) and cost of equity capital. It also generates new evidence that: firstly, differing levels of audit quality incur audit fees of invariable amount; and secondly, business groups experience lower earnings management, lower income smoothing and lower cost of equity capital.

Overall, our results are consistent with those expected, and they support our hypotheses. Referring to our first two hypotheses which speculate that audit quality will have a positive effect on earnings quality (reducing discretionary accruals) and income smoothing, we find that they hold true. Concerning our last hypothesis, which speculates that audit quality will have a positive effect in reducing the cost of equity capital, we find that this hypothesis also holds true. Our findings are significant and support the contention that as the quality of audit increases, the cost of equity capital decreases due to reduced information risk. Using our K_e sample, we also find evidence to support the belief that there is a direct correlation between audit quality and audit fees. Our findings show that as audit quality improves, audit fees increase.

While the findings of this study may contribute to the literature on the relationship between audit quality and earnings quality and between audit quality and cost of equity capital, several limitations. Firstly, the use of Big-4 auditors as a monitoring mechanism for corporate governance is not the only method that a firm may employ to mitigate against earnings

management, income smoothing and reducing the cost of equity capital. Secondly, we have not partitioned our sample to distinguish between private sector firms and SOEs. Separating our sample on a private and public sector basis may enhance our understanding of two relationships between: firstly, between audit quality and earnings quality; and secondly, audit quality and cost of equity capital. The usefulness of this form of partitioning will be substantial, especially when the vicissitudinous history of the corporate sector is considered relative to the history of the public sector in India While this study may reinforce some formerly proposed beliefs about the relationship between audit quality and earnings management, audit quality and income smoothing, audit quality and cost of equity capital, and audit quality and audit fees, in reality the findings from this study only permit generalisations from the perspective of India, and more broadly Asia and developing countries.

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Table 1

Descriptive Information on Sample Selection and its Composition by Year and Industry

Panel A: Sample selection

	DACCR & Ke	***Ln_Fees***
Total firm-year observations available on World Scope from 1998 – 2009, without missing values on dependent and independent variables	8,408	7,370
Less: Financial institutions	(415)	(415)
: Utilities and energy	(296)	(296)
Observations with any variables registering in the top and bottom 1%	(389)	(185)
Final Sample	**7,308**	**6,474**

Panel B: Sample composition by year

Year	*Earnings management (DACCR), Income Smoothing (In_Sm)& Cost of Equity capital (Ke)*		*Audit Fees (Ln_Fees)*	
	# of firms-years in sample	% of firms-years in sample	# of firms-years in sample	% of firms-years in sample
1998			128	2.0
1999	242	3.3	144	2.2
2000	187	2.6	172	2.6
2001	189	2.6	196	3.0
2002	188	2.6	198	3.0
2003	222	3.0	224	3.5
2004	375	5.3	312	4.8
2005	504	6.9	456	7.0
2006	597	8.3	615	9.5
2007	1576	21.2	1324	2.0
2008	1614	22.1	1323	20.4
2009	1614	22.1	1382	21.3
Total	**7,308**	**100**	**6,474**	**100**

Panel C: Sample composition by industry

Industry group	*Earnings management, Income smoothing & cost of equity capital*		*Audit Fees (Ln_Fees)*	
	# of firms-years in sample	*% of firms-years in sample*	*# of firms-years in sample*	*% of firms-years in sample*
Automobile & parts	479	6.5	412	6.4
Basic resources	590	8.1	465	7.2
Chemicals	787	10.8	654	10.1
Construction & materials	558	7.6	524	8.1
Food & beverages	447	6.1	368	5.7
Health care	481	6.7	423	6.5
Industrial goods & services	2079	28.4	1865	2.9
Media	169	2.3	112	1.7
Personal & household goods	890	12.2	824	12.7
Real estate	75	1.0	68	1.1
Retail	35	0.5	39	0.6
Technology	532	7.3	528	8.2
Telecommunications	47	0.7	59	0.9
Travel & leisure	134	1.8	133	2.1
Total	**7,308**	**100**	**6,474**	**100**

Panel A explains the sample selection process. Panel B reports the sample composition by year. Panel C reports industry distribution of the sample. Industry groups are based on the industry classification benchmark (ICB) universe.

Table 2

Panel A: Descriptive statistics for *DACCR, In_Sm & Ke* sample (n=7,308)

Variable	Mean	Median	Std.	1st percentile	99th percentile
|*DACCR*|	0.0006	0.0016	0.09851	-0.2850	0.2894
In_Sm	2.9801	0.5871	80.3739	0.2510	1.1935
K_e	0.1149	0.0899	0.08965	0.0246	0.4971
GROUP	0.5100	1.0000	0.5000	0.0000	1.0000
Top_4	0.1700	0.0000	0.3720	0.0000	1.0000
Ln_Fees	6.5808	6.5667	1.5272	3.0445	10.2100
Ln_Assets	14.9978	14.9471	1.67484	11.4032	19.3169
F_Lev	0.5099	0.5527	0.25453	0.0010	0.9378
ROA	0.0778	0.0686	0.10647	-0.2315	0.3678
L_Loss	0.1400	0.0000	0.3520	0.0000	1.0000
VOLATILITY	40.1267	39.3600	9.93175	21.9684	64.6192

$|DACCR_{it}|$ is the absolute value of discretionary accruals of firm *i* in year *t* under Modified Jones model (Dechow et al. 1995). *In_Sm* is the ratio of the standard deviation of earnings to cash flow from operations of firm. *Ke* is the cost of equity of firm *i* in year *t* measured by Easton (2004) model. *GROUP* is 1 for a firm that belongs to a business group, 0 for a firm that is in a non-business group in year *t*. *Top_4* is 1 for Top 4 client firms, 0 for non-Top 4 client firms in year *t*. *Ln_Fees* is the natural logarithm of audit fees of firm *i* in year *t*. *Ln_Assets* is natural logarithm of total assets of firm *i* in year *t*. *F_Lev* is the ratio of total debt to total assets of firm *i* in year *t*. *ROA* is the net income before extraordinary items for a firm *i* in year *t* scaled by total assets. *L_Loss* takes the value of 1 if firm *i* in year *t* and *t-1*reports negative income before extraordinary items and 0 if otherwise. *VOLATILITY* is a measure of a stock's average annual price movement to a high and low from a mean price for each year.

Table 3

Correlation among the Dependent variables (|*DACCR*|, *In_Sm, Ke)* and selected variables

	|*DACCR*|	*In_Sm*	*Ke*	*GROUP*	*Top_4*	*Ln_Fees*
|*DACCR*|	1					
In_Sm	0.014	1				
	(0.058)					
Ke	0.001	0.000	1			
	(0.258)	(0.394)				
GROUP	-0.062	-0.024	-0.028	1		
	(0.043)	(0.056)	(0.042)			
Top_4	-0.028	-0.018	-0.012	0.032	1	
	(0.006)	(0.042)	(0.001)	(0.001)		
Ln_Fees	-0.056	-0.034	-0.148	0.128	0.321	1
	(0.000)	(0.001)	(0.000)	(0.002)	(0.000)	

Note: p-values are in parentheses.

$|DACCR_{it}|$ is the absolute value of discretionary accruals of firm *i* in year *t* according to the modified Jones model (Dechow et al. 1995). *In_Sm* is the ratio of the standard deviation of earnings to cash flow from operations of firm. *Ke* is the cost of equity capital using the modified PEG approach (Easton 2004). *GROUP* is 1 for a firm that belongs to a business group, 0 for a firm that is a non-business group in year *t*. *Top_4* is 1 for Top 4 client firms, 0 for non-Top 4 client firms in year *t*. *Ln_Fees* is the natural logarithm of audit fees of firm *i* in year *t*.

Table 4

Regression Results of Absolute Discretionary Accruals, Income Smoothing and Cost of Equity

$|DACCRit| = \alpha_0 + \alpha_1 GROUP_{it} + \alpha_2 Aud_{it}$ *(Top_4 or Ln_Fees)* $+ \alpha_3 Ln\_Assets_{it} + \alpha_4 F\_Lev_{it} + \alpha_5 ROA_{it} + \alpha_6 L\_Loss_{it}$ *+ Year fixed effects + Industry fixed effects* $+ \varepsilon$ ..... *(4)*

$In\_Sm_{it} = \alpha_0 + \alpha_1 GROUP_{it} + \alpha_2 Audit_{it}$ *(Top_4 or Ln_Fees)* $+ \alpha_3 Ln\_Assets_{it} + \alpha_4 F\_Lev_{it} + \alpha_5 ROA_{it} + \alpha_6 L\_Loss_{it}$ *+ Year fixed effects + Industry fixed effects* $+ \varepsilon$ ..... *(5)*

$Keit = \alpha_0 + \alpha_1 GROUP_{it+} \alpha_2 Audit_{it}$ *(Top_4 or Ln_Fees)* $+ \alpha_3 Ln\_Assets_{it} + \alpha_4 F\_Lev_{it} + \alpha_5 ROA_{it} + \alpha_6 VOLATILITY_{it}$ *+ Year fixed effects + Industry fixed effects* $+ \varepsilon$ ..... *(6)*

Variable	*Earnings management (|DACCR|)*		*Income Smoothing (In_Sm)*		*Cost of Equity Capital (Ke)*	
	2	3	4	5	6	7
	Top_4	***Ln_Fees***	***Top_4***	***Ln_Fees***	***Top_4***	***Ln_Fees***
	Estimate (ρ-value)	Estimate (ρ-value)	Estimate (ρ-value)	Estimate (ρ-value)	Estimate (ρ-value)	Estimate (ρ-value)
Intercept	0.060*** (0.000)	0.040*** (0.002)	3.9010 (0.000)	3.8914 (0.000)	0.108*** (0.003)	0.099*** (0.004)
GROUP	**-0.007*** (0.003)**	**-0.006** (0.016)**	**-0.2914 (0.041)**	**-0.3030 (0.000)**	**-0.018*** (0.000)**	**-0.025*** (0.000)**
Top_4	**-0.010*** (0.001)**		**-0.3310 (0.030)**		**-0.015*** (0.008)**	
Ln_Fees		**-0.005*** (0.000)**		**-.3510 (0.000)**		**-0.007** (0.014)**
Ln_Assets	-0.005*** (0.000)	-0.001 (0.267)	-0.1610 (0.000)	-0.1809 (0.000)	-0.008*** (0.000)	-0.004** (0.031)
F_Lev	0.026*** (0.000)	0.020*** (0.000)	0.1289 (0.031)	0.1675 (0.029)	0.070*** (0.000)	0.078*** (0.000)
ROA	0.136*** (0.000)	0.136*** (0.000)	0.1289 (0.2010)	0.1001 (0.3814)	-0.051* (0.067)	-0.071** (0.021)
L_Loss	-0.061*** (0.000)	-0.058*** (0.000)	0.2410 (0.000)	0.2931 (0.000)		
Volatility					0.004*** (0.000)	0.003*** (0.000)
Year dummies	included	included	included	included	included	included
Industry dummies	included	included	included	included	included	included
Adj.R²	**0.098**	**0.095**	**0.1847**	**0.2098**	**0.325**	**0.345**
N	**7,308**	**6,474**	**7,308**	**6,474**	**7308**	**6,474**

Note: p-values are in parentheses.

$|DACCR_{it}|$ is the absolute discretionary accruals of firm *i* in year *t* under the modified Jones model (Dechow et al. 1995). *In_Sm* is the ratio of the standard deviation of earnings to cash flow from operations of firm. *GROUP* is 1 for a firm that belongs to a business group, 0 for a firm that is in a non-business group in year *t*. *Top_4* is 1 for Top 4 client firms, 0 for non-Top 4 client firms in year *t*. *Ln_Fees* is the natural logarithm of audit fees of firm *i* in year *t. Ln_Assets* is natural logarithm of total assets of firm *i* in year *t. F_Lev* is the ratio of total debt to total assets of firm *i* in year *t. ROA* is the net income before extraordinary items for a firm *i* in year *t* scaled by total assets. *L_Loss* takes the value of 1 if firm *i* in year *t* and *t-1*reports negative income before extraordinary items and 0 if otherwise. Year dummies, a vector of dummy variables, indicate year. Industry dummies, a vector of dummy variables, indicate industry sector membership.

***significant at the 0.01 level (2-tailed); **significant at the 0.05 level (2-tailed); *significant at the 0.10 level (2-tailed).

Table 5

Regression Results of Absolute Discretionary Accruals, Income Smoothing and Cost of Equity (alternative measure of audit quality)

$|DACCRit| = \alpha_0 + \alpha_1 GROUP_{it} + \alpha_2 Aud_{it}$ *(Top_4 or Ln_Fees)* $+ \alpha_3 Ln\_Assets_{it} + \alpha_4 F\_Lev_{it} + \alpha_5 ROA_{it} + \alpha_6 L\_Loss_{it}$ *+ Year fixed effects + Industry fixed effects* $+ \varepsilon$ *…….. (4)*

$In\_Sm_{it} = \alpha_0 + \alpha_1 GROUP_{it} + \alpha_2 Audit_{it}$ *(Top_4 or Ln_Fees)* $+ \alpha_3 Ln\_Assets_{it} + \alpha_4 F\_Lev_{it} + \alpha_5 ROA_{it} + \alpha_6 L\_Loss_{it}$ *+ Year fixed effects + Industry fixed effects* $+ \varepsilon$ *…… (5)*

$Keit = \alpha_0 + \alpha_1 GROUP_{it+} \alpha_2 Audit_{it}$ *(Top_4 or Ln_Fees)* $+ \alpha_3 Ln\_Assets_{it} + \alpha_4 F\_Lev_{it} + \alpha_5 ROA_{it} + \alpha_6 VOLATILITY_{it}$ *+ Year fixed effects + Industry fixed effects* $+ \varepsilon$ *……..... (6)*

Variable	*Earnings management (|DACCR|)*	*Income Smoothing (In_Sm)*	*Cost of Equity Capital (Ke)*
	Top_8	*Top_8*	*Top_8*
	Estimate (ρ-value)	Estimate (ρ-value)	Estimate (ρ-value)
Intercept	0.060*** (0.000)	3.9000*** (0.000)	0.102*** (0.002)
GROUP	**-0.007*** (0.004)**	**-0.2989** (0.021)**	**-0.018*** (0.000)**
Top_8	**-0.006** (0.017)**	**-0.3541** (0.010)**	**-0.012** (0.018)**
Ln_Assets	-0.005*** (0.000)	-0.1600*** (0.000)	-0.008*** (0.000)
F_Lev	0.028*** (0.000)	0.1410** (0.021)	0.070*** (0.000)
ROA	0.135*** (0.000)	0.1210 (0.2000)	-0.054* (0.061)
L_Loss	-0.060*** (0.000)	0.2241*** (0.000)	
Volatility			0.004*** (0.000)
Year dummies	included	included	included
Industry dummies	included	included	included
Adj.R²	**0.098**	**0.241**	**0.295**
N	**7,308**	**7,308**	**7,308**

Note: p-values are in parentheses.

$|DACCR_{it}|$ is the absolute discretionary accruals of firm *i* in year *t* under the modified Jones model (Dechow et al. 1995). *In_Sm* is the ratio of the standard deviation of earnings to cash flow from operations of firm. *GROUP* is 1 for a firm that belongs to a business group, 0 for a firm that is in a non-business group in year *t*. *Top_4* is 1 for Top 4 client firms, 0 for non-Top 4 client firms in year *t*. *Ln_Fees* is the natural logarithm of audit fees of firm *i* in year *t*. *Ln_Assets* is natural logarithm of total assets of firm *i* in year *t*. *F_Lev* is the ratio of total debt to total assets of firm *i* in year *t*. *ROA* is the net income before extraordinary items for a firm *i* in year *t* scaled by total assets. *L_Loss* takes the value of 1 if firm *i* in year *t* and *t-1*reports negative income before extraordinary items and 0 if otherwise. Year dummies, a vector of dummy variables, indicate year. Industry dummies, a vector of dummy variables, indicate industry sector membership.

*** significant at the 0.01 level (2-tailed); ** significant at the 0.05 level (2-tailed); * significant at the 0.10 level (2-tailed).

Table 6

Regression Results of Absolute Discretionary Accruals, Income Smoothing and Cost of Equity (Excluding the GFC period)

$|DACCRit| = \alpha_0 + \alpha_1 GROUP_{it} + \alpha_2 Aud_{it}$ *(Top_4 or Ln_Fees)* $+ \alpha_3 Ln\_Assets_{it} + \alpha_4 F\_Lev_{it} + \alpha_5 ROA_{it} + \alpha_6 L\_Loss_{it}$ *+ Year fixed effects + Industry fixed effects* $+ \varepsilon$ *…… (4)*

$In\_Sm_{it} = \alpha_0 + \alpha_1 GROUP_{it} + \alpha_2 Audit_{it}$ *(Top_4 or Ln_Fees)* $+ \alpha_3 Ln\_Assets_{it} + \alpha_4 F\_Lev_{it} + \alpha_5 ROA_{it} + \alpha_6 L\_Loss_{it}$ *+ Year fixed effects + Industry fixed effects* $+ \varepsilon$ *…… (5)*

$Keit = \alpha_0 + \alpha_1 GROUP_{it+} \alpha_2 Audit_{it}$ *(Top_4 or Ln_Fees)* $+ \alpha_3 Ln\_Assets_{it} + \alpha_4 F\_Lev_{it} + \alpha_5 ROA_{it} + \alpha_6 VOLATILITY_{it}$ *+ Year fixed effects + Industry fixed effects* $+ \varepsilon$ *…… (6)*

Variable	*Earnings management (|DACCR|)*		*Income Smoothing (In_Sm)*		*Cost of Equity Capital (Ke)*	
	Top_4	***Ln_Fees***	***Top_4***	***Ln_Fees***	***Top_4***	***Ln_Fees***
	Estimate (ρ-value)	Estimate (ρ-value)	Estimate (ρ-value)	Estimate (ρ-value)	Estimate (ρ-value)	Estimate (ρ-value)
Intercept	0.023*	0.004	4.1010***	4.5141***	0.101**	0.084*
	(0.068)	(0.780)	(0.000)	(0.000)	(0.013)	(0.062)
GROUP	**-0.010*** **	**-0.009*** **	**-0.3215** **	**-0.3541*** **	**-0.018*** **	**-0.024*** **
	(0.003)	**(0.001)**	**(0.021)**	**(0.000)**	**(0.004)**	**(0.001)**
Top_4	**-0.010*** **		**-0.3641** **		**-0.016*** **	
	(0.003)		**(0.020)**		**(0.005)**	
Ln_Fees		**-0.004*** **		**-0.3641*** **		**-0.008*** **
		(0.003)		**(0.000)**		**(0.009)**
Ln_Assets	-0.004***	-0.001	-0.1425***	-0.1941***	-0.009***	-0.004
	(0.000)	(0.492)	(0.000)	(0.000)	(0.000)	(0.154)
F_Lev	0.032***	0.027***	0.1410**	0.1710**	0.055***	0.055***
	(0.000)	(0.000)	(0.010)	(0.021)	(0.000)	(0.000)
ROA	0.148***	0.149***	0.1341	0.1121	-0.087**	-0.110***
	(0.000)	(0.000)	(0.1651)	(0.3012)	(0.013)	(0.004)
L_Loss	-0.053***	-0.050***	0.2741***	0.2985***		
	(0.000)	(0.000)	(0.000)	(0.000)		
Volatility					0.003***	0.003***
					(0.000)	(0.000)
Year dummies	included	included	included	included	included	included
Industry dummies	included	included	included	included	included	included
Adj.R^2	**0.126**	**0.116**	**0.2257**	**0.2325**	**0.315**	**0.324**
N	**2,504**	**2,445**	**2,504**	**2,445**	**2,504**	**2,445**

Note: p-values are in parentheses.

$|DACCR_{it}|$ is the absolute discretionary accruals of firm *i* in year *t* under the modified Jones model (Dechow et al. 1995). *In_Sm* is the ratio of the standard deviation of earnings to cash flow from operations of firm. *GROUP* is 1 for a firm that belongs to a business group, 0 for a firm that is in a non-business group in year *t*. *Top_4* is 1 for Top 4 client firms, 0 for non-Top 4 client firms in year *t*. *Ln_Fees* is the natural logarithm of audit fees of firm *i* in year *t. Ln_Assets* is natural logarithm of total assets of firm *i* in year *t. F_Lev* is the ratio of total debt to total assets of firm *i* in year *t. ROA* is the net income before extraordinary items for a firm *i* in year *t* scaled by total assets. *L_Loss* takes the value of 1 if firm *i* in year *t* and *t-1*reports negative income before extraordinary items and 0 if otherwise. Year dummies, a vector of dummy variables, indicate year. Industry dummies, a vector of dummy variables, indicate industry sector membership.

***significant at the 0.01 level (2-tailed); **significant at the 0.05 level (2-tailed); *significant at the 0.10 level (2-tailed).

Table 7
Regression Results of Absolute Discretionary Accruals and Cost of Equity (Alternative measures)

$DACCRit| = \alpha_0 + \alpha_1 GROUP_{it} + \alpha_2 Aud_{it}$ *(Top_4 or Ln_Fees)* $+ \alpha_3 Ln\_Assets_{it} + \alpha_4 F\_Lev_{it} + \alpha_5 ROA_{it} + \alpha_6 L\_Loss_{it}$ *+ Year fixed effects + Industry fixed effects* $+ \varepsilon$ ..... *(4)*

$Keit = \alpha_0 + \alpha_1 GROUP_{it+} \alpha_2 Audit_{it}$ *(Top_4 or Ln_Fees)* $+ \alpha_3 Ln\_Assets_{it} + \alpha_4 F\_Lev_{it} + \alpha_5 ROA_{it} + \alpha_6 VOLATILITY_{it}$ *+ Year fixed effects + Industry fixed effects* $+ \varepsilon$ ..... *(6)*

Variable	*Earnings management (|DACCR|)*		*CAPM Cost of Equity Capital (Ke)*		*Excluding Bottom quartile Cost of Equity Capital (Ke)*	
	Top_4	***Ln_Fees***	***Top_4***	***Ln_Fees***	***Top_4***	***Ln_Fees***
	Estimate (ρ-value)	Estimate (ρ-value)	Estimate (ρ-value)	Estimate (ρ-value)	Estimate (ρ-value)	Estimate (ρ-value)
Intercept	0.049*** (0.000)	0.033*** (0.009)	0.201*** (0.000)	0.182*** (0.000)	0.186*** (0.000)	0.172*** (0.001)
GROUP	**-0.007*** (0.002)**	**-0.005*** (0.001)**	**-0.019*** (0.004)**	**-0.028*** (0.000)**	**-0.018*** (0.005)**	**-0.027*** (0.000)**
Top_4	**-0.010*** (0.001)**		**-0.015** (0.041)**		**-0.012* (0.056)**	
Ln_Fees		**-0.005*** (0.003)**		**-0.006*** (0.000)**		**-0.005 (0.135)**
Ln_Assets	-0.004*** (0.000)	-0.001 (0.526)	-0.012*** (0.000)	-0.009** (0.021)	-0.010*** (0.000)	-0.007** (0.038)
F_Lev	0.024*** (0.000)	0.017*** (0.001)	0.081*** (0.000)	0.083*** (0.000)	0.073*** (0.000)	0.078*** (0.000)
ROA	0.133*** (0.000)	0.132*** (0.000)	-0.076** (0.041)	-0.088** (0.024)	-0.071* (0.056)	-0.087** (0.048)
L_Loss	-0.050*** (0.000)	-0.047*** (0.000)				
Volatility			0.003*** (0.000)	0.001*** (0.000)	0.003*** (0.000)	0.002*** (0.000)
Year dummies	included	included	included	included	included	included
Industry dummies	included	included	included	included	included	included
Adj.R^2	**0.081**	**0.085**	**0.2257**	**0.2325**	**0.355**	**0.364**
N	**7,308**	**6,474**	**7,308**	**6,474**	**5,287**	**4,876**

Note: p-values are in parentheses.

$|DACCR_{it}|$ is the absolute discretionary accruals of firm *i* in year *t* under the Jones model (1991). *In_Sm* is the ratio of the standard deviation of earnings to cash flow from operations of firm. *GROUP* is 1 for a firm that belongs to a business group, 0 for a firm that is in a non-business group in year *t*. *Top_4* is 1 for Top 4 client firms, 0 for non-Top 4 client firms in year *t*. *Ln_Fees* is the natural logarithm of audit fees of firm *i* in year *t*. *Ln_Assets* is natural logarithm of total assets of firm *i* in year *t*. *F_Lev* is the ratio of total debt to total assets of firm *i* in year *t*. *ROA* is the net income before extraordinary items for a firm *i* in year *t* scaled by total assets. *L_Loss* takes the value of 1 if firm *i* in year *t* and *t-1*reports negative income before extraordinary items and 0 if otherwise. Year dummies, a vector of dummy variables, indicate year. Industry dummies, a vector of dummy variables, indicate industry sector membership.

***significant at the 0.01 level (2-tailed); **significant at the 0.05 level (2-tailed); *significant at the 0.10 level (2-tailed).