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Audit report lag and the cost of equity capital

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Abstract

Purpose – This research investigates the effect of audit report lag on the cost of equity capital. We argue that an extended audit report lag reduces the value of information and raises concerns for investors, resulting in an increased cost of equity capital.

Design/methodology/approach – We hypothesize that audit report lag increases the firm cost of equity capital. We conduct ordinary least squares (OLS) regression analyses to examine our hypothesis. Finally, we also perform a range of sensitivity tests to examine the hypothesis and robustness of findings.

Findings – Using a sample of the listed US firms from 2003 to 2018, we find that firms with higher audit report lag have a higher cost of equity capital. Our findings are economically significant as one standard deviation increase in audit report lag raises 3.82 basis points of cost of equity capital. Furthermore, our results remain robust to endogeneity concerns and alternative proxies for the cost of equity capital measures. Finally, we confirm that audit report lag increases the firm cost of equity capital through increasing information asymmetry and future financial restatement as a mediating channel.

Originality/value – We contribute to the theoretical discussion about the role of audit report lag and investors' perceptions. Overall, our results suggest that audit report lag affects a firm cost of equity capital.

Keywords Audit report lag, Information asymmetry, Cost of equity capital

Paper type Research paper

1. Introduction

We examine the association between the audit report lag (*ARL*) and the cost of equity capital (*COC*). Regulators such as FASB (2010) and the International Accounting Standards Board (2010) promote the timely release of general-purpose financial reports because untimely information can decrease relevance, usefulness, and economic value. FASB (2010) views timeliness as a constraint, as information must be relevant and faithfully represented. Carslaw and Kaplan (1991) reinforce that accounting information is to be made available for external users' decision-making promptly after the end of the fiscal year, and financial statements are completed before they lose economic value to influence their decision. A delay in the audit report, for example, because of additional work to ensure the information is assured and reliable, could impact the timely release of the financial reports. Auditing research suggests that audit report timeliness is a mechanism for reducing information asymmetry and the

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opportunity to spread rumours about the companies' financial health and performance (Al-Ajmi, 2008; Owusu-Ansah, 2000). Empirical research suggests that longer audit report lag results in future financial restatement (Blankley *et al.*, 2014) and increases future stock price crash risk (Habib and Huang, 2019). However, the audit report lags on the cost of equity capital, an issue of direct economic consequences for the shareholder's investment decision that has mostly remained unexplored. We fill this void in the existing auditing literature.

Theoretically, audit report lag sent two conflicting signals. First, a delay in the report might suggest that the auditor makes more efforts to enhance the audit methods and assimilate more information from the client, decreasing the potential for management to conceal bad news. From this point of view, an extension of audit delay might be seen as a signal that it can reveal to the public prompt internal information and trustworthy reports to aid in stabilizing the capital market (Blankley *et al.*, 2014; Knechel *et al.*, 2009). Second, an audit delay may disclose a certain degree of difficulty in finalizing the financial statements. Auditors failing to fulfil the specified time frame will give stakeholders a strong signal that company performance is inadequate or potentially mislead the annual report. As the audited annual report is the primary source of audited financial information for the investor, the more promptly the information is delivered to users of financial statements, the more relevant it is for the investors to efficient decision-making. Such a competing argument warrants an empirical investigation of how the shareholder integrates audit report lag as the investment decision, affecting the firm's cost of equity capital.

We choose the cost of equity as a natural consequence of audit report timeliness because external stakeholders consider audit reports to have a higher value on investment decisions. Hence, the timing of the release of an audit report became a crucial input for investment decisions (Habib *et al.*, 2019). Investors must make a trade-off between risk and return while working on the investment decision. To obtain the desired mix of risk and return, investors require a high return from risky investments, whereas a low return from investments with little/no risk. Easley and O'Hara (2004) show that investors rely on information from different sources to decide what investment portfolio will provide them with the desired mix of risk and return. Wright and Robbie (1996) show the role and importance of accounting and non-accounting information in assessing a potential investment decision. A key objective of regulators and standard setters is to provide investors with helpful information to make informed investment decisions (Financial Accounting Standards Board [FASB], 1978). The timely release of audit reports reduces the uncertainty of the investment, which makes investment decisions more informative and less risky, resulting in a lower cost. Whereas audit report delays likely impact deferring earnings announcements, reducing earnings informativeness, and generating a negative market response to earnings (Bamber *et al.*, 1993). Therefore, COC is relevant if there is a reward for a timely audit report.

We examine our research question using data from companies listed in the US listed companies during the 2003 to 2018 sample period and find that firms with longer audit report lag have a higher cost of capital. Also, we find that the cost of equity capital is higher when a firm experiences a higher earnings report lag. Our primary finding remains robust for the group of firms which are identified as accelerated filers compared to the non-accelerated filers firm. In addition, we employ a two-stage approach similar to Blankley *et al.* (2014) and evidence that abnormal audit report lag increases the cost of equity capital. Finally, we consider two different channels (future financial restatement and information asymmetry) as higher audit report lag may increase the cost of equity capital through potential channels such as poor financial reporting quality and information asymmetry. Our channel analysis confirms that audit report lag increases the firm cost of equity capital through increasing information asymmetry and future restatement as a mediating channel. Our findings are consistent with the broader auditing literature, suggesting market participants view audit report lags negatively. Our findings have economic significance, implying that one standard

deviation increase in audit report lag results in a cost of equity capital rise by 3.82 basis points. Because, audit reporting delay can diminish the economic value of public disclosures relevant to the pricing of securities and create inequality among market participants who do not share equal access to private information, leading to a higher cost of equity capital.

Our research has several contributions. *First*, Financial reporting timeliness is a priority for standard setters and regulators. Both accounting and auditing standard setters have recognized timeliness as a qualitative characteristic of financial reporting (FASB, 2010). Also, IASB accentuated the importance of timeliness as an enhancing qualitative characteristic of relevant financial information (IASB, 2018). While the regulators promote audit report timeliness that makes information more useful to an existing and potential investor, empirical evidence is in its infancy. Our research fills the void by responding to the call by examining and presenting evidence of the effect of audit report lag on the cost of equity capital. *Second,* existing auditing research predominantly examines the determinants of audit report lag (Habib *et al.*, 2019; Abernathy *et al.*, 2017; Durand, 2019). Only a few studies have examined the effects of audit report lag, with findings suggesting that higher audit report lag increases future financial restatement (Blankley *et al.*, 2014) and the likelihood of receiving a going concern opinion (Chan *et al.*, 2016). Habib and Huang (2019) argue that a longer audit report lag signals bad news hoarding, increasing investor uncertainty and resulting in stock price crash risk. However, examining the economic consequences of audit report timeliness is still in its infancy. Our research suggests a direct financial consequence of audit report timeliness, such as the effect on the cost of equity capital. *Third*, Our study extends the existing capital market research associating the impact of external auditors. Existing research suggests that auditor industry specialization (Krishnan *et al.*, 2013), audit partner tenure (Azizkhani *et al.*, 2013), and audit partner tenure (Habib *et al.*, 2019) are likely determinants of the cost of equity capital. Our research has incremental contributions to the cost of equity capital literature by providing direct empirical evidence on the firm's cost of capital on external auditors' efficiency and audit effort, such as audit report lag.

The remainder of this paper is organized as follows. Section 2 presents the existing literature and develops a hypothesis on the association between audit report lag and the cost of equity capital. The research methods and sample selection are described in Section 3. Descriptive statistics and regression analysis results are reported in Section 4. Section 5 conducts additional tests on accelerated filers and firms with abnormal audit report lag. Finally, Section 6 concludes the paper.

2. Literature review and hypothesis development

The timeliness of the information released has been an essential factor in affecting the cost of equity (Dechow *et al.*, 2010; Francis *et al.*, 2004). The primary benefit of audited information does not lie in the usefulness of the information provided by the audit report but in the timely confirmation of previously available information (Sundem *et al.*, 1996). Beaver (1968) posits that investors may postpone their purchases and sales of securities until the earnings report is released. As an externally observable audit output, an audit report contains the auditor opinion, which informs investors about the credibility of financial statements. A shorter ARL allows investors to adjust their investment preferences more rapidly (Habib and Bhuiyan, 2011). The value of audited information declines with an expanded ARL, as competitively oriented users often seek substitute information sources (Knechel and Payne, 2001). The delayed disclosure may encourage individual investors to acquire costly "pre-disclosure" private information and exploit their private information at the expense of "less informed" investors (Bamber *et al.*, 1993).

The stakeholders often interpret a lengthy ARL as a signal of a problem audit (Blankley *et al.*, 2014). ARL reflects the audit efforts, and incremental audit efforts are positively

associated with ARL (Knechel and Payne, 2001). Easley and O'Hara (2004) show that the precision and quantity of information available to investors influence the cost of capital. Expanded ARL is associated with uncertainty and risk; the company's image would be perceived negatively by the market, and investors would consider the investment riskier, which would increase COC. Prior literature provides evidence that increases in audit efforts, and ARL are often related to bad news or difficulties in the auditing process, such as reduced profitability, poor earnings quality, high financial risks, and weak internal control, which hinder auditors from conducting audit procedures efficiently, and the market reacts negatively to delays of information release, which can lead to a higher COC.

Empirical research evidence that firm profitability is highly associated with audit report timeliness, such as less profitable companies tend to have extended audit reporting lag (Courtis, 1976; Davies and Whittred, 1980; Habib *et al.*, 2019; Owusu-Ansah, 2000). Companies that experience negative profits generally have the incentive to delay the announcement of bad news by delaying the commencement date of the audit. When a firm incurs losses, auditors tend to be more cautious in auditing, given that the loss increases the likelihood of financial failure of management fraud (Carslaw and Kaplan, 1991). Good news firms are found to release reports earlier than bad news firms, and firms that suffer from loss tend to have the most prolonged delay (Haw *et al.*, 2000). Therefore, losses incurred trigger more substantive tests to confirm if the company is going concern, and more time and effort are invested in the auditing process, hence the delay in the audit report. Extreme changes in profitability can also lead to reporting lags (Davies and Whittred, 1980), as earnings volatility signals risk and prompts auditors to conduct more substantive tests to provide reasonable assurance. For example, extreme changes in profitability in Australia extend the audit reporting time (Davies and Whittred, 1980). Evidence from a developing country, Zimbabwe, also supports a negative relationship between profitability and audit reporting lead time (Owusu-Ansah, 2000).

Another stream of academic research evidence is that audit report timeliness is associated with business risk. The higher the degree of the financial risks, the more cautious auditors are when proceeding with the auditing procedures to reduce any audit risk. There is a higher chance of misreporting and financial failure in financially distressed companies with a high leverage level, which exposes auditors to greater audit risk (Arens *et al.*, 2000; Krishnan, 2005). To react to the additional audit risk associated with the firms in a weaker financial condition, auditors are more sceptical when verifying the reliability of the financial statement of distressed firms, hence end up with longer audit report delays. Also, companies with abnormal ARL are subject to a higher likelihood of restatement (Blankley *et al.*, 2014), exposing investors to the risk and increasing the firm's equity cost (Hribar and Jenkins, 2004). Furthermore, inherent risk due to the inherent nature of the client's industry can pertain to ARL. Firms in the litigious industry, such as innovative firms, are subject to higher inherent risk and more prone to volatile profit (Bedard and Johnstone, 2004). To provide reasonable assurance for firms with higher inherent risk, auditors commonly assign more experienced staff and industry expertise on board and conduct more extensive tests; therefore, more audit work is required, hence extended ARL.

Empirical research has extensively examined various aspects of audit report lag and the cost of equity. Bhuiyan and D'Costa (2020) provide evidence that audit committee ownership increases audit report lag. Conversely, Habib *et al.* (2021) show that audit committee ownership reduces a firm's cost of equity. Azad *et al.* (2023) investigated whether identified and adjusted misstatements lead to a decline in earnings management. They found a negative relationship between identified and modified misstatements of total assets and earnings management, and a positive and significant relationship between identified and adjusted misstatements of total liabilities and earnings management. Salehi *et al.* (2023a, b) demonstrate that firms with higher intellectual capital incur reduced audit fees. Le and

Moore (2023) find that higher audit quality lowers a firm's cost of equity capital. Furthermore, Salehi *et al.* (2023a, b) suggest that corporate governance structures play a significant role in reducing the cost of equity during the ISIS era. Finally, Chouaibi *et al.* (2022) indicate that the quality of integrated reporting has a significant negative effect on the cost of equity capital.

The risk of weakness in internal control is another possible channel between ARL and COC. Internal control that consists of policies and procedures to provide reasonable assurance on the reliability of financial reporting is essential to auditors. The weaker the client's internal control, the more reliance auditors place on substantive tests. The prior studies prove that internal control weakness is positively associated with ARL. For example, in the U.S., Ettredge *et al.* (2006) find that material internal control weakness is associated with longer ARL using data from the post-SOX 404 periods of 2003–2004. Munsif *et al.* (2012) extend Ettredge *et al.* (2006) study using data from 2008 and 2009 and find consistent evidence that ARL declines significantly with an effort to remediate material control weakness among accelerated filers. Again, Mitra *et al.* (2015) find that material internal control weakness significantly increases audit report lag. In Egypt, Khlif and Samaha (2014) find that higher internal control quality contributes significantly to reducing the audit component of ARL. Furthermore, internal control weaknesses/deficiencies are found to translate to a higher cost of equity. Ogneva *et al.* (2007) state the reasons to expect higher COC for firms with internal control weakness include, firstly internal control weakness negatively affects accounting quality, which leads to higher information risk that incurs high COC; secondly, internal control weakness increases idiosyncratic risk and therefore high COC. Ashbaugh-Skaife *et al.* (2009) show clear evidence that firms with internal control deficiencies have a significantly higher cost of equity.

An audit report contains the auditor's opinion regarding the credibility of the financial statements. Investors generally prefer short audit report lags, and due to the lack of timeliness, a delayed audit report has reduced economic value (Al-Ajmi, 2008). A more comprehensive audit report signals a potential problem in the auditing process (Blankley *et al.*, 2015). Lee *et al.* (2009a, b) emphasize the importance of ARL in investment decision-making because a longer ARL implies a slower release of financial accounting information to investors and, therefore, a decrease in the informational efficiency of stock markets. Asthana (2014) argues that abnormal audit delay creates scepticism among investors about earnings quality, and they value the disclosed earnings after discounting for such delay and uncertainty. Empirical research evidence shows that firms with long audit reporting lags are more likely to have the receipt of non-standard opinions in subsequent periods (Chan *et al.*, 2016), and are likely to engage in restatement in the following year (Chan *et al.*, 2016; Blankley *et al.*, 2014). A longer-than-expected ARL (abnormal ARL) may often suggest the presence of prolonged auditor–client negotiations to settle significant disagreements between the auditor and the clients. Longer than expected, ARL increases information risk in the market since investors cannot make an investment decision on time. Therefore, in concert with longer ARL, asymmetric information requires investors to demand additional risk premiums and increase capital cost.

Despite the strong indication from prior literature on the association between ARL and risks, a stream of research also posits that the longer ARL is driven by a more thorough audit, which would reduce the likelihood of omitting any material misstatement to higher audit quality. For example, Bedard and Johnstone (2004) find that with the perceived risk of earnings management, auditors would increase audit efforts and invest more hours in permitting less earnings management. Similarly, an extended audit effort is effective and negatively associated with abnormal accruals (Caramanis and Lennox, 2008; Schelleman and Knechel, 2010). Therefore, finding a negative relation between ARL and COC would suggest that additional audit effort is effective and leads to a higher audit report quality. Whereas

finding a negative relationship would indicate that unusually long audit report lag reflects higher risk and generates a negative response from the market.

As discussed above, audit report lag is a critical factor in investment decision-making as the audited financial statements in the annual report are the only reliable source of information available to investors. Overall, the previous research evidence that longer ARL raises concerns of profitability, business risk, internal control deficiency, going concern opinion, restatements, and poor quality of earnings, which are potential risks and driving factors to increase the cost of equity capital. In addition, longer ARL generally raises concerns to the stakeholders, and they would require a higher rate of returns on their investment to compensate for the perceived risk. On the other hand, longer ARL reflects additional audit effort, improving audit quality and generating a positive response from the market. Considering the competing arguments, we, therefore, hypothesize that ARL is associated with COC without an expected directional effect:

H1. Audit report lag affects the cost of equity capital.

3. Sample and methodology

3.1 Sample collection

We obtain the relevant data from multiple databases. We collect auditing and attribute data from Audit Analytics. Corporate governance, board composition and ownership data are obtained from the Corporate Library (also known as Board Analyst). Financial statements and beta are extracted from Compustat and Datastream. To calculate the cost of equity capital, we use the Institutional Brokers' Estimate System (I/B/E/S), CRSP, and Compustat to get predicted future earnings per share, market price, and dividend per share. We start our sample (44,193 firm-years observations) by matching required data using Compustat, Board Analyst, Audit Analytics, CRSP and IBES (the estimated cost of equity capital) databases for the period spanning from 2003 to 2018. Our sample started in 2003 because this is the first year in which auditing data (such as audit report lag, audit opinion and internal control weakness) is available in Audit Analytics on a broader sample. We lost 23,111 firm-year observations when merging Audit Analytics, Board Analyst, and Compustat databases, leaving 21,082 firm-year observations. In addition, we dropped a total of 1,897 firm-year observations that belong to financial firms (Standard Industrial Classification 6000–6999) and other inconsistent data (negative audit report lag data and inconsistent audit report lag information). Finally, we matched the proxy for the implied cost of equity capital and it is noteworthy to mention that we lost a considerable amount of firm-year observations primarily due to generating missing observations through merging multiple databases. Also, the implied cost of equity capital estimation requires several criteria to consider and restricts us to 12,523 firm-year observations. It is noteworthy to mention that cost of equity capital estimation requires at least one analyst forecast of one-year-ahead and two-year-ahead earnings per share (EPS) and at least one forecast of the long-term growth rate. Also, the implied cost of equity capital measures requires the two-year-ahead forecasted EPS to be higher than the one-year-ahead forecasted EPS. In brief, our final sample comprises 12,523 firm-year observations spanning from 2001 to 2018. Table 1 reports the detailed sample selection process. Finally, to rule out any potential biases from the outliers, all the continuous variables are winsorized top and bottom at a 1% level.

3.2 Research design

We estimate the following regression model to examine whether audit report lag is associated with a lower *COC*.

Details	# of firm
Initial matching samples from the Audit Analytics, Board Analyst (The Corporate Library), DataStream and Compustat	44,193
Less: Missing auditing, corporate governance and other financial accounting-related information across different firm-years	(23,111)
After excluding missing samples between Audit Analytics, Board Analyst (The Corporate Library) and Compustat	21,082
Less: Excluding inconsistent information such as negative ARL firm-year observations and SIC (6000–6999)	(1,897)
Residual firm-year observations before matching the cost of equity estimations	19,185
Less: Missing firm-year observation IBES, which attributes different measures of *COC*	(6,662)
Final sample for the period 2001–2018	12,523

Source(s): Created by authors

Table 1.
Sample selection

$$COC_{i,t+1} = \partial_0 + \partial_1 ARL_{i,t} + \partial_2 BODSIZE_{i,t} + \partial_3 INDDIR_{i,t} + \partial_4 CEODUAL_{i,t} + \partial_5 BODMEET_{i,t} + \partial_6 BIGN_{i,t} + \partial_7 GCOPIN_{i,t} + \partial_8 OWNCON_{i,t} + \partial_9 LNAT_{i,t} + \partial_{10} ICWEAK_{i,t} + \partial_{11} SALEGR_{i,t} + \partial_{12} LNSIZE_{i,t} + \partial_{13} LEV_{i,t} + \partial_{14} BTM_{i,t} + \partial_{15} ROA_{i,t} + \partial_{16} LOSS_{i,t} + \partial_{17} BETA_{i,t} + INDUSTRY_{FE} + YEAR_{FE} + \varepsilon_{i,t} \quad (1)$$

We use two measures for the audit report lag (ARL), which are *ARL_Q4* and *LNARL*. We measure *ARL* as the number of days between the end of a firm's fiscal year and the signature date on the audit report. *ARL_Q4* is a dummy variable equal to 1 if the firm audit report lag is within the top quartile by industry and financial year, 0 otherwise. *LNARL* is the natural logarithm of *ARL*. Our primary variable of interest is $\partial_1 ARL_{i,t}$ i.e. audit report lag. A positive (negative) coefficient on $\partial_1 ARL_{i,t}$ will imply a higher (lower) cost of equity when the audit report lag is higher (lower). Regarding our dependent variable, there is no consensus on which *COC* model works best (Botosan and Plumlee, 2005; Easton and Monahan, 2005). Therefore, we follow prior studies (e.g. Dhaliwal *et al.*, 2012; Hail and Leuz, 2006) and use three different measures of *COC,* such as *PEG*, *MPEG* and *OJN* models. First, we follow Easton (2004) in calculating the cost of equity capital based on the price-to-earnings growth ratio (*PEG*). However, Easton (2004) model does not consider firm dividend payment, and therefore we also consider another estimate following the modified PEG ratio model, i.e. *MPEG*. Finally, we also consider the Ohlson and Juettner-Nauroth (2005) model (*OJN*) as implemented by Gode and Mohanram (2003), which consider the abnormal earnings growth valuation model. Appendix briefly describes all our measures of cost of equity capital.

Consistent with the previous research findings, we include several internal and external corporate governance proxies such as board size (*BODSIZE*), board independence (*INDDIR*), CEO duality (*CEODUAL*), ownership concentration (*OWNCON*), board meeting frequencies (*BODMEET*), auditor quality (*BIGN*) and auditor opinion (*GCOPIN*). Upadhyay and Sriram (2011) evidence that a large board has higher information quality resulting in a lower cost of equity. Thus, we expect a negative association between board size and firm cost of equity capital. We also anticipate a negative association between board independence and the cost of equity. Higher board independence ensures better monitoring and good quality corporate governance resulting in a lower cost of equity capital. Agency theory suggests that firms

operating in CEO duality signal poor corporate governance, and therefore a positive association is anticipated between firm CEO duality and the cost of equity capital. Boards conducting higher meeting frequencies signal efficient monitoring, and consequently, a negative association is expected between board meeting frequencies and the cost of equity capital. Firms audited by large auditors are likely to generate higher-quality financial reporting, reducing equity capital costs (Amir *et al.*, 2010). Amin *et al.* (2014) report an increase in the cost of equity capital following the issuance of a going concern audit opinion, and therefore, we posit that a firm that received a modified-audit opinion has a higher cost of equity capital. Ogneva *et al.* (2007) suggest that a firm with internal control weaknesses indicates governance and monitoring risk; therefore, the cost of equity capital will be higher, and a positive association is expected. We also control several firm-specific attributes. A large firm with higher visibility and a market reputation attracts investors' attention, resulting in a lower cost of equity capital, and a negative association is expected. Consistent with Lintner (1965), we expect a positive association between the cost of equity capital and market beta. We anticipate a positive association between leverage and firm cost of equity capital following Modigliani and Miller (1958). Dutta and Nezlobin (2017) posit that a firm cost of equity capital increase if the firm growth rate is higher at a certain threshold; therefore, we expect a positive association. We also control firm profitability (*ROA*, *LOSS*) as a more profitable firm is likely to attract investors at a lower cost of equity capital. We also control firm bankruptcy risk (*ZSCORE*) as such uncertainty causes a higher cost of equity capital. Gebhardt *et al.* (1999) report that the market demands a higher risk premium for stocks with a higher book-to-market ratio.

4. Empirical result

4.1 Descriptive statistics

Table 2 Panel A presents descriptive statistics for the variables used in the regression variables. The mean (standard deviation) ARL is approximately 56 (11) days. The average (standard deviation) cost of equity capital is 0.10, 0.11 and 0.11 for *PEG*, *MPEG* and *OJN*, respectively. On average, 73.6% of board directors are independent, 23.7% of firms have CEO duality, and firm ownership concentration is almost 26.9% of total shares. Overall, a total of 91.6% of firms are audited by a BIGN auditor, and 9.1% of our sample firms have received modified audit opinions without sample periods. On average, 3.88% of our sample firm-year experienced negative profit (*LOSS*), and the mean (standard deviation) return on assets is 5.5 (5.3) percent. The mean (standard deviation) leverage is 24.9 (17.1) percent. Finally, the mean beta (*BETA*) is 1.07, and 18.5% of our sample firms are identified for internal control weakness (*ICWEAK*).

4.2 Correlation analysis

Table 2 Panel B presents the Pearson correlation among all the variables included in this study. The primary variable of interest is audit report lag (*ARL_Q4* and *LNARL*), and COC proxies (all three measures *PEG*, *MPEG* and *OJN*) show a positive correlation, indicating the firm cost of equity is higher when the audit report lag increases. Our findings are statistically significant at the 1% level. We find a positive correlation between *BTM*, *LOSS*, and *BETA* with the cost of equity, suggesting that higher book-to-market ratios, greater losses, and increased market risk are associated with higher equity costs. Conversely, our findings indicate that *BIG4*, *OWNCON*, and *ROA* negatively correlate with the cost of equity. This implies that firms audited by a Big4 firm, those with more concentrated ownership, and those with higher return on assets benefit from lower costs of equity, highlighting that strong auditing and ownership structures, along with profitability, can reduce equity financing

Table 2.
Summary statistics

Variables	Obs	Mean	SD	Min	P1	P99	Max
Panel A descriptive statistics							
ARL (DAYS)	12,523	56.548	11.459	18	27	86	179
ARL_Q4	12,523	0.240	0.424	0	0	1	1
LNARL	12,523	4.032	0.209	2.944	3.332	4.466	5.193
PEG	12,523	0.104	0.05	0.005	0.027	0.326	0.613
MPEG	12,523	0.111	0.047	0.001	0.036	0.277	0.876
OJN	12,523	0.109	0.035	0.007	0.05	0.229	0.6
BODSIZE	12,523	2.303	0.335	1.099	1.609	2.944	2.944
INDDIR	12,523	0.736	0.157	0	0.273	1	1
CEODUAL	12,523	0.237	0.425	0	0	1	1
BODMEET	12,523	2.09	0.432	0	0	3.045	3.219
BIGN	12,523	0.916	0.277	0	0	1	1
GCOPIN	12,523	0.091	0.032	0	0	0	1
OWNCON	12,523	0.269	0.265	0	0	0.977	0.999
ICWEAK	12,523	0.185	0.388	0	0	1	1
SALEGR	12,523	0.081	0.12	−0.199	−0.166	0.461	0.549
LNSIZE	12,523	8.063	1.626	2.706	4.962	12.293	14.745
LEV	12,523	0.249	0.171	0	0	0.748	1
BTM	12,523	0.65	0.248	0.1	0.172	1.209	2.204
ROA	12,523	0.055	0.053	−0.1	−0.075	0.218	0.267
LOSS	12,523	0.038	0.192	0	0	1	1
BETA	12,523	1.071	0.83	−9.124	−0.11	3.27	12.58

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
Panel B pairwise correlations																				
(1) ARL_Q4	1.00																			
(2) LNARL	*0.62*	1.00																		
(3) PEG	*0.07*	*0.05*	1.00																	
(4) MPEG	*0.16*	*0.12*	*0.42*	1.00																
(5) OJN	*0.15*	*0.12*	*0.50*	*0.90*	1.00															
(6) BODSIZE	*−0.25*	*−0.23*	*−0.08*	*−0.16*	*−0.19*	1.00														
(7) INDDIR	*−0.13*	*−0.11*	−0.03	*−0.07*	*−0.08*	*0.22*	1.00													

(*continued*)

Table 2.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
(8) CEODUAL	−0.04	−0.04	0.01	0.01	0.02	0.05	*0.06*	1.00												
(9) BODMEET	*0.07*	*0.09*	0.02	0.02	0.01	*0.08*	*0.11*	*0.07*	1.00											
(10) BIGN	*−0.19*	*−0.17*	−0.03	*−0.06*	*−0.06*	*0.15*	*0.09*	0.04	−0.03	1.00										
(11) GCOPIN	0.03	0.03	0.02	0.01	0.01	−0.01	−0.01	0.01	0.01	0.00	1.00									
(12) OWNCON	−0.01	0.01	*−0.08*	*−0.07*	*−0.10*	*0.12*	*0.10*	0.05	0.04	0.01	0.00	1.00								
(13) ICWEAK	0.01	0.02	−0.01	−0.01	−0.02	0.04	*0.05*	0.02	0.04	0.04	−0.01	0.04	1.00							
(14) SALEGR	0.04	0.03	*−0.07*	0.01	0.02	*−0.13*	*−0.07*	−0.02	−0.04	−0.03	−0.04	0.00	−0.02	1.00						
(15) LNSIZE	*−0.35*	*−0.33*	0.02	*−0.11*	*−0.11*	*0.52*	*0.21*	*0.08*	*0.14*	*0.24*	0.00	*−0.09*	0.04	*−0.12*	1.00					
(16) LEV	*−0.06*	−0.04	0.01	0.02	0.00	*0.13*	0.05	*0.07*	0.05	*0.10*	0.03	*0.09*	0.02	−0.05	*0.20*	1.00				
(17) BTM	*0.15*	*0.15*	*0.28*	*0.25*	*0.26*	0.01	−0.01	0.00	*0.12*	*−0.09*	0.03	*−0.11*	−0.01	*−0.23*	*0.14*	*0.07*	1.00			
(18) ROA	*−0.15*	*−0.14*	*−0.13*	*−0.17*	*−0.10*	−0.01	0.01	−0.03	*−0.11*	*0.08*	−0.03	0.02	0.02	*0.16*	−0.05	*−0.13*	*−0.58*	1.00		
(19) LOSS	*0.10*	*0.09*	0.02	*0.10*	0.04	*−0.07*	−0.02	0.00	0.02	*−0.06*	*0.07*	0.01	0.00	−0.04	*−0.14*	*−0.07*	*0.07*	*−0.33*	1.00	
(20) BETA	0.04	0.04	*0.10*	*0.18*	*0.18*	*−0.09*	−0.01	0.02	0.03	−0.03	−0.01	0.04	0.01	0.02	*−0.10*	−0.03	*0.05*	*−0.08*	*0.10*	1.00

Note(s): Italic (underline) values are statistically significant at a 0.01 (0.05) level
Source(s): Created by authors

costs. We find a positive correlation between board meeting frequencies, going concern opinions, losses, and beta with audit report lag, suggesting that increased board activity, financial uncertainty, and higher risk are associated with longer delays in audit reporting. Conversely, our findings reveal a negative correlation between board size, board independence, firm size, and leverage with audit report lag, indicating that larger, more independent boards, along with bigger firms and those with higher leverage, tend to have shorter audit report delays.

4.3 Main results: regression analysis

We now focus on Ordinary Least Square (OLS) regression analysis. Table 3 reports Equation (1) results, which examine the impact of audit report lag on the cost of equity capital. Our dependent variable is *COC,* which has three different proxies: *PEG*, *MPEG* and *OJN*. Also, we have two different proxies for audit report lag, such as *ARL_Q4* and *LNARL*. We include one independent variable (i.e. *ARL_Q4* and *LNARL*) at a time in testing Equation (1) and report the results in Table 3 Columns (1)–(6). For the *PEG*, *MPEG* and *OJN* models, the coefficient on *ARL_Q4* is 0.003 (*t*-statistics = 2.666, $p < 0.01$); 0.007 (*t*-statistics = 6.478, $p < 0.01$) and 0.005 (*t*-statistics = 6.705, $p < 0.05$) in column (1)–(3). Also, in the *PEG*, *MPEG* and *OJN* models, the coefficient on *LNARL* is 0.019 (*t*-statistics = 2.217, $p < 0.05$); 0.017 (*t*-statistics = 5.45, $p < 0.01$) and 0.018 (*t*-statistics = 5.423, $p < 0.01$) in column (4)–(6). Overall, we find that audit report lag (*ARL* and *LNARL*) has a positive association with all the proxies of cost of equity capital, which indicates that firms with lengthy audit report timeliness have a higher cost of equity capital. These findings are consistent with the argument that a long audit report lag causes more uncertainty and risk on the unreleased accounting information, resulting in a higher cost of equity capital. Thus, hypothesis 1 is supported. Our findings have economic significance, too. For example, the coefficient on *LNARL* is 0.019 (*t*-statistics = 2.217, $p < 0.05$) in column (4). The reported coefficient suggests a 3.82 basis point increase in *PEG* for one standard deviation increase in *LNARL,* i.e. [(0.019 (the coefficient on *LNARL*) * 0.209 (standard deviation of *LNARL*))/0.104 (mean of PEG)]. Overall, our findings are economical and statistically significant.

In terms of control variables, we find that firm leverage (LEV), book-to-market ratio (*BTM*), financial distress indicators (*ZSCORE* and *LOSS*), and market beta (*BETA*) exhibit a positive association across all cost of equity measures. This indicates that higher leverage, a greater book-to-market ratio, increased financial distress, and higher market risk are all linked to elevated costs of equity. Essentially, these factors contribute to higher perceived risk and uncertainty for investors, thereby increasing the required return on equity for the firm. In terms of control variables, we find that board size (BODSIZE), the presence of a Big N auditor (*BIGN*), sales growth (*SALEGR*), firm size (*LNSIZE*), and firm profitability (*ROA*) exhibit a negative association with all measures of the cost of equity. This indicates that larger boards, high-quality auditing by Big N firms, robust sales growth, increased firm size, and greater profitability are all associated with lower costs of equity. These factors suggest that firms demonstrating these characteristics are perceived as lower risk by investors, leading to reduced required returns on equity and potentially more favourable financing conditions. As mentioned in the section on sample selection, the continuous variables are winsorized at the top and bottom 1% of this distribution to control any outlier effect. Also, we calculate the variable inflation factor (*VIF*), and the variable range from 1.40 to 2.65 indicates that the multivariate regression equation is not biased due to multicollinearity. Regarding heteroscedasticity, we perform the Breuch-Pegan test, which fails to null homoscedasticity, suggesting that heteroscedasticity is not inferred with the regression model. Overall, the control variables show consistent evidence compared to the previous findings. The adjusted R^2 of the multivariate regression models ranges from 18 to 31.4%.

Variables	(1) PEG	(2) MPEG	(3) OJN	(4) PEG	(5) MPEG	(6) OJN	VIF
CONSTANT	0.072***	0.125***	0.107***	0.06***	0.092***	0.085***	
	(9.446)	(17.767)	(21.763)	(4.963)	(8.306)	(10.82)	
ARL_Q4	0.003***	0.007***	0.005***				
	(2.666)	(6.478)	(6.705)				
LNARL				0.019**	0.017***	0.018***	1.40
				(2.217)	(5.45)	(5.423)	
BODSIZE	−0.002**	−0.003**	−0.003**	−0.002**	−0.004**	−0.003***	2.06
	(−1.997)	(−2.004)	(−2.49)	(−2.02)	(−2.542)	(−2.832)	
INDDIR	−0.001	0.003	0.002	0.001	0.001	0.001	1.32
	(−0.303)	(1.093)	(0.911)	(0.116)	(0.372)	(0.286)	
CEODUAL	0.002*	0.003***	0.002***	0.001	0.002*	0.001	1.05
	(1.652)	(2.951)	(2.707)	(1.015)	(1.823)	(1.442)	
BODMEET	0.001	0.003***	0.002**	0.001	0.002**	0.001*	1.16
	(1.345)	(2.981)	(2.29)	(1.121)	(2.202)	(1.727)	
BIGN	−0.004**	−0.004***	−0.005***	−0.004**	−0.003**	−0.004***	1.15
	(−2.16)	(−2.624)	(−4.261)	(−2.458)	(−2.347)	(−3.894)	
GCOPIN	−0.01	0.005	0.013	0.012	0.001	0.007	1.01
	(−0.651)	(0.333)	(1.247)	(0.921)	(0.018)	(0.826)	
OWNCON	−0.002	−0.003**	−0.002**	−0.002	−0.003*	−0.002*	1.30
	(−1.179)	(−2.024)	(−2.135)	(−1.363)	(−1.892)	(−1.842)	
ICWEAK	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	1.04
	(−0.129)	(−0.247)	(−1.141)	(−0.015)	(−0.277)	(−1.249)	
SALEGR	−0.009**	0.012***	0.01***	−0.01***	0.01***	0.007***	1.24
	(−2.472)	(3.585)	(4.064)	(−2.814)	(2.804)	(3.121)	
LNSIZE	−0.001***	−0.003***	−0.001***	−0.002**	−0.003***	−0.002***	2.19
	(−3.001)	(−8.244)	(−5.934)	(−2.461)	(−9.475)	(−7.467)	
LEV	0.015***	0.025***	0.022***	0.013***	0.025***	0.021***	1.49
	(5.206)	(9.522)	(11.713)	(4.416)	(9.541)	(11.487)	
BTM	0.054***	0.043***	0.036***	0.054***	0.043***	0.037***	2.18
	(22.167)	(19.22)	(23.153)	(22.926)	(19.532)	(23.703)	
ROA	−0.033***	−0.04***	−0.011**	−0.014**	−0.023**	−0.028***	2.34
	(−2.845)	(−3.716)	(−2.469)	(−2.352)	(−2.335)	(−4.023)	
LOSS	0.002**	0.012***	0.003*	0.002	0.012***	0.002	1.23
	(2.258)	(5.565)	(1.721)	(1.727)	(5.46)	(1.377)	
BETA	0.003***	0.006***	0.005***	0.002***	0.006***	0.005***	1.16
	(5.302)	(12.313)	(13.612)	(4.779)	(12.55)	(13.456)	
ZSCORE	0.005***	0.004***	0.003***	0.005***	0.004***	0.003***	2.65
	(6.186)	(5.072)	(6.375)	(6.109)	(4.887)	(6.183)	
INDUSTRY_FE	Yes	Yes	Yes	Yes	Yes	Yes	
YEAR_FE	Yes	Yes	Yes	Yes	Yes	Yes	
Observations	12,523	12,523	12,523	12,815	12,523	12,523	
R-squared	0.185	0.253	0.327	0.18	0.245	0.314	

Table 3. Regression result (audit report lag)

Note(s): Standard errors are robust to heteroscedasticity and clustered by firm. *t*-values are in parentheses. ***$p < 0.01$, **$p < 0.05$, *$p < 0.10$. Variable definitions are reported in Appendix

Source(s): Created by authors

5. Additional test

5.1 Abnormal audit lags and cost of equity capital

Abnormal audit lags represent an unexpected portion of ARL, calculated by excluding the portion of audit lag that ascertainable factors can explain. It is important to test the association between abnormal *ARL* and *COC*, as abnormal audit lag reflects unusual or unexpected audit efforts, representing more uncertainty and a higher risk of problematic

financial statements. The notion that abnormal audit lag means higher risk in the company is supported by prior studies. For example, late 10-K filers in the US, on average, have a negative rate of returns, decreasing earnings, low liquidity, and high leverage (Alford *et al.*, 1994). On the other hand, abnormal audit lag is positively associated with and increases the likelihood of a future restatement of that year's financial statements (Blankley *et al.*, 2015). Also, using a meta-analysis, Habib *et al.* (2019) show that ARL is positively associated with firm complexity and risk and negatively associated with profitability. Delays in the audit process are found to be the single most crucial factor in delaying an earnings announcement (Bryant-Kutcher *et al.*, 2007; Givoly and Palmon, 1982), and the stock market react negatively to late filings (Haw *et al.*, 2000; Kross and Schroeder, 1984). Therefore, abnormally longer audit report lag tends to be perceived by the market to be associated with bad news and higher risk, and we test whether COC increases with the presence of abnormal ARL.

If the audit report lag model is well specified, the residual audit report lag reflects abnormal audit report lag. The residual should capture the unobservable factor of audit report lag. Now, we use two different abnormal audit report lag measures, such as *ABNARL*. We estimate abnormal audit report lag as the actual audit report lag minus the predicted audit report lag. We use the conventional audit report lag model, emphasizing controlling for reporting lag determinants associated with firm risk, corporate governance, and firm-specific characteristics. We regress the audit report lag regression model, and the residual from the audit report lag model is considered abnormal audit report lag, which indicates a likelihood of firm risk due to delayed financial reporting. The audit report lag model to determine predicted report lag is as follows:

$$\begin{aligned} LNARL_{i,t} = {} & \partial_0 + \partial_1 BODSIZE_{i,t} + \partial_2 INDDIR_{i,t} + \partial_3 CEODUAL_{i,t} + \partial_4 LNSIZE_{i,t} \\ & + \partial_5 BTM_{i,t} + \partial_6 LEV_{i,t} + \partial_7 ZSCORE_{i,t} + \partial_8 LOSS_{i,t} + \partial_9 FYE_{i,t} \\ & + \partial_{10} RESTATE_{i,t} + \partial_{11} BIGN_{i,t} + \partial_{12} GCOPIN_{i,t} + \partial_{13} LNAFEE_{i,t} \\ & + \partial_{14} LNNAFEE_{i,t} + \partial_{15} ICWEAK_{i,t} + \partial_{16} BETA_{i,t} + \partial_{17} ZSCORE_{i,t} \\ & + INDUSTRY\_FE_t + YEAR\_FE_t + \in_t \end{aligned} \tag{2}$$

The abnormal audit report lag is computed as follows:

Abnormal Audit Report Lag (*ABNARL*) = *Actual Audit Report timeliness Lag* (*LNARL*) – *Predicted Audit Report Lag* (the fitted values from Equation (2) above).

Table 4 presents the impact of abnormal ARL on the cost of capital. Column (1) shows the findings of the first-stage regression model, which estimates the determinants of ARL. Columns (2) to (4) present the effect of *ABNARL* on the cost of capital. Our findings reveal that the coefficient of all the specifications for the cost of capital is positive and statistically significant at 1% or above, indicating that a firm with abnormally higher audit report lag has more cost of capital, consistent with our theoretical argument.

5.2 Accelerated filers vs non-accelerated filers

Regulatory change over the last decade indicates that the Securities Exchange Commission prioritizes improving audit report timeliness. In 1970, the Securities Exchange Commission mandated 90 days to release an audited annual report to the stakeholders. In September 2002, SEC adopted a new regulation, decreasing that time to 75 days for registrants that meet the primary size-based criteria classified as "accelerated" filers. The SEC argued that the advancement of information technology and accounting systems should enable firms to file more quickly: an act that would improve capital market efficiency, i.e. more efficient

Variables	(1) LNARL	(2) PEG	(3) MPEG	(4) OJN
CONSTANT	3.691***	−0.244***	−0.358***	−0.223***
	(94.388)	(−4.462)	(−7.253)	(−6.436)
ABNARL		0.076***	0.116***	0.081***
		(5.906)	(10.038)	(9.791)
BODSIZE	−0.05***	0.005***	0.002	0.001
	(−7.428)	(2.684)	(1.019)	(0.473)
INDDIR	−0.067***	0.003	0.009***	0.006***
	(−5.854)	(1.137)	(3.386)	(3.139)
CEODUAL	−0.01***	0.002*	0.003***	0.002***
	(−2.751)	(1.924)	(3.381)	(3.111)
BIGN	−0.04***	−0.002	−0.002	−0.003***
	(−6.302)	(−1.14)	(−1.025)	(−2.711)
GCOPIN	0.11*	−0.019	−0.009	0.003
	(1.891)	(−1.231)	(−0.631)	(0.309)
ICWEAK	0.004	−0.001	−0.001	−0.001*
	(0.966)	(−0.598)	(−1.047)	(−1.92)
LNSIZE	−0.074***	0.004***	0.002**	0.002***
	(−33.478)	(6.179)	(2.566)	(3.648)
LEV	0.035***	0.012***	0.021***	0.019***
	(3.046)	(4.12)	(7.734)	(9.933)
BTM	0.116***	0.046***	0.031***	0.028***
	(14.648)	(16.41)	(12.233)	(15.792)
LOSS	0.009	0.009	0.011***	0.002
	(0.955)	(0.019)	(5.111)	(1.295)
BETA	−0.002	0.003***	0.006***	0.005***
	(−0.858)	(5.281)	(12.337)	(13.638)
ZSCORE	−0.012***	0.005***	0.004***	0.003***
	(−4.295)	(6.491)	(5.587)	(6.869)
FYE	0.026***			
	(6.352)			
RESTATE	0.028***			
	(5.22)			
LNAFEE	0.06***			
	(18.183)			
LNNAFEE	−0.001			
	(−1.284)			
BODMEET		0.001	0.002**	0.001
		(0.725)	(2.03)	(1.372)
OWNCON		−0.002	−0.003**	−0.002**
		(−1.223)	(−2.08)	(−2.194)
SALEGR		−0.009**	0.014***	0.011***
		(−2.287)	(4.072)	(4.548)
ROA		−0.027**	−0.031***	0.017**
		(−2.274)	(−2.842)	(2.296)
INDUSTRY_FE	Yes	Yes	Yes	Yes
YEAR_FE	Yes	Yes	Yes	Yes
Observations	12,468	12,468	12,468	12,468
R-squared	0.312	0.188	0.256	0.329

Table 4.
Abnormal audit fees and cost of equity capital

Note(s): Standard errors are robust to heteroscedasticity and clustered by firm. *t*-values are in parentheses. ***$p < 0.01$, **$p < 0.05$, *$p < 0.10$. Variable definitions are reported in Appendix
Source(s): Created by authors

valuation and pricing of securities (Securities Exchange Commission, 2002). However, this decision triggered a controversy, with the critics arguing that " . . . *accelerated deadlines would likely lead to an increase in undetected misstatements and negatively impact the quality of financial reports*" (Bryant-Kutcher *et al.*, 2013, p. 478).

We expect differences between the accelerated and non-accelerated filers in terms of the effect of internal control problems on audit reporting lag for the following reasons. First, accelerated filers require both (1) auditors' assessment of internal controls and (2) management's assertion of the effectiveness of internal controls over financial reporting. In contrast, auditor attestation of internal controls is not required for the non-accelerated filers, indicating that the auditor's responsibility concerning internal control evaluation is lower in the case of the non-accelerated filers than the accelerated filers. Second, anecdotal evidence suggests that larger firms have better internal control quality. As a result, auditors can be expected to rely on internal controls to a lesser extent in the case of non-accelerated filers than in the case of accelerated filers may lead to extended audit report lag. Therefore, the relation between audit report lag and cost of capital may differ because of the distinct characteristics of accelerated and non-accelerate filers.

The SEC prescribes the due dates for quarterly and annual report filings for registered firms in the USA. The statutory filing deadline was 90 days after the year-end for annual financial statements (10-K) and 45 days after the quarter-end for quarterly financial statements (10-Q) for fiscal years ending before 15 December 2003. Following Section 409 of SOX, the SEC shortened these filing periods [1]. "Accelerated filers" with fiscal years ending on or after 15 December 2003, were required to file annual (quarterly) reports within 75 (40) days after the end of the period. "Large accelerated filers" (filers with a public float of more than $700 million) with fiscal years ending on or after December 15, 2006, face a 60-day annual report-filing deadline. The deadline for quarterly reports is 40 days for both accelerated and large accelerated filers. The revised date for non-accelerated filers (public float of less than 75 million) remains 90 days. Therefore, the question remains whether the impact of the cost of capital varies depending on the filing types of firms. To address this concern, we split the sample into two parts: accelerated filers and non-accelerated filers. We rerun Equation (1) for both categories. Table 5 presents the results. In the accelerated filers group, our results show that the audit report lag (*ARL_Q4* and *LNARL*) has a positive and statistically significant coefficient with the cost of capital for all the specifications, indicating that the cost of capital increases when the audit report lag is longer. In the non-accelerated filers group, the audit report lag (all the measures) has a positive coefficient but relatively weaker statistical significance (compared to the accelerated filers group) with the cost of capital for all the specifications. Overall, Our findings are consistent with the primary findings.

5.3 Earnings report lag – an alternative measure of audit report timeliness

Abernathy *et al.* (2018) suggest that earnings announcement lag is an important measure because the company's decision to release earnings reflects management's internal confidence in the company's financial reporting system. Fink (2021) emphasizes that more detailed components of earnings usually accompany an earnings announcement (e.g. sales, margins), less tangible information (e.g. investments, strategic information), and conference calls. Therefore, we investigate whether earning announcement lag affects firms cost of equity capital following two proxies, *EAL_Q4* and *LNEAL*. Earnings report lag is the days between a firm's fiscal year-end and the earnings announcement date. EAL_Q4 is a dummy variable coded one if the firm earnings report lag belongs to the top quartile within the industry and year group, 0 otherwise. *LNEAL* is the natural logarithm of *EAL*. Consistent with the prior conjecture and following Equation (1), a positive (negative) coefficient on $\partial_1 EAL_{i,t}$ will imply a higher (lower) cost of equity capital due to a higher earnings report delay.

Variables	(1) PEG	(2) MPEG	(3) OJN	(4) PEG	(5) MPEG	(6) OJN
Panel A: accelerated filers						
CONSTANT	0.082***	0.114***	0.104***	0.067***	0.085***	0.083***
	(8.482)	(14.072)	(18.134)	(4.978)	(7.398)	(10.153)
ARL_Q4	0.004***	0.007***	0.005***			
	(2.862)	(5.223)	(5.247)			
LNARL				0.011*	0.019***	0.027***
				(1.835)	(4.925)	(5.074)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
INDUSTRY_FE	Yes	Yes	Yes	Yes	Yes	Yes
YEAR_FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,673	10,673	10,673	10,673	10,673	10,673
R-squared	0.198	0.266	0.344	0.198	0.265	0.344
Panel B: non-accelerated filers						
CONSTANT	0.053**	0.109***	0.117***	0.039	0.085**	0.081***
	(2.219)	(4.007)	(5.384)	(1.05)	(2.087)	(2.914)
ARL_Q4	0.001	0.001	0.001			
	(1.391)	(1.124)	(1.198)			
LNARL				0.006	0.011	0.008
				(0.888)	(1.308)	(1.47)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
INDUSTRY_FE	Yes	Yes	Yes	Yes	Yes	Yes
YEAR_FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,850	1,850	1,850	1,850	1,850	1,850
R-squared	0.183	0.216	0.275	0.182	0.215	0.274

Note(s): Standard errors are robust to heteroscedasticity and clustered by firm. *t*-values are in parentheses. ***$p < 0.01$, **$p < 0.05$, *$p < 0.10$. Variable definitions are reported in Appendix

Source(s): Created by authors

Table 5. Impact of accelerated filers and non-accelerated filers on cost of capital

We perform Equation (1) by considering earnings announcement lag as an independent variable, and the findings are reported in Table 6 Panel A. Our results suggest that the coefficient of *EAL_Q4* is positive and statistically significant with all the estimations for the cost of equity capital, which reconfirms that the cost of equity capital increases following the earnings announcement lag. Findings are consistent with the alternative measures of earnings announcement lag, i.e. *LNEAL*. Consistent with the argument in Section 5.1, we also calculate abnormal earnings announcement delay and examine whether such delay affects the cost of equity capital. Table 6 Panel B reports the findings, suggesting that the earnings report lag (*LNEAL*) has a positive coefficient on the cost of equity capital, indicating investors value the late earnings announcement lag with greater concern and increased cost of equity capital. Our findings are statistically significant at a 1% level.

5.4 Alternative measures of audit report lag (year-to-year ARL)

We also use an alternative measure of audit report lag compared to year-to-year (*Y_T_Y_ARL*). We calculate *Y_T_Y_ARL* by comparing the current *ARL* and the previous year's *ARL*, i.e. $Y\_T\_Y\_ARL = (ARL_t - ARL_{t-1})$. A positive *Y_T_Y_ARL* will indicate an increase in audit report lag in the current year compared to the previous year. We reperform Equation (1), and Table 7 Panel A reports the findings. Our findings show the coefficient on *Y_T_Y_ARL* is positive (coefficient = 0.002, 0.004**, 0.004**; *t*-statistics = 1.049, 2.188, 1.998), suggesting audit report lag increases the cost of equity capital. Our findings are statistically significant for *MPEG and OJN*. The adjusted R^2 range is between 18.5 to 32.4%.

Variables	(1) PEG	(2) MPEG	(3) OJN	(4) PEG	(5) MPEG	(6) OJN
Panel A: earnings announcement lag and cost of equity capital						
CONSTANT	0.078***	0.125***	0.108***	0.078***	0.124***	0.106***
	(8.547)	(15.662)	(19.074)	(6.169)	(11.225)	(13.611)
EAL_Q4	0.0002**	0.0004**	0.0005***			
	(2.151)	(2.409)	(3.546)			
LNEAL				0.009**	0.011**	0.018***
				(2.029)	(2.297)	(3.458)
BODSIZE	−0.001	−0.005***	−0.004***	−0.001	−0.005***	−0.004***
	(−0.353)	(−3.149)	(−3.277)	(−0.357)	(−3.15)	(−3.277)
INDDIR	−0.001	0.001	−0.001	−0.001	0.001	−0.001
	(−0.244)	(0.229)	(−0.232)	(−0.24)	(0.233)	(−0.228)
CEODUAL	0.003**	0.003***	0.002***	0.003**	0.003***	0.002***
	(2.361)	(3.077)	(2.929)	(2.362)	(3.077)	(2.929)
BODMEET	0.001	0.001	0.001	0.001	0.001	0.001
	(0.925)	(1.206)	(0.838)	(0.928)	(1.208)	(0.839)
BIGN	−0.006***	−0.005***	−0.006***	−0.006***	−0.005***	−0.006***
	(−3.185)	(−2.749)	(−4.521)	(−3.188)	(−2.751)	(−4.523)
GCOPIN	−0.007	0.013	0.02*	−0.007	0.013	0.02*
	(−0.435)	(0.855)	(1.919)	(−0.433)	(0.857)	(1.921)
OWNCON	−0.001	−0.005***	−0.004***	−0.001	−0.005***	−0.004***
	(−0.553)	(−2.822)	(−3.374)	(−0.555)	(−2.823)	(−3.375)
ICWEAK	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001
	(−0.438)	(−0.575)	(−1.541)	(−0.443)	(−0.579)	(−1.544)
SALEGR	−0.011**	0.01**	0.008***	−0.011**	0.009**	0.008***
	(−2.346)	(2.391)	(2.764)	(−2.349)	(2.389)	(2.762)
LNAT	0.001***	−0.002***	−0.001***	0.001***	−0.002***	−0.001***
	(2.864)	(−6.237)	(−4.162)	(2.877)	(−6.231)	(−4.157)
LEV1	0.011***	0.025***	0.022***	0.011***	0.025***	0.022***
	(3.271)	(8.486)	(10.269)	(3.271)	(8.487)	(10.27)
BTM	0.061***	0.045***	0.04***	0.061***	0.045***	0.04***
	(20.508)	(17.738)	(21.838)	(20.499)	(17.734)	(21.834)
ROA	−0.045***	−0.045***	0.009	−0.045***	−0.045***	0.009
	(−3.157)	(−3.627)	(1.022)	(−3.157)	(−3.627)	(1.023)
LOSS	0.007**	0.019***	0.006***	0.007**	0.019***	0.006***
	(2.231)	(6.896)	(2.872)	(2.235)	(6.899)	(2.875)
BETA	0.003***	0.006***	0.004***	0.003***	0.006***	0.004***
	(5.005)	(10.569)	(11.701)	(5.008)	(10.571)	(11.702)
ZSCORE	0.005***	0.004***	0.003***	0.005***	0.004***	0.003***
	(5.778)	(4.37)	(5.553)	(5.782)	(4.372)	(5.555)
INDUSTRY_FE	Yes	Yes	Yes	Yes	Yes	Yes
YEAR_FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9,304	9,304	9,304	9,304	9,304	9,304
R-squared	0.206	0.27	0.346	0.206	0.27	0.346

Note(s): Standard errors are robust to heteroscedasticity and clustered by firm. *t*-values are in parentheses. ***$p < 0.01$, **$p < 0.05$, *$p < 0.10$. Variable definitions are reported in Appendix

Variables	(1) LNEAL	(2) PEG	(3) MPEG	(4) OJN
Panel B: abnormal earnings announcement lag and cost of equity capital				
CONSTANT	3.745***	−0.421***	−0.647***	−0.442***
	(71.384)	(−3.073)	(−5.234)	(−5.087)

(*continued*)

Table 6. Earnings announcement lag

Variables	(1) LNEAL	(2) PEG	(3) MPEG	(4) OJN
ABNEAL		0.129***	0.202***	0.144***
		(3.632)	(6.318)	(6.4)
BODSIZE	−0.015*	0.003*	−0.001	−0.001
	(−1.724)	(1.896)	(−0.309)	(−0.758)
INDDIR	0.018	−0.003	−0.001	−0.001
	(1.191)	(−1.11)	(−0.449)	(−0.652)
CEODUAL	0.003	0.001	0.001	0.001
	(0.669)	(0.865)	(1.557)	(1.295)
BIGN	−0.011	−0.003*	−0.003**	−0.004***
	(−1.086)	(−1.781)	(−2.116)	(−3.746)
GCOPIN	0.048	−0.016	−0.004	0.006
	(0.671)	(−1.03)	(−0.3)	(0.602)
ICWEAK	−0.011**	0.001	0.002*	0.001
	(−1.998)	(1.053)	(1.817)	(0.998)
LNSIZE	0.004	−0.001	−0.006***	−0.003***
	(1.344)	(−1.094)	(−11.914)	(−10.352)
LEV	−0.014	0.017***	0.027***	0.023***
	(−0.885)	(5.595)	(10.241)	(12.423)
BTM	−0.047***	0.061***	0.054***	0.044***
	(−4.284)	(20.599)	(20.165)	(23.49)
LOSS	0.021	−0.002	0.008***	0.003
	(1.571)	(−0.715)	(3.578)	(−0.092)
BETA	0.004	0.002***	0.005***	0.004***
	(1.471)	(4.068)	(10.102)	(11.327)
ZSCORE	0.003	0.004***	0.003***	0.002***
	(0.772)	(5.244)	(3.535)	(4.79)
BODMEET		0.001	0.002**	0.001*
		(0.965)	(2.406)	(1.714)
OWNCON		−0.002	−0.003**	−0.002**
		(−1.199)	(−2.045)	(−2.16)
SALEGR		−0.009**	0.013***	0.01***
		(−2.452)	(3.787)	(4.272)
ROA		−0.032***	−0.038***	0.012
		(−2.726)	(−3.566)	(1.612)
FYE	0.025***			
	(4.529)			
RESTATE	−0.005			
	(−0.691)			
LNAFEE	0.011**			
	(2.486)			
LNNAFEE	0.006			
	(0.031)			
INDUSTRY_FE	Yes	Yes	Yes	Yes
YEAR_FE	Yes	Yes	Yes	Yes
Observations	9,304	9,304	9,304	9,304
R-squared	0.062	0.186	0.252	0.326

Note(s): Standard errors are robust to heteroscedasticity and clustered by firm. *t*-values are in parentheses. ***$p < 0.01$, **$p < 0.05$, *$p < 0.10$. Variable definitions are reported in Appendix A

Source(s): Created by authors

Table 6.

Variables	(1) PEG	(2) MPEG	(3) OJN
Panel A: year-to-year lag (including POSITIVE and NEGATIVE DAYS)			
CONSTANT	0.076***	0.133***	0.113***
	(10.139)	(19.218)	(23.321)
Y_T_Y_ARL	0.0002	0.0004**	0.0004**
	(1.049)	(2.188)	(1.998)
BODSIZE	0.002	−0.004**	−0.003***
	(0.872)	(−2.238)	(−2.73)
INDDIR	−0.001	0.002	0.001
	(−0.362)	(0.867)	(0.677)
CEODUAL	0.001	0.002***	0.002**
	(1.516)	(2.679)	(2.428)
BODMEET	0.001	0.003***	0.002**
	(1.366)	(3.102)	(2.418)
BIGN	−0.004**	−0.005***	−0.005***
	(−2.46)	(−3.274)	(−4.938)
GCOPIN	−0.009	0.006	0.013
	(−0.613)	(0.393)	(1.316)
OWNCON	−0.002	−0.003**	−0.002**
	(−1.18)	(−2.016)	(−2.131)
ICWEAK	−0.002	−0.002	−0.005
	(−0.138)	(−0.242)	(−1.136)
SALEGR	−0.009**	0.013***	0.01***
	(−2.465)	(3.736)	(4.219)
LNSIZE	0.001**	−0.003***	−0.002***
	(2.251)	(−10.621)	(−8.275)
LEV	0.015***	0.026***	0.022***
	(5.214)	(9.58)	(11.762)
BTM	0.054***	0.044***	0.037***
	(22.649)	(20.117)	(24.1)
ROA	−0.034***	−0.042***	0.011
	(−2.912)	(−3.885)	(1.284)
LOSS	0.001	0.013***	0.003**
	(0.45)	(5.824)	(1.995)
BETA	0.003***	0.006***	0.005***
	(5.309)	(12.357)	(13.654)
ZSCORE	0.005***	0.004***	0.003***
	(6.108)	(4.922)	(6.217)
INDUSTRY_FE	Yes	Yes	Yes
YEAR_FE	Yes	Yes	Yes
Observations	10,004	10,004	10,004
R-squared	0.185	0.25	0.324

Note(s): Standard errors are robust to heteroscedasticity and clustered by firm. *t*-values are in parentheses. ***$p < 0.01$, **$p < 0.05$, *$p < 0.10$. Variable definitions are reported in Appendix

Variables	(1) PEG	(2) GFC = 1 MPEG	(3) OJN	(4) PEG	(5) GFC = 0 MPEG	(6) OJN
Panel B: impact of global financial crisis and cost of equity capital						
CONSTANT	0.091*	0.103***	0.11***	0.055***	0.069***	0.065***
	(1.917)	(2.663)	(4.076)	(4.565)	(6.083)	(8.129)
LNARL	−0.010	0.011	0.009	0.006***	0.011***	0.008***
	(−1.41)	(1.389)	(1.584)	(2.881)	(5.124)	(5.544)

(*continued*)

Table 7. Alternative audit report lag: impact of global financial crisis

Variables	(1) PEG	(2) GFC = 1 MPEG	(3) OJN	(4) PEG	(5) GFC = 0 MPEG	(6) OJN
BODSIZE	0.015***	−0.005	−0.004	−0.001	−0.002	−0.002*
	(2.602)	(−1.063)	(−1.139)	(−0.286)	(−1.294)	(−1.927)
INDDIR	0.005	−0.001	−0.001	−0.002	0.004	0.002
	(0.491)	(−0.135)	(−0.234)	(−0.562)	(1.315)	(1.157)
CEODUAL	−0.001	0.003	0.002	0.002*	0.002**	0.001**
	(−0.121)	(1.04)	(1.26)	(1.65)	(2.572)	(2.116)
BODMEET	0.002	0.009***	0.005**	0.001	0.002*	0.001
	(0.577)	(3.132)	(2.529)	(1.252)	(1.732)	(1.247)
BIGN	−0.003	−0.004	−0.006**	−0.004**	−0.005***	−0.005***
	(−0.719)	(−1.127)	(−2.071)	(−2.286)	(−2.892)	(−4.116)
GCOPIN	−0.004	0.058**	0.029	−0.014	−0.026	0.002
	(−0.104)	(2.12)	(1.523)	(−0.834)	(−1.489)	(0.167)
OWNCON	−0.009	0.004	0.002	−0.001	−0.003**	−0.002**
	(−1.015)	(0.521)	(0.32)	(−0.852)	(−2.051)	(−2.251)
ICWEAK	0.002	−0.001	−0.001	−0.001	−0.001	−0.001
	(0.486)	(−0.291)	(−0.811)	(−0.402)	(−0.28)	(−0.9)
SALEGR	−0.011	0.027**	0.016***	−0.009**	0.009**	0.008***
	(−0.897)	(2.207)	(2.584)	(−2.388)	(2.464)	(2.952)
LNSIZE	0.002	−0.003***	−0.002**	0.001*	−0.003***	−0.002***
	(1.364)	(−3.193)	(−2.401)	(1.791)	(−8.38)	(−6.202)
LEV	0.015	0.034***	0.025***	0.016***	0.023***	0.021***
	(1.619)	(4.459)	(4.602)	(5.296)	(8.398)	(10.79)
BTM	0.045***	0.015***	0.014***	0.057***	0.05***	0.042***
	(6.288)	(2.681)	(3.473)	(22.989)	(21.054)	(25.111)
ROA	−0.052	−0.008	0.006	−0.026**	−0.05***	0.01
	(−1.526)	(−0.282)	(0.312)	(−2.195)	(−4.353)	(1.218)
LOSS	0.024***	0.015***	0.01***	−0.004*	0.012***	0.001
	(3.709)	(2.779)	(2.835)	(−1.727)	(4.998)	(0.374)
BETA	0.01***	0.015***	0.012***	0.002***	0.004***	0.003***
	(4.782)	(9.225)	(10.486)	(3.727)	(9.226)	(10.231)
ZSCORE	0.01***	0.004*	0.004***	0.004***	0.004***	0.003***
	(4.466)	(1.941)	(2.693)	(4.618)	(4.874)	(5.902)
INDUSTRY_FE	Yes	Yes	Yes	Yes	Yes	Yes
YEAR_FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,324	2,324	2,324	10,199	10,199	10,199
R-squared	0.167	0.268	0.326	0.193	0.268	0.336

Note(s): Standard errors are robust to heteroscedasticity and clustered by firm. *t*-values are in parentheses. ***$p < 0.01$, **$p < 0.05$, *$p < 0.10$. Variable definitions are reported in Appendix

Source(s): Created by authors

Table 7.

5.5 Impact of GFC on the audit report lag and the cost of equity capital

We also analyse the Global Financial Crisis (GFC) effects on the association between audit report lag and the cost of equity capital. Xu *et al.* (2013) examine the impact of GFC on the audit outcomes and evidence an increase in the propensity to issue going-concern opinions during the GFC period compared with the pre-GFC period among the Australian listed companies. Persakis and Iatridis (2015) report that the cost of equity increased during the GFC period due to the risk of financial uncertainty and constraints. Therefore, one may argue that the impact of GFC drives the findings of our main research question. We split the sample into two sets (i.e. GFC period and non-GFC period and rerun Equation (1). We group firm-year observations belonging to the GFC period of the observations belong to 2008–2010, and other firm-year observations are within the non-GFC period group. Table 7 Pane B reports the

findings. Our findings indicate that the positive relationship between audit report lag and the cost of equity is consistently significant for firms during the non-GFC period, whereas this association is less pronounced during the GFC period. Specifically, longer audit report delays are strongly associated with higher costs of equity in stable economic conditions but exhibit a weaker impact during financial crises.

5.6 Mediation (channel) test: future restatement and information asymmetry

We further investigate the association between audit report lag and the cost of equity capital through the mediation (channel) test. We test two different channels. *First*, for the financial reporting quality channel, Blankley *et al.* (2014) suggest that audit report lag increases the probability of future restatement. Firms restating financial statements have suffered substantial losses in market values (Palmrose *et al.*, 2004), resulting in executive turnover (Hennes *et al.*, 2008) and increases in the cost of capital (Hribar and Jenkins, 2004). Therefore, we use future financial restatement (*REST_FUTURE)* to proxy the financial reporting quality channel. We calculate *REST_FUTURE* as a dummy variable, and a value of 1 is assigned if a firm subsequently restates the current year's financial statement and 0 otherwise. *Second*, we identify that information asymmetry may act as a channel in an association between audit report lag and the cost of equity capital. An annual report is the primary source of information for the investment decision. Therefore, timely reporting will improve investors' decision-making, decrease information asymmetry in the stock market, and improve stock market efficiency (Jaggi and Tsui, 1999; Owusu-Ansah and Leventis, 2006). Kim and Verrecchia (1994) show that bid-ask spread increases when information asymmetry is higher between the informed traders and the less informed market-makers. Therefore, we choose bid-ask spread to proxy the firm information asymmetry. We follow Venkatesh and Chiang (1986) to compute the percentage bid-ask spread.

We follow Baron and Kinney's (1986) method to test our mediation channels, examining the association between audit report lag and the cost of equity capital. Following are the models we followed to perform the mediation (channel analysis:

$$COC_{t+1} = \lambda_0 + \lambda_1 ARL_t + CONTROLS + INDUSTRY\ and\ YEAR\ FE + \varepsilon_t \quad (3A)$$

$$MED_{i,t+1} = \lambda_0 + \lambda_1 ARL_t + CONTROLS + INDUSTRY\ and\ YEAR\ FE + \varepsilon_t \quad (3B)$$

$$COC_{i,t+1} = \lambda_0 + \lambda_1 ARL_t + \lambda_2 M_{i,t} + CONTROLS + INDUSTRY\ and\ YEAR\ FE + \varepsilon_t \quad (3C)$$

Table 8 reports our mediation (channel) test. We report the findings of the mediation channel for future financial restatement (*REST_FUTURE*) in Panel A. We run the regression (Equation 3A) without a mediation in the column (untabulated), which shows a positive association consistent with our hypothesis, suggesting audit report lag increases the cost of equity capital. In column (1), we evidence a positive association with statistical significance at a 1% level between the mediator (*REST_FUTURE*) and audit report lag (*LNARL*). Our findings suggest that the firm cost of equity increases when future restatement occurs. In columns (2–4), we reperformed the regression (Equation 3C), including the mediation and evidence that future financial restatement (*REST_FUTURE*) is a mediator in the association between audit report lag and the cost of equity capital. In brief, we find that both X- > M and M- > Y coefficients are statistically significant, indicating evidence of some mediation. We now turn our attention to Panel B, our mediation channel is information asymmetry proxied by the bid-ask spread (*BIDASK*), and the independent variable is *LNARL*. Our untabulated findings suggest that a statistically significant relationship exists between the audit report lag and the cost of equity capital (Equation 3A). Now we examine (Equation 3B) the association between the mediator (*BIDASK*) and audit report lag (*LNARL*) and find that

Variables	(1) MED	(2) PEG	(3) MPEG	(4) OJN
Panel A: mediation of future restatement				
CONSTANT	−0.158***	0.054***	−0.002	0.029***
	(−3.14)	(6.23)	(−0.16)	(4.75)
LNARL	0.063***	0.012***	0.028***	0.020***
	(5.01)	(5.65)	(13.79)	(13.31)
REST_FUTURE		0.004**	0.002*	0.002**
		(2.39)	(1.77)	(1.98)
Other controls	No	No	No	No
Observations	12,488	12,488	12,488	12,488
RIT		0.019	0.005	0.007
RID		0.019	0.005	0.007
Panel B: mediation of BIDASK				
CONSTANT	−0.041**	0.067***	0.020**	0.049***
	(−2.38)	(6.19)	(2.23)	(7.36)
LNARL	0.019***	0.009***	0.022***	0.014***
	(4.45)	(3.43)	(9.68)	(8.67)
BIDASK		0.023***	0.053***	0.037***
		(3.38)	(8.97)	(8.67)
Other controls	No	No	No	No
Observations	8,966	8,966	8,966	8,966
RIT		0.044	0.034	0.036
RID		0.044	0.035	0.038

Table 8. Mediation test – *COC = PEG, MPEG* and *OJN*; MED = *BIDASK* and *REST_FUTURE*

Note(s): *z*-values are in parentheses. ***$p < 0.01$, **$p < 0.05$ and *$p < 0.10$. RIT indicates the ratio of indirect effect to total effect; RID indicate the ratio of indirect effect to direct effect. Refer to Appendix A for a detailed definition of the variable

Source(s): Created by authors

BIDASK and *LNARL* have a positive association suggesting information asymmetry mediates the relationship between audit report lag and cost of equity capital. Finally, we reperform Equation (3C), including the mediation proxy (*BIDASK*) in the column (2–4). The coefficient on *LNARL* and *BIDASK* is statistically significant at a 1% level, suggesting the association between audit report lag and the cost of equity capital is mediating through the information asymmetry (*BIDASK*). In summary, RID and RIT values between 2 to 5% indicate that while the mediators have some influence, they only account for a small portion of the total effect. Our finding suggests that other factors might contribute more significantly to the relationship between audit report lag and cost of equity capital.

6. Conclusion

This study examines the association between the audit report lag and the cost of equity capital. We argue that an extended audit report lag raises concerns about questionable accounting practices and unfavourable auditor opinion, resulting in an increased equity capital cost. This study finds a significant positive association between ARL and the cost of equity capital based on an analysis using 12,523 firm-year observations of data obtained from listed companies in the US from 2003 to 2018. Our review supports the notion that the primary benefit of audited reports is not the usefulness of information but the timely confirmation of previously available information. Moreover, our findings are consistent when the test for accelerated filers and abnormal audit report lag.

This study contributes to a better understanding of the capital market perception of ARL. Overall, evidence suggests that the cost of equity capital increases with longer ARL. Our

results withstand a battery of robustness tests, such as alternative measures of audit report timeliness, including abnormal ARL, earnings report lag, and year-to-year ARL. We also apply additional tests on other factors, such as accelerated filers and the impact of GFC, and find that the positive relation between ARL and the cost of equity capital is not affected by GFC or whether it is an accelerated filer. Furthermore, we test future restatement and information asymmetry as channels/mediators on the association between audit report lag and the cost of equity capital. We find evidence supporting the notion that audit report lag is associated with information asymmetry and future financial restatement, which leads to a higher cost of equity capital.

The results imply that the capital market generally perceives a prolonged audit process as a negative sign and requires more returns on the risk of waiting on the unconfirmed financial information. This finding could benefit executives and corporate managers who attempt to lower their CoC and reassure their investors by providing timely information on their audited reports. Further, our findings highlight crucial implications for both policy and stakeholders. Regulatory bodies like the SEC might consider revising audit report timelines and enhancing disclosure requirements to ensure that firms provide timely financial information, thereby lowering the cost of equity capital. Strengthening audit quality standards and introducing incentives for timely audit completion can mitigate the risks associated with prolonged audit report lag. Stakeholders, executives and corporate managers are encouraged to prioritize timely audits to reduce COC and reassure investors. Investors should be aware of the risks associated with ARL, while audit committees should actively monitor and address audit delays. Auditors, too, need to balance timely report delivery with maintaining quality to uphold market trust.

Future research can expand on this study by incorporating additional variables that may influence ARL, such as firm size, industry-specific factors, and financial transaction complexity. Comparative analyses across different countries and regulatory environments can provide insights into how these factors affect the global relationship between ARL and CoC. Exploring the impact of emerging auditing technologies like AI and blockchain on ARL and CoC offers a promising study area. Longitudinal studies could examine the long-term effects of ARL on firm performance and investor behaviour. Additionally, investigating the behavioural aspects of auditors, managers, and investors in response to ARL could reveal more profound insights into the decision-making processes and financial outcomes related to audit delays.

Notes

1. When a registrant cannot file the report "without unreasonable effort or expense," Rule 12b-25 of the Exchange Act requires the firm to notify the SEC by filing a Form 12b-25 no later than one business day after the statutory due date and explain the reason for the delay. The filing automatically grants a 15 (5) day extension to submit Form 10-K (10-Q). Failure to file on time can lead to trading suspension (Schwartz and Soo, 1996) or delisting (Alford *et al.*, 1994). Stock exchanges apply their own rules governing late filings.

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Table A1. Variable definitions

Variable	Description
Dependent variables	
PEG	PEG is the implied cost of equity, estimated by the PEG model of Easton (2004) as follows $PEG = \sqrt{(eps_2 - eps_1)/P_0}$ ..... (4) where P_0 = the price per share at the current date; eps_1 = the expected accounting earnings at the next period ahead of the current date; eps_2 = the expected accounting earnings at two periods ahead of the current date
MPEG	MPEG is the implied cost of equity, estimated by the MPEG model of Easton (2004) as follows $MPEG = \sqrt{(eps_2 + MPEG * dps_1 - eps_1)/P_0}$ ..... (5) where dps_1 = the expected dividend per share at the next period ahead of the current date. The other variables are defined above
OJN	Implied cost of equity, estimated by the modified Ohlson and Juettner-Nauroth (2005) model (modified by Gode and Mohanram, 2003)
Independent variables	
ARL	The number of days between the end of a firm's fiscal year and the signature date on the audit report
ARL_Q4	A dummy variable coded one if the firm audit report lag belongs to the top quartile within the industry and year group, 0 otherwise
LNARL	The natural logarithm of the number of days between the end of a firm's fiscal year and the signature date on the audit report
EAL_Q4	The number of days between a firm's fiscal year-end and the preliminary earnings announcement date. A dummy variable coded one if the firm earnings report lag belongs to the top quartile within the industry and year group, 0 otherwise
LNEAL	Natural logarithm of the number of days between a firm's fiscal year-end and the earnings announcement date
ABNARL	Abnormal audit report lag is calculated as the difference between actual audit report lag and predicted audit report lag (section 5.1 discussed in detail)
Y_T_Y_ ARL	Year-to-Year Audit Report Lag measures as ARL_t minus ARL_{t-1}
Control variables	
LNSIZE	Natural logarithm of the total assets
LEV	Firm leverage is calculated as short-term debt plus long-term debt divided by total assets
BTM	Book-to-market ratio is calculated as the book value of equity divided by the market values of equity
SALEGR	Change in sales scaled by total assets
ZSCORE	Altman Z-score following Altman (1968) as $Z = 0.012X_1 + 0.014X_2 + 0.033X_3 + 0.006X_4 + 0.999X_5$ ..... (6) where X_1 = Working Capital/Total Assets; X_2 = Retained Earnings/Total Assets; X_3 = Earnings before Interest and Taxes/Total Assets; X_4 = Market Value of Equity/Book Value of Total Liabilities; X_5 = Sales/Total Assets; Z = Overall Index
ROA	Net income before extraordinary items divided by total assets

(*continued*)

Table A1.

Variable	Description
LOSS	An indicator variable is equal to one if the firm has negative earnings before interest and tax, and zero otherwise
BIGN	A dummy variable coded one if a Big4 audit firm audits a firm and 0 otherwise
BETA	A measure of systematic risk, extracted from Datastream. Datastream uses a 5-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
OWNCON	The proportion of outstanding shares held by the large shareholders
BODMEET	Natural logarithm of board meeting frequencies
CEODUAL	A dummy variable coded 1 if the CEO is also the chairman of the board and zero otherwise
ICWEAK	An indicator variable is equal to one if the firm has internal control weakness, and zero otherwise
BODSIZE	Natural logarithm of the total number of board members
INDDIR	The proportion of independent directors on the board
GCOPIN	Dummy variable coded 1 if the firm had a qualified audit opinion, including going concern opinion, and 0 otherwise
RESTATE	A dummy variable is coded as 1 if the firm has reported financial restatement, otherwise 0
FYE	A dummy variable coded as 1 if the firm financial year ending is June and December, 0 otherwise
LNAFEE	Natural logarithm of audit fees plus 1
LNNAFEE	Natural logarithm of non-audit fees plus 1
REST_FUTURE	A dummy variable is assigned a value of 1 if a firm subsequently restates the current year's financial statement and 0 otherwise
BIDASK	Bid-ask spread (percentage) is the difference between the highest trader stock price and the lowest selling price of trader stock measured as: [(AskPrice – BidPrice)]/[(AskPrice + BidPrice)/2]

Source(s): Created by authors