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The Impact of Audit Quality on Earnings Management: Evidence from Listed Companies in Sri Lanka

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Abstract

Earnings Management (EM) is related to the manipulation of reported income through accounting practices and decisions. With the occurrence of numerous financial collapses and failures, the reliability of the audit function has been challenged, as auditors play a critical role in expressing an opinion on the financial statements. This study investigates the impact of Audit Quality on EM in Sri Lankan listed companies. This study employs Modified Jones model to examine earnings management practices through Discretionary Accruals (DA). The selected proxies of audit quality which are Length of Audit Tenure, Audit Firm Size and Auditor Independence are the independent variables. The data is collected from annual reports for the financial periods 2015 - 2020 and audit reports for the financial period 2012 - 2020 of listed companies on the Colombo Stock Exchange (CSE). This study employed descriptive statistics, correlation analysis, and multivariate analysis to analyze the data. Based on the quantitative analysis, the results demonstrated that the association between audit firm size and earnings management in Sri Lankan listed companies is negative and significant. It was found that the level of EM between companies using Big 4 auditors and those using non-Big 4 auditors is much lower. This study revealed that auditor independence and EM have a significant negative association. It was suggested that independent auditors have a greater ability to regulate and identify EM activities through company management. Further, this study exposed that there is an insignificant association between the length of audit tenure and earnings management. These findings are useful to shareholders in appointing or reappointing auditors. Furthermore, this study enables stakeholders, including regulatory bodies, to examine the presence of EM practices in listed companies of CSE.

Keywords: *Earnings Management (EM), Audit Quality, Modified Jones model, Discretionary Accruals (DA)*

Introduction

Earnings, as a reflection of a company's primary financial performance, stand as a crucial component within financial statements (Pakianathan, 2017). Earnings management (EM) has garnered significant attention in the field of accounting due to its ethical implications, notably since the Enron scandal (Xiao & Zhou, 1999). Enron's collapse, one of the most infamous accounting disclosure failures worldwide, continues to captivate those concerned with EM. Financial institutions are expected to engage in earnings management both before public offerings and during financial distress, raising questions about the reliability of financial disclosure (Xiao & Zhou, 1999). Auditors, theoretically, are the gatekeepers meant to prevent management from manipulating reported earnings and to uncover such manipulation or misstatements. In order to re-establish faith and market confidence, auditing is a crucial contributor to financial stability. The auditor is assigned by law with the responsibility of performing statutory audits and fulfilling a vital role in expressing an opinion on whether the financial statements are truly and fairly stated.

The agency problems arising from the separation of ownership and control drive the demand for external audits. Information asymmetry, where one party possesses more information about financial transactions than the other, is at the heart of these agency problems (Alzoubi, 2016). This information asymmetry between managers and shareholders can lead to earnings management, as shareholders lack the resources, incentives, or access to relevant information needed to monitor and control managerial activities (Schipper, 1989). The Satyam scandal of 2009 in India, where the company's management inflated revenue through false invoices, further exemplifies the global prevalence of earnings management (Pakianathan, 2017). Further, Earnings management has eroded investor confidence in audited financial statements.

Previous studies have shown that 70% of bankruptcies were associated with unmodified audit opinions (Palmrose, 1988). The Enron scandal, which led to the demise of Arthur Anderson, stands as a prominent example of how audit quality impacts public trust. In Sri Lanka, the fall of Pramuka Bank, Golden Key PLC, and Touchwood Investments indicates that financial manipulations result in poor earnings management and suggests a connection between poor financial reporting quality and these manipulations (Pakianathan et al., 2019). Auditing serves as a monitoring tool to mitigate agency problems and ensure that accounting standards are not exploited opportunistically, but concerns persist regarding the quality of audits in companies with impressive earnings growth.

The study's main objective is to investigate how audit quality affects earnings management in Sri Lankan listed companies. The primary research question asks about the impact of audit quality on the extent of earnings management in these entities. Subsequently, specific questions address the impact of audit tenure, audit firm size, and audit independence on earnings management in Sri Lanka. The central objective is to explore how audit quality influences earnings management in non-financial, public listed companies in Sri Lanka. This involves examining the effects of audit tenure, audit firm size, and audit independence on earnings management practices.

The study focuses on external audits and their impact on accrual-based earnings management, primarily using data from annual reports. The study narrows down the elements of audit quality to audit tenure, audit firm size, and audit independence, given limited disclosure in annual reports. The study measures audit quality using three variables: audit tenure, audit firm size, and audit independence, while earnings management is assessed through discretionary accruals via the modified Jones model. Data is collected from 182 listed companies over a

five-year period from 2015 to 2020. The analysis incorporates descriptive statistics, correlation analysis, and regression analysis.

The effectiveness of external auditors' service quality and the functionality of the audit committee have sparked considerable debate among stakeholders, prompted by recurring scandals. And Earnings management has become a common practice across time in both developed and developing countries. This research bridges a gap in the literature by shedding light on the relationship between audit quality and earnings management in Sri Lanka. Its findings are expected to assist investors in making informed decisions, foster accountability within audit firms and audit committees, and contribute to the overall enhancement of financial reporting and auditing practices in Sri Lanka.

Literature Review

The Concept of Earnings Management (EM)

The core of EM through demonstrating it as a "purposeful intervention in the external financial reporting process with the intent of obtaining private gain" (Schipper, 1989). Numerous previous studies use the definition put forward by Schipper. Correspondingly, Healy and Wahlen (1999) stated that "EM occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence the contractual outcome that depends on reported accounting numbers." This explanation highlights the broader two types of earnings management: real earning management and accrual earnings management.

Contrasting accrual-based earnings management, which incorporates altering the level of accruals to obtain the desired reported earnings, real earnings management is defined as a deviation from normal business practices to manipulate reported earnings (Sitanggang et al., 2019). Pakianathan (2017) specified that real earnings management comprises manipulating the timing of operating, investing, and financing activities, which impact cash flow directly. On the other hand, accrual earnings management has no direct impact on cash flow (Healy & Wahlen, 1999). It occurs when managers falsify financial reports using financial reporting judgments and practices that have no direct impact on cash flow. (Pakianathan, 2017). The financial reporting framework's degree of flexibility allows managers to make decisions based on their own judgment, which allows earnings to be managed. This manipulation is frequently done through accounting judgments such as useful lifetimes, asset impairment, scrap values, and pension benefit obligations, as well as accounting methods such as depreciation policies and inventory valuation approaches (Healy & Wahlen, 1999). Fernando and Kelum (2011) indicated that listed companies in Sri Lanka typically employ depreciation and income tax provisions to manage their earnings.

Furthermore, the costs of applying real earnings management are identical to the economic consequences of deviating from ideal business activities, and firm value could be affected (Zhao et al., 2012). Manipulation through real business activities is costly due to the economic consequences, but the benefits of applying real earnings management overcome the costs if earnings targets are met (Gunny, 2010). It is well recognized that real earnings management practices could adversely affect the future economic performance of the firm. One of the incentives for management to manipulate earnings is to meet the earning prospects forecasted by capital market analysts in order to increase the stock's market capitalization and value.

(Pakianathan, 2017). Furthermore, the desire to affect contractual results that are influenced by reported earnings, such as compensation contracts and debt covenants, is a powerful motivator to control earnings.

Measurement of accrual earnings management requires total accruals to be categorized as non-discretionary and discretionary accruals (Saleh et al., 2007). Non-discretionary accruals are accruals occurring due to the normal business activities of the company, whereas discretionary accruals occur due to management's manipulative efforts (Pakianathan, 2017). Higher discretionary accruals indicate companies' involvement in earnings management (Alzoubi, 2016). There are five models used in measuring discretionary accruals: the Healey model, the DeAngelo model, the Jones model, the Modified Jones model and, the Industry model. Among them, the modified Jones model is a more powerful technique for measuring earnings management than other models (Dechow et al., 1995).

Researchers have attempted to examine the impact of audits on earnings management because of the limiting practice of earnings management (Pakianathan et al., 2019). Though there is a lack of empirical evidence to support the impact most audit-related variables are unobservable, and data to measure using proxies is limited (Dechow et al., 2010).

The Concept of Audit Quality

Auditing is a tool to improve the informational value of financial statements, as it provides a reasonable assurance by expressing an opinion concluding the true and fairness of the financial statements of the companies (Arrunada, 2005). At the initial phase of audit quality evolution, the probability of discovering a breach is highly dependent on the auditing process and procedures adopted by the auditor (Pakianathan, 2017). Correspondingly, the probability of reporting such a breach is dependent on the auditor's independence from that particular client (Angelo, 1981). Therefore, users of the financial statements are expected to incur significant costs in assessing the audit quality as they have little or even no information about the actual procedures used or about the incentives involved in the engagement contract that influence independence (Pakianathan, 2017). There was a similar explanation where audit quality is associated with the absence of material misstatements or omissions in the financial statements (Palmrose, 1988). Further, Bradshaw et al. (2001) state that audit quality is the willingness of the auditor to report any material manipulation or misstatement that threatens the going concern of the client.

All these definitions amplify audit quality as twofold; whether the auditor can or cannot detect the misstatement. It focuses mainly on the competency, technicality, and independence of the auditor (Pakianathan, 2017). As Manita and Elommal (2010) define it, audit quality is primarily described in terms of auditor quality, with auditor being the core. Proxies or gauges of audit quality were also in line with the definitions, where the focus was mainly auditor-centric (Pakianathan, 2017). The most frequently used proxies were auditor size and auditor independence (Palmrose, 1988). Auditor size was taken through the type of auditor based on the quality disparity between big audit firms and non-big audit firms (Pakianathan, 2017). The audit fee was used as a proxy to measure audit independence based on the argument of economic bond and as a measure of audit effort, where higher effort leads to a higher fee.

In the second phase, the concept evolved to attention on the output of the audit process. Li and Lin (2005) highlight the role of auditing, and auditors were highly inspected because of notable earnings management scandals such as Enron and WorldCom. The Government Accountability Office (2003) explains high audit quality as an audit that is performed

according to generally accepted auditing standards (GAAS) and provides a reasonable assurance stating the audited financial statements and their related disclosures are presented based on generally accepted accounting principles (GAAP) and are not bound by material misstatements due to errors or fraud.

The external auditor is accountable for verifying that financial statements are impartially specified according to GAAP and that those statements disclose a firm, accurate financial situation and operational outcomes (Alzoubi, 2016). Accordingly, the confirmation of an external auditor improves the reliability of a firm's financial statements (Rusmin, 2010). Furthermore, external auditors are mandated to oversee auditing principles for debate as well as interrelate with the audit committee around quality, not merely the acceptableness, of accounting standards used through a customer firm (Alzoubi, 2016). Therefore, the quality audit was expected to limit opportunistic EM and explain the risk that financial statements encompass misstatements of materiality or exclusions.

Conceptual Association between Audit Quality and Earnings Management

In terms of conceptual association, the Agency Theory provides the fundamental basis for investigating the association between audit quality and earnings management (Pakianathan et al., 2019). Agency theory represents that the monitoring mechanisms are assumed to align managers' and shareholders' interests as well as to alleviate the conflict of interest and any opportunistic behavior generated from them (Alzoubi, 2016). The audit function also assists in reducing information asymmetry and conflicts of interest that arise among managers and shareholders (Alzoubi, 2016). Therefore, the auditing process is presumed to serve as a monitoring mechanism that would reduce incentives for managers to manage earnings.

Similarly, "the agency problems related to ownership and control isolation result in the request for external audit" (Alzoubi, 2016). Accordingly, the agency problem refers to the incompatibility between the principal's and the agent's interests. Primarily, agency problems arise from information asymmetry between the principle-agent contracts (Alzoubi, 2016). Information asymmetry is a position where one party has more information about the financial transactions than the other party. The information asymmetry existing between managers and shareholders would lead to EM practices since the shareholders have limited resources, motives, or access to pertinent information in order to monitor and control the manager's activities (Schipper, 1989).

To avoid the costs of agency problems, some measures such as the maintenance of accounting records, issuing timely and relevant information to shareholders, and external monitoring of the stewardship function are adopted (Pakianathan, 2017). This external monitoring increases the need for the function of the audit. Similarly, that agency's problem restricting ownership and control segregation led to the request for a statutory audit (Alzoubi, 2016). By adopting a quality monitoring mechanism via audit, earnings management practices can be restrained (Pakianathan et al., 2019). Therefore, on a theoretical basis, audit quality and earnings management are inversely related.

Empirical association between Audit Quality and Earnings Management

According to the existing literature, it has delivered contradictory findings**.** Some empirical studies have been conducted globally to examine the effect of audit quality on earnings management, as follows:

There are two contrasting views on the effects of auditor tenure on audit quality. The first view is that audit tenure is reducing audit quality as the auditor develops a close relationship with the client and becomes more likely to act in favor of management. Mgbame, Eragbhe and Peter (2012) on audit partner tenure and audit quality in Nigeria also concluded a significant negative relationship between auditor tenure and audit quality. Also, the auditor's tenure is negatively related to the greatness of discretionary accruals, demonstrating that, auditors become more familiar with the client's procedures and financial reporting environment (Al-Thuneibat et al., 2011). Adeniyi and Mieseigha (2013) concluded that there was a negative relationship between auditor tenure and audit quality, while recommending the financial reporting council and other regulatory bodies, in line with best practices to look critically into the issue of auditor tenure and its effect on audit quality in Nigeria.

However, the second view is that, as auditor tenure lengthens, auditors increase their understanding of their clients' businesses and develop their expertise throughout the audit, resulting in higher audit quality. Most of the prior studies on audit tenure used expressing going concern opinions and bankruptcy as a measure of audit quality. There was a study exploring the term of the auditor-client relationship and the quality of earnings in US companies that concluded earnings management declines with longer auditor tenure (Myers & Linda, 2003). Geiger and Raghunandan (2002) concluded that a long relationship between a client and an audit firm might impair their independence. Ghosh and Moon (2005) found a positive relationship between audit tenure and earnings management, and they also concluded that long-served auditors may betray their independence to keep close associations with their clients. Earnings management and audit quality in Southeast Asia describe that long audit tenure impairs audit quality (Weerapong, 2014). However, Cheong et al. (2015) revealed that audit tenure is insignificantly related to earnings management in Malaysian public listed companies.

The viewpoint of audit quality being dependent on audit firm size was disapproved and considered unfair (Pakianathan et al., 2019). It was argued that audit firm size does not affect audit quality because all firms adopt uniform professional standards regardless of size (Pakianathan, 2017). However, while all other factors are constant, size alone affects the auditor's incentives to act opportunistically (Angelo, 1981). As they have 'more to lose', larger audit firms provide a higher level of audit quality (Pakianathan, 2017). According to the results of the study by Al-Khaddash et al., (2013) there is a significant positive correlation between audit quality and the size of the audit firm.

The study by Alves (2013) which sampled 33 nonfinancial quoted companies in Portugal from 2003-2009 exposed that, with a confidence level of 95%, there was a significantly positive relationship between firms audited by the Big Four audit firms and earnings management, indicating that companies audited by the Big Four have a higher chance of reporting managed earnings. Similarly, Rusmin (2010) reveals that the magnitude of earnings management is significantly lower amongst companies engaging a Big 4 specialist audit firm relative to companies using the audit services of a Non-Big 4 specialist. Moreover, Li and Lin (2005) examined in their study, the relationship between audit quality and earnings management using US data and found a positive relationship between companies, with more earnings restatements being audited by the Big Five audit firms. However, it must be stressed that they used earnings restatements to measure earnings management as opposed to the other studies, which used discretionary accruals (Pakianathan et al., 2019).

Conversely, several studies empirically displayed a significant negative association between the two variables. When audit firms are larger, the partners of the firms will be more inspected

for their practices (Alzoubi, 2016). Thus, firms would take measures to manage their brand and reputation by avoiding legal liability and would misplace firm identity and threaten existence in case of an audit failure, which can be like the consequences of the fall of Arthur Anderson (Pakianathan, 2017). There was a negative relationship between audit quality and earnings management in Singaporean-listed firms (Rusmin, 2010). That study found that the degree of earnings management is significantly lower in companies that are audited by the Big 4 audit firms. Similarly, there was another evidence in a study (conducted on 367 Taiwan IPO companies) in which the results showed that higher quality auditors who are in the big five operating in Taiwan constrain earnings management (Chen et al., 2005).

According to the Code of Ethics framework that has been introduced by CASL (Chartered Accountants of Sri Lanka), auditors must be independent both in fact and in appearance. Tepalagul and Lin (2015) highlight four threats to audit independence: client importance, non-audit services, auditor tenure, and clients' affiliation with audit firms. It was evident that the high level of client importance causes negative investor perception rather than a high non-audit fee ratio (Ghosh et al., 2009). As well as, Angelo (1981) reveals that when the audit firm receives the fee, it generates a financial bond between the auditor and the client.

Certain studies highlight an inverse relationship between audit independence and audit fees, where large (small) values of audit fees imply low (high) audit independence. Therefore, a positive association between audit fees and earnings management implies a negative association between audit independence and earnings management. Li and Lin (2005) studied that a higher fee for audits or non-audits would improve the economic bond between the auditor and client and thus damage independence and reduce the quality of reported earnings, which implies higher earnings management. That study scrutinized a significantly positive relationship between audit fees and earnings restatement by examining a sample of 351 companies.

Several studies have identified a negative relationship between audit fees and earnings management. Alzoubi (2016) examined 86 listed companies on the Amman Stock Exchange (ASE) from 2007 to 2010, using the natural logarithm of audit fees as the quantity of audit independence. This study suggested that, as the audit fees produced through a customer rise, the EM scale is reduced. Srinidhi and Gul (2007) reported a positive relationship between audit fees and accrual quality, which implies a negative relationship to EM.

However, a lesser number of studies found that there is no statistically significant relationship between any of the client importance rations, including audit fees and discretionary accruals. Ching et al. (2015) revealed there was no statistically significant association between audit fees and earnings management using data from Malaysian public listed companies from 2008 to 2013. In Sri Lankan context also indicated an insignificant relationship between audit quality and the degree of earnings management in Sri Lankan listed companies, which indicates the need to strengthen the audit mechanisms to prevent such opportunistic behavior (Pakianathan et al., 2019).

The quality of service offered by the external auditors and the proper functioning of the audit committee have been highly debated by many stakeholders due to such occurrences of scandal. Based on the extant literature, mixed results have been generated regarding the association between proxies of audit quality and degree of earnings management because those studies have addressed this research issue in various contextual backgrounds. Therefore, there should be a proper empirical investigation to explore this relationship.

Methodology

Data and Sample

This study aims to examine the impact of audit quality on the degree of earnings management of the listed companies in Sri Lanka. The population of the study is the companies listed on the Colombo Stock Exchange (CSE). As of December 31, 2020, CSE consists of 285 companies representing 20 GICS industry groups. Out of that population, this study focuses on the 16 industries, in which the financial year ends on March 31. Further, the study covers the recent five-year period from 2015/16 to 2019/20. Additionally, the current study covers the eight years from 2012/13 to 2014/15 for the purpose of collecting data from audit reports.

The sample comprises 182 listed companies in the CSE over a period of five years, with a total of 910 observations. According to the following criteria, the sample was selected.

- Excluding financial companies (Banks, Insurance companies, and Diversified financials) listed in the CSE.

These sectors were excluded due to incomparability of available data. Companies within the Banks, Insurance companies, and Diversified financial sectors are subject to rigorous regulatory oversight, distinguishing them from those in the excluded sectors, which exhibit variations in reporting methods, profitability, and liquidity metrics compared to the sampled sectors.

- Firms that adopt a financial year end in March.
- Companies that have been continuously listed at the CSE and whose financial data are accessible during the five-year research period.

As of December 31, 2020, there are 285 listed companies under 20 industries in the CSE. The initial sample of the study was taken after excluding financial companies (Banks, Insurance companies and Diversified financials) and newly listed companies during the research period. Furthermore, the sample excluded companies with the financial year ending in December. Also, a few companies were excluded from the sample due to insufficient data to construct the relevant variables. Accordingly, 182 companies were selected for the final sample.

The data used in this study is secondary data. They will be obtained from the published annual reports of the sample companies on the CSE website. The main items that will be considered in this study are the Statement of Profit and Loss and Other Comprehensive Income, Statement of Financial Position, Notes to the Financial Statements, Audit Report and Audit Committee Disclosures.

Conceptual Framework

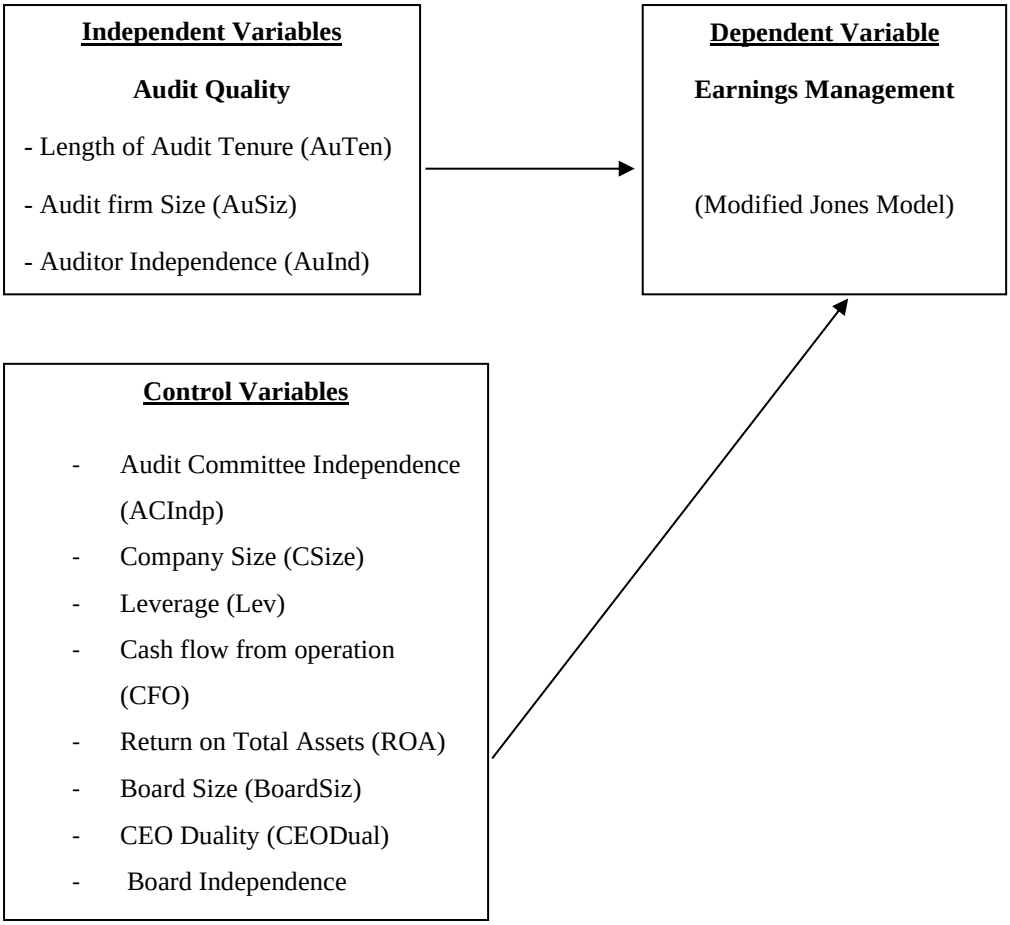

Figure I: Conceptual Framework

Hypothesis Development

Based on the relationship determined through the literature review, the following hypotheses are developed:

According to the revised literature, the study assumes that a higher length of audit tenure of Sri Lankan listed companies will result in an increase in earnings management. Thus, hypothesis one (H1) of this study was derived as:

***H_1*:** Length of audit tenure has a significant negative association with the degree of earnings management.

Since Sri Lanka is a developing country, the study assumes, based on revised literature, that audit firm size will diminish the degree of earnings management in Sri Lankan listed companies. Accordingly, hypothesis two (H2) of this study was derived as:

***H_2*:** Audit firm size has a significant negative association with the degree of earnings management**.**

After consideration of the literature review, it is reasonable to assume that there is an inverse relationship between audit independence and the degree of earnings management in Sri Lankan listed companies. Therefore, hypothesis three (H3) of the study was derived as:

H_3: Auditor independence has a significant negative association with the degree of earnings management.

Measurement of Variables

Independent Variables

Table I: Measurement of Independent variables

Variable	Measurement
Length of audit tenure	Length of audit tenure measures the number of years spent as a firm's auditor; if greater than 3, we assign 1; if otherwise, we assign 0 (Xiao & Zhou, 1999).
Audit firm size	This is measured according to prior literature (Pakianathan et al., 2019) as a dummy variable, which would equal 1 if the company was audited by a member of the big four (i.e. KPMG, Ernst & Young, PricewaterhouseCoopers, and Deloitte) within the four-year period or 0 otherwise.
Auditor independence	This study expects to measure auditor independence as the natural logarithm of audit fees as an alternate proxy consistent with extant literature (Alzoubi, 2016).

Dependent variable

This study uses discretionary accruals to measure earnings management. The modified Jones model is the most commonly used technique for analyzing accruals (Alzoubi, 2016).

The original Jones Model regresses total accruals using the variation in revenue and the gross property, plant, and equipment. It seizes working capital accruals as a function of revenue growth and depreciation as a function of gross property, plant, and equipment. The original Jones model treats revenues as non-discretionary (Dechow et al., 1995). But as credit sales could be used to manage earnings, the assumption that has been made becomes invalid. Therefore, the change in revenues is adjusted as a change in receivables to overcome the said limitation (Dechow et al., 1995).

Total accruals can be calculated through two approaches. They are the balance sheet and cash flow approaches. The use of the balance sheet approach disturbs the discretionary accruals computations that could lead to Type I errors, where the study could conclude the occurrence of earnings management when in fact it is not (Pakianathan, 2017). Thus, this study uses the cash flow statement approach to compute total accruals.

a) Total accruals are calculated using the cash flow approach under the following equation.

$$\boldsymbol{TACC_{it} = NI_{it} - CFO_{it}}$$

Where:

$\boldsymbol{TACC_{it}}$ = Total accruals for company i in year t.

$\boldsymbol{NI_{it}}$ = Net income of company i for year t.

$\boldsymbol{CFO_{it}}$ = Net cash flow from operations of company i for year t.

b) The above calculated $\boldsymbol{TACC_{it}}$ is used in the following equation.

$$\boldsymbol{TACC_{it} = \beta_1 \left(\frac{1}{TA_{it-1}}\right) + \beta_2(\Delta REV_{it} - \Delta REC_{it}\ ) + \beta_3(PPE_{it}) + \iota_{it}}$$

Where:

$\boldsymbol{TACC_{it}}$ = The total accruals of firm (i) in year (t)

$\boldsymbol{TA_{it-1}}$ = The total assets of firm (i) at the end of year (t-1)

$\boldsymbol{\Delta REV_{it}}$ = The change in revenues of firm (i) between years (t) and (t-1)

$\boldsymbol{\Delta REC_{it}}$ = The change in receivables of firm (i) between years (t) and (t-1)

$\boldsymbol{PPE_{it}}$ = The level of fixed assets of firm (i) in year (t)

$\boldsymbol{\iota_{it}}$ = Random error

c) The variables are deflated by lagged Total assets ($\boldsymbol{TACC_{it}}$) as shown in the following equation and then regressed on a cross sectional sector specific basis to evaluate the coefficient parameters for each sector.

$$\boldsymbol{\frac{TACC_{it}}{A_{it-1}} = \alpha + \beta_1 \left(\frac{1}{A_{it-1}}\right) + \beta_2 \left(\frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}}\right) + \beta_3 \left(\frac{PPE_{it}}{A_{it-1}}\right) + \iota_{it}}$$

d) Non-discretionary accruals ($\boldsymbol{NACC_{it}}$) will be assessed by applying the calculated coefficients (for a sector) on a company specific basis (for companies within such sector).

e) Then the expected discretionary accruals ($\boldsymbol{DACC_{it}}$) is calculated using the following equation.

$$\boldsymbol{DACC_{it} = TACC_{it} - NDAC_{it}}$$

Control Variables

The study incorporates some factors as control variables. They are Audit Committee Independence, Company Size, Leverage, Cash Flow from Operations, Return on Assets, Board Size, CEO Duality, Board Independence, and Industry Category. The general belief is that the more independent the audit committee is, the better and more effective the monitoring and oversight function will be. As a result, the quality of earnings reported will improve (Pakianathan, 2017). Alzoubi (2016) revealed a significantly negative association between earnings management and audit committee independence. The number of independent non-executive directors on the audit committee in the sample companies is used to calculate this variable. Company size is commonly used as a control variable in prior literature (Alzoubi, 2016; Pakianathan et al., 2019). Company size is a persuasive factor, as the risk of litigation and review from investors is proven to be higher for larger companies than smaller size companies (Pakianathan, 2017). The measurement of company size in this study is the natural logarithm of total assets. Leverage is used as a variable for the intention of managing earnings to avoid the technical default of debt covenants (Pakianathan et al., 2019). Firms with high debt use income-increasing accruals management to increase earnings when there is an increased probability of defaulting on debt covenants. Nevertheless, significantly indebted companies might be less capable of exercising EM as they are monitored by lender assessments. Prior researchers revealed that there was a positive relationship between leverage and EM (Alzoubi, 2016). Therefore, leverage is incorporated into the study as a control variable, and it is measured using total debt divided by the total assets (at the start of the year). Companies that have a consistent operating cash flow do not participate in earnings management since they are profitable (Habbash, 2010). This means that cash flow issues serve as a motivator to manage profitability. According to Dechow et al. (1995), cash flow from operations has a significant negative relationship with the number of discretionary accruals. In this study, cash flow from operations is measured by directly obtaining the amount of cash flow from operating activitie**s** in the cash flow statements of sample companies.

Return on assets (ROA) reflects the management's ability to utilize company assets efficiently in making a return. Companies tend to manage earnings to prevent reporting losses or reporting earnings decreases. To control for such an incentive, return on assets is incorporated as a control variable. The financial performance of a company stimulates the discretionary accruals (Dechow et al., 1995). ROA is calculated by dividing net income by average total assets**.** As per the agency theory, a larger board number increases interest conflicts among shareholders and managers, mostly due to the assortment of backgrounds and intelligence that can avoid unanimous decisions being made (Alzoubi, 2016). Those circumstances would permit the manager to control other managers and utilize his discretion to boost his benefits through EM practices. Conversely, some studies have argued that the larger the board, diverse it would be in expertise and thus allow for restricted earnings management, as this board permits taking advantage of the different expertise of various board members (Alzoubi, 2016). However, the study focuses on an optimal size of 7-8 directors on the board for it to function efficiently. This study measures board size as the total number of board members and includes the variable to control for influences on the dependent variable. When the Chairman and CEO positions are joint, it gives unnecessary power and influence to override controls, which creates an opportunity to manage earnings. Therefore, it creates a situation of conflict of interest to the CEO. The fundamental expectation is that the separation of the two roles should lead to a decreased degree of earnings management (Pakianathan, 2017). However, Lin and Hwang (2010) revealed that no prior literature has reported a significant association between CEO duality and earnings management. This study measures CEO duality as a dummy

variable, which takes the value of "1" if both Chairman and CEO positions are combined and "0" otherwise. The independence of a company's board of directors is a critical factor in determining the occurrence of earnings management. According to agency theory, the existence of independent directors would improve the board's effectiveness as a monitoring function (Alzoubi, 2016). Baxter and Cotter (2009) reported a negative relationship between board independence and earnings management. However, Alzoubi (2016) reported that board independence is an ineffective oversight mechanism to limit earnings management. This will be measured using the number of independent, non-executive directors on the board. The industry variable is incorporated as an additional control variable to prevent the results from being dominated by a specific industry sector. It denotes the 15 dummy variables. This control for clustering avoids sector effects on EM (Pakianathan et al., 2019).

Variable Description

Table II: Variable Description

Variable	Acronym	Variable description
Absolute value of discretionary accruals	$DACC_{it}$	The absolute value of discretionary accruals of the company i for year t using the modified Jones model (Deflated by lagged total assets).
Length of audit tenure	$AuTen_{i,t}$	Length of audit tenure measures the number of years spent as a firm's auditor; if greater than 3, we assign 1; otherwise, we assign 0.
Audit firm size	$AuSiz_{it}$	"1" if the auditor is a member of the Big Four, "0" otherwise.
Audit Independence	$AuInd_{it}$	The natural logarithm of audit fees for company i for year t.
Audit committee Independence	$ACInd_{it}$	Number of independent non-executive members in the audit committee of the company i for year t.
Company size	$CSiz_{it}$	Natural logarithm of Total assets of company i for year t.
Leverage	Lev_{it-1}	Total liability of company i for year t divided by total assets of company i for year t-1.
Cash flow from operations	CFO_{it-1}	Net cash flow from operations of company i for year t.
Return on Assets	ROA_{it}	Earnings before interest and tax of the company i for year t divided by total assets of the company i for year t.
Board size	$BoardSiz_{it}$	A total number of board members of the company i for year t.
CEO Duality	$CEODual_{it}$	"1" if the roles of the CEO and chairman are combined and "0" otherwise.
Board Independence	$BoardInd_{it}$	Number of independent non-executive directors on the board of company i for year t.
Industry category	$INDUSTRY$	11 Dummy variables (the study examines 11 industries) which take a value between "1" if a company belongs to a sector and "0" otherwise.

Data Analysis Method

In analyzing the data, this study used methods such as descriptive statistics, correlation analysis, and multivariate regression analysis to evaluate the impact of audit quality on the degree of earnings management. To provide an overview of the characteristics of the sample, all variables will be analyzed using descriptive statistics. Descriptive statistics include the mean, median, standard deviation, maximum, minimum, skewness, and kurtosis values for each separate variable. To analyze the association between all variables pairwise and to identify the degree, direction, and significance of the association, correlation analysis is used. Pearson correlation was performed in this study to identify any significant and strong association between the variables and to test for multicollinearity. The study used the Pooled (OLS) regression model to test the hypotheses derived from the study. Pooled regression analysis tested the direction of the relationship based on the coefficient value while testing the significance using the p-values. The regression model that will be used in the study is as follows.

$$\begin{aligned} DACC_{it} = {} & \beta_0 + \beta_1 AuTen_{i,t} + \beta_2 AuSiz_{it} + \beta_3 AuInd_{it} + \beta_4 ACInd_{it} + \beta_5 CSiz_{it} \\ & + \beta_6 Lev_{it-1} + \beta_7 CFO_{it} + \beta_8 ROA_{it} + \beta_9 BoardSiz_{it} \\ & + \beta_{10} CEODual_{it} + \beta_{11} BoardInd_{it} + \beta_{12} INDUSTRY_{it} + \varepsilon_{i,t} \end{aligned}$$

Findings and Discussion

This section provides the findings of the study under three analysis techniques mainly: descriptive statistics, correlation analysis, and regression.

Descriptive Statistics

This section summarizes the descriptive statistics for the audit quality and earnings management variables, along with the control variables to provide a general overview of the sample. Mean, minimum, maximum, median, standard deviation, skewness, and kurtosis are calculated in this regard.

According to the results (Appendix B), the absolute value of discretionary accruals (AbsDACC) in the sample has a mean value of 0.390359 with a maximum of 11.34491, and a minimum of 0.000536. Balsam et al., (2003), highlighted that the mean absolute value of discretionary accruals is slightly less than 10% of total assets, indicating that the amounts involved are both economically and statistically significant. As the mean value reported in the current study (Appendix B) does not exceed this threshold, it is clear that the degree of EM in the sampled companies is both economically and statistically significant.

When considering the audit quality proxies, it is clear that 92% (mean 0.9176) of the sample companies have not changed their auditors during the eight-year period under consideration in the current study. In the case of audit firm size (AuSiz), 0.89% of sample companies (mean 0.8890) are audited by the big four audit firms in Sri Lanka. It implies that KPMG, Ernst & Young, PricewaterhouseCoopers, and Deloitte dominate the listed company segment by reflecting a Big Four dominance in Sri Lanka. This higher proportion could be due to the perceived higher audit quality of the Big Four audit firms. Listed companies may want to have their financial statements audited by one of the big four audit firms because it could have enabled the companies to maintain their credibility with both domestic and international investors. The remaining 11% of the sample companies are audited by non-Big Four audit

firms in Sri Lanka. In the case of audit independence (AuInd), the maximum and minimum values for this variable are 18.369 and 11.728, respectively. The mean audit independence for the full sample period is 14.38684, with a standard deviation of 1.24. Since the sample is clustered closely around the mean audit fee, it demonstrates that there is no considerable diversity in terms of audit fees within the sample.

When considering the independence of the audit committee (ACInd), the results demonstrated that the average number of independent directors in the audit committee of sample companies is 2.585 with a standard deviation of 0.7. Further, the maximum number of independent directors in the audit committee of sample companies is 5, whereas the minimum number of independent directors is 0. This is a much higher proportion compared to 34% in Jordan (Alzoubi, 2016). Company size, which was measured using the natural logarithm of total assets, indicates a mean value of 22.46 within the range of 18.1 to 26.8. This emphasizes that the average size of the companies in terms of their total assets is approximately Rs.3 billion. In addition, the results reveal that the companies in the sample financed 15% of their total assets with debt on average, with a smaller standard deviation of 0.17. The median number indicates that half of the companies in the sample have a gearing of less than 10% of their total assets. Even though the maximum leverage is 1.54, the above percentages imply that most businesses operate at a lower gearing. This suggests that most publicly listed companies in Sri Lanka weigh equity more heavily than debt sources in their capital structures. This supports Samarakoon's (1999) allegation that loan financing is substantially less common in Sri Lanka because most of the family-owned businesses are listed on the CSE. The company records marginally positive cash flow from its operations, which on average amounts to 1.3% of its starting total assets. While this indicates poor financial performance in terms of decreased cash flow generation, it is in line with Taiwanese (Chen et al., 2005) findings. However, this is a fraction of what was discovered in Singapore (Rusmin, 2010).

The average return on total assets for enterprises is 0.015, while some companies manage to achieve a return of 2.304 with a standard deviation of 0.096. However, Pakianathan (2017) found that the average performance of the companies is reported at a return on total assets of 0.073 for listed companies in Sri Lanka based on the study conducted during the financial period of 2013-2016. Moreover, the sample companies have an average of 8 directors on their boards of directors, with the number ranging from 3 to 15. These results are entirely consistent with the findings of Pakianathan et al., (2019) which also record the same results. With regard to board independence, independent non-executive directors consist of an average of only 3.12 of the board, with a maximum of 9. This directs that a typical board of eight directors would consist of five executive directors and three non-executive independent directors. The average CEO duality is 0.081, suggesting that 92% of organizations have separated the roles and responsibilities of the chairman and CEO. The remaining 8% has not complied with the corporate governance requirement that the chairman and CEO roles be separated. In line with these results, the findings of Pakianathan (2017) who examined data from Sri Lankan listed firms from 2013 to 2016, found that 5.4% of the companies function with the same individual holding both the chairman and CEO posts.

Correlation Analysis

Correlation analysis depicts the association between independent and dependent variables used in the current study. The coefficients presented in the analysis provide first-stage evidence to test H_1, H_2, and H_3 of the current study (Appendix C).

As mentioned previously, this study focuses on three hypotheses.

***H₁*:** Length of audit tenure has a significant **negative association** with the degree of earnings management.

In testing the above hypothesis, it was evidenced that the dependent variable, which is the absolute value of discretionary accruals (DACC) is negatively associated with the length of audit tenure. Further, the correlation under correlation analysis represents a weak negative association between the degree of earnings management and the length of audit tenure.

H₂: Audit firm size has a significant **negative association** with the degree of earnings management.

H₃: Auditor independence has a significant **negative association** with the degree of earnings management.

Also, regarding the above H_2 and H_3 hypotheses, it was clear that the dependent variable, which is the absolute value of discretionary accruals (DACC) is negatively correlated with audit firm size and auditor independence. Furthermore, as per the correlation analysis, it is demonstrated that there is a moderate (almost strong) negative correlation between audit firm size and the degree of earnings management (-0.808) and auditor independence and the degree of earnings management (-0.809).

With regard to the control variables of the study, the study reveals that there is a positive correlation between the independence of the audit committee and the absolute value of discretionary accruals (0.056). There was a positive correlation between audit firm size (0.251) and company size and a much more moderate correlation between audit independence and company size (0.722) based on correlation analysis. As a result of this provision, as companies grow larger, they choose to use highly independent Big Four audit firms to audit their financial accounts. Moreover, company size is negatively correlated with the absolute value of discretionary accruals. This suggests that the size of the company is a limiting factor, as larger organizations engage in less earnings management. This could be owing to the market's intense review of larger companies (Chen et al., 2005).

The results of the study further revealed that there is a positive correlation between leverage and the absolute value of discretionary accruals (0.113). This suggests that companies with higher debt levels use discretionary accruals to manage earnings, perhaps to avoid the implications of a technical default. Cash flow from operations highlights a negative correlation with the absolute value of discretionary accruals. That value is demonstrated in the correlation analysis as -0.015. This implies that companies with stronger cash flow from operations have less earnings management. This is in line with the viewpoint of Pakianathan (2017). Increasing return on total assets, which measures the company's success, has a weak positive relationship with discretionary accruals (0.226). This demonstrates that if a company's performance improves, it will choose accruals and earnings management to manage earnings. The correlation results further indicate a positive correlation between board independence and discretionary accruals (0.049). As per the agency theory, the presence of independent directors on the board increases the monitoring function. Therefore, it has led to a decrease in earnings management practices. Extant literature also emphasizes that the existence of independent directors reduces earnings management within companies (Alzoubi, 2016). Furthermore, the findings of this study reveal a weak negative correlation between CEO duality and the absolute value of discretionary accruals (-0.009) and the same correlation between board size and the absolute value of discretionary accruals (-0.027).

Regression Analysis

Before performing the regression analysis, the correlation coefficients between explanatory variables were analyzed to ascertain the absence of a multicollinearity problem. As can be seen from the results of Pearson's correlations between the independent variables, none of the correlations are of a level that creates multicollinearity concerns, as all correlations between the independent variables were less than 0.80 (Appendix D). To achieve the main objective of the current study, which is to investigate the impact of audit quality on the degree of earnings management, an additional dummy variable for industries was incorporated into the regression model.

Model Testing

Moving to the regression analysis, the regression model in the form of pooled, fixed effects, and random effects were tested to select better estimates for the model identified in the previous chapter. In performing regression analysis, it is essential to decide whether to continue with the pooled OLS fixed effects or random effects model. Estimates of both fixed and random effects models were acknowledged through the Hausman specification test. In instances where both models were found to be significant, the results of the random effect model were taken into consideration in selecting the most suitable model. The selection depends on the probability of the Chi-Sq. statistic generated in the Hausman test.

The null hypothesis of the test is that the 'random effect model is preferred', whereas the alternative hypothesis is that the 'fixed effects model is preferred'. If the probability of the Chi-Square statistic is less than 5%, the null hypothesis is rejected, as the fixed effect model is the appropriate model to test for regression. However, if the probability exceeds 5%, the null hypothesis cannot be rejected. Hence, the random effect model is appropriate for analysis. As discussed, both fixed and random models were acknowledged by employing, the Hausman test to identify the most suitable model. A summary of the results of the test is presented in Table III.

Table III: Correlated Random Effects – Hausman Test

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	20.779801	11	0.0357

These results led to reject the null hypothesis of the Hausman test as the probability of the Chi-Square statistic is less than 5%. Thus, the fixed effect model is more appropriate for the analysis. Before assessing the validity of the fixed effects model, a required test was carried out to check whether fixed effects should indeed be included in the models. In this respect, the standard F-test was used to check the validity of the fixed effects model against the simple pooled ordinary least squares (OLS) method. Therefore, as the next step, Redundant fixed effect test (F-Test) was performed.

The null hypothesis of the test is that the 'pooled method is preferred', whereas the alternative hypothesis is that the 'fixed effects model is preferred'. If the probability of the Chi-Square statistic is less than 5%, the null hypothesis is rejected, as the fixed effect model is the appropriate model to test for regression. However, if the probability exceeds 5%, the null hypothesis cannot be rejected. The summary of the results of the test is presented in Table IV.

Table IV: Redundant Fixed Effects Tests

Test cross-section fixed effects

Effects Test	**Statistic**	**d.f.**	**Prob.**
Cross-section F	2.910317	-181,717	0.5160
Cross-section Chi-square	501.2502	181	0.5094

Based on the report-reported results for F-statistics, the null hypothesis that 'pooled method is preferred' has been accepted since probability values are greater than 5%. Thus, the application of the pooled OLS method proved more appropriate than the fixed effects model for the analysis of the current study. According to the results of the Hausman test and the Redundant fixed effects test, the model is regressed using the pooled OLS model. The coefficient of determination, or R2 provides information about the goodness of fit of the regression model. The reported results in Table V show the explanatory power of audit quality variables on earnings management. According to the results, 48% of changes in earnings management are explained by the selected independent variables and control variables. With regard to the overall significance of the model, the probability value of the F statistic of this overall model, as shown in Table 4.6 is less than 5% (0.0000), which indicates that this model is good and can be accepted. Furthermore, the Durbin-Watson Test is a measure of autocorrelation in residuals from regression analysis. A rule of thumb is that test statistic values in the range of 1.5 to 2.5 are relatively normal. Therefore, the results of the Durbin-Watson statistic represented in Table 4.6 indicate the data set of the current study is relatively normal and does not suffer from autocorrelation.

Table V: Model Summary

R-squared	**Adjusted R-squared**	**S.E. of regression**
0.483967	0.462883	0.403832
F-statistic	13.46858	
Prob(F-statistic)	0.000000	
Durbin-Watson stat	1.850603	

Audit Quality and Earnings Management

As highlighted previously, this study focuses on three hypotheses. The first hypothesis that was derived in the current study is,

H1: Length of audit tenure has a significant negative association with the degree of earnings management.

Under the pooled method, results indicate a statistically insignificant relationship between the length of audit tenure and the absolute value of discretionary accruals (DACC), which measures the degree of earnings management under 95%, confidence level (Appendix E). That implies the p-value of this variable is higher than 5% (0.948). Therefore, this does not support H1 of the study. This result supports the findings of Cheong et al. (2015). That study also revealed that audit tenure is insignificantly related to earnings management in Malaysian publicly listed companies. However, this result disagrees with the findings of several studies. Mgbame et al., 2012; Al-Thuneibat et al., 2011; Myers & Linda, 2003; Geiger & Raghunandan, 2002).

The second hypothesis of the study is,

H2: Audit firm size has a significant negative association with the degree of earnings management.

The results report a statistically significant relationship between audit independence and discretionary accruals (Appendix E) since the p-value of this variable is less than 5% (0.0372). Hence, the second hypothesis of the study is supported by the results. The study revealed that audit firm size is significantly negatively associated with discretionary accruals (DACC) as audit firm size reports a negative coefficient (-0.1213). This result is in line with the findings of several studies (Alzoubi, 2016; Rusmin, 2010; Chen et al., 2005). They found that the degree of earnings management is significantly lower in companies that are audited by the Big 4 audit firms since, when audit firms are larger, the partners of the firms will be more inspected for their practices. Conversely, some studies empirically displayed a significant positive association between the two variables (Li & Lin, 2005). However, Pakianathan (2017) argued that audit firm size does not affect audit quality in Sri Lankan listed companies because all firms adopt uniform professional standards regardless of size.

Third hypothesis derived in the study is,

H3: Auditor independence has a significant negative association with the degree of earnings management.

The regression results (Appendix E) demonstrate a statistically significant relationship between audit independence and discretionary accruals, as the p-value is less than 5% (0.035). Therefore, the third hypothesis of the study is also supported by the results. The findings of the study reveal a negative association between auditor independence and degree of earnings management since it is represented negative coefficient (-0.0483). Similarly, Alzoubi (2016); Habbash (2010) and Srinidhi and Gul (2007) found a negative relationship between audit independence and earnings management. However, the Sri Lankan context also indicated an insignificant relationship between audit quality and the degree of earnings management in Sri Lankan listed companies, which indicates the need to strengthen the audit mechanisms to prevent such opportunistic behavior (Pakianathan et al.,2019).

Control Variables on Earnings Management

Most of the control variables report a significant association with discretionary accruals. The results imply that audit committee independence has a statistically significant (p-value < 0.05) and positive relationship with discretionary accruals. These findings are in accordance with Alzoubi (2016). It indicates that the establishment of independent audit committees has had a positive impact on the degree of earnings management in companies. Company size reports a significant negative association (p-value = 0.0442) with the absolute value of discretionary accruals. This relationship shows that as a company grows larger, the degree of earnings management decreases. This could be related to the fact that investors are scrutinizing everything (Chen et al., 2005). Leverage reports a significant positive association (p-value = 0.0239) with discretionary accruals. Larger companies have higher levels of EM, implying that they are better able to control earnings and hide actual performance (Alves, 2013). The finding was predicted, given that increased leverage encourages company executives to engage in EM to avoid debt covenant violations, and is in line with previous research (Alzoubi, 2016). Cash flow from operations demonstrates a statistically significant (0.0213) at a 95% level of confidence and a negative relationship with discretionary accruals. This means that companies with a robust and consistent cash flow from operations report less discretionary accruals, implying a less aggressive earnings management strategy (Alzoubi, 2016; Pakianathan, 2017). This illustrates that cash flow issues are a major driver of earnings management techniques.

With regard to company performance, which is measured by using return on assets (ROA), states a significant positive association to the absolute value of discretionary accruals since the p-value is less than 0.05 (p-value = 0.0000) under a 5% level of significance and the ROA is generated positive coefficient (1.650). This finding suggests that the purpose of increasing earnings management is leads to increase the company's performance. This result was similar to the prior study (Pakianathan et al., 2019). In terms of board size, a significant association with discretionary accruals is reported as the p-value is less than 0.05 (p-value = 0.0132). It is a reported negative coefficient, and altogether with the p-value it indicates a significant negative association between board size and discretionary accruals. It implies that increasing the number of members of the board certainly reduces the magnitude for earnings management of the companies. This finding is in line with former research (Alves, 2013; Alzoubi, 2016). However, board independence reports an insignificant association with discretionary accruals. Even though Habbash (2010) revealed a positive relationship between board independence and earnings management in Asian nations, Pakianathan et al., (2019) found that board size is insignificantly associated with earnings management in Sri Lankan listed firms. This implies that board independence is an ineffective measure for limiting earnings management in Sri Lankan listed companies. Further, the current study also reports an insignificant association between CEO duality and discretionary accruals. These results are in line with the findings of Pakianathan's (2017) study which was done based on Sri Lankan listed firms. Despite this insignificance, the association's approach is consistent with the core idea of agency theory, which holds that combining the responsibilities of the chairman and CEO reduces conflict of interest and improves earnings management. But there are only a few companies that have combined the roles of chairman and CEO. This insignificance could be reported as a result of that.

With regards to the additional dummy variable, which is the industry category, most of the industries out of 16 industries report a significant negative association with discretionary accruals. INDUSTRY_1 (Automobiles and components), INDUSTRY_2 (Capital goods),

INDUSTRY_3 (Commercial and professional services), INDUSTRY_4 (Consumer durables & Apparels), INDUSTRY_7 (Foods, beverage & tobacco), INDUSTRY_8 (Foods & staples retailing), INDUSTRY_11 (Material), INDUSTRY_12 (Real Estate), INDUSTRY_13 (retailing) and INDUSTRY_15 (Transportation) indicate a significant negative association to the discretionary accruals at the 5% significance level, as their p-values are less than 0.05 and all are reported negative coefficients. This indicates that companies in such industries engage in earnings management. Furthermore, industries such as INDUSTRY_5 (Consumer Services), INDUSTRY_6 (Energy) INDUSTRY_9 (Healthcare equipment and services), INDUSTRY_10 (Household & personal products), INDUSTRY_14 (Telecommunication services) and INDUSTRY_16 (Utilities) record an insignificant association with discretionary accruals.

Conclusion

This study concluded that the association between audit firm size and earnings management in Sri Lankan listed companies is negative and significant. It was found that the level of EM between companies using Big 4 auditors and those using non-Big 4 auditors is much lower. This was due to the fact that the Big 4 audit companies operate on a massive scale. They have stronger capital, technology, human resources, training, and experience than non-Big 4 audit firms. This study concluded that auditor independence and EM have a negative significant association. It was suggested that independent auditors have a greater ability to regulate and identify EM activities through company management. These results were supported by agency theory and tests for additional analyses as well as the prior studies (Habbash, 2010; Alzoubi, 2016). However, the study revealed an insignificant association between the length of audit tenure and earnings management.

The results of the current study generated the following contributions. The theoretical implication of the study is that it contributes to the existing literature on the impact of audit quality on earnings management. It presents evidence of the importance of audit quality in determining the degree of earnings management in Sri Lankan listed companies. The research also has practical consequences for regulators and investors. The study lends empirical support to regulatory authorities by highlighting the importance of proper regulation and continuous monitoring in influencing audit quality in Sri Lanka. Further, regulatory agencies could make improvements to the audit disclosure requirements, such as audit hours spent by referring to the results of this study.

However, this study is restricted to public listed companies listed on the Colombo Stock Exchange (CSE) which means it does not include non-listed (private limited) companies. Therefore, the findings' generalizability is limited by this scope limitation. And, the sample companies were chosen from all the listed companies using specified sampling parameters. This non-random sampling technique could have skewed the sample, affecting the study's conclusions. Furthermore, since there is limited information disclosed in the annual reports of Sri Lankan listed companies, this study is limited to the three variables when measuring the audit quality. Therefore, various important proxies, such as non-audit fees, audit firm revenue, and audit hours spent per audit, have been ignored by the current study.

The findings and outcomes of this study could inspire future research in a variety of fields. The following are some study avenues that have been suggested. The purpose of this research is to investigate the impact of audit quality on accrual-based earnings management. Following the implementation of stringent guidelines such as the SOX Act, the use of real earnings management has expanded dramatically in comparison to accrual-based earnings

management. This could be the focus of future research. Furthermore, due to the difference in the structure of assets and liabilities between financial and non-financial companies, this study excludes the Banks, Insurance companies and Diversified financials, which is a critical sector of the economy. However, there have been major financial sector company scandals in Sri Lanka, such as the Pramuka bank collapse and the Golden Key PLC scandal. Thus, the impact of audit quality on the degree of earnings management in the financial sector could be the subject of future research.

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Appendices

Appendix A: Sample (number of firms) by industry

Industry	Total Firms	Percentage in total sample
Automobiles and Components	1	0.55%
Capital Goods	27	14.84%
Commercial & Professional Services	3	1.65%
Consumer Durables & Apparel	9	4.95%
Consumer Services	34	18.68%
Energy	2	1.10%
Food, Beverage & Tobacco	43	23.08%
Foods & Staples Retailing	3	1.65%
Health Care Equipment & Services	7	3.85%
Household & Personal Products	1	0.55%
Material	18	9.89%
Real State	14	7.69%
Retailing	11	6.59%
Telecommunication Services	2	1.10%
Transportation	2	1.10%
Utilities	5	2.75%
Total Sample	182	100.00%

Appendix B: Descriptive statistics

Variable	Mean	Minimum	Maximum	Median	Std. Dev.	Skewness	Kurtosis
DACC	0.390359	0.000536	11.34491	0.241426	0.586838	9.855793	163.9360
AuTen	0.917582	0.000000	1.000000	1.000000	0.275151	-3.036965	10.22315
AuSiz	0.889011	0.000000	1.000000	1.000000	0.314291	-2.476842	7.134746
AuInd	14.38684	11.72804	18.36926	14.30409	1.240057	0.439667	2.724772
ACIndp	2.585714	0.000000	5.000000	3.000000	0.697957	0.401626	3.219691
Csize	22.45766	18.11104	26.80307	22.38264	1.549043	0.132413	2.946149
Lev	0.153584	0.000000	1.537871	0.104739	0.173847	2.222304	14.13396
CFO	0.013450	0.000034	0.470583	0.003046	0.040340	7.231324	66.11846
ROA	0.015658	0.000002	2.303858	0.002880	0.096903	18.11915	388.2866
BoardSiz	7.937363	3.000000	15.00000	8.000000	2.155513	0.406088	3.062283
CEODual	0.081319	0.000000	1.000000	0.000000	0.273474	3.063628	10.38581
BoardInd	3.125275	0.000000	9.000000	3.000000	1.187447	1.212586	5.503200

Note: n = 910

Appendix C: Pearson Correlation Matrix

Variable	DACC	AuTen	AuSiz	AuInd	ACInd	Csize	Lev	CFO	ROA	BoardSiz	CEODual	BoardInd
DACC	1.000											
AuTen	-0.050	1.000										
AuSiz	-0.808	0.046	1.000									
AuInd	-0.809	0.026	0.239	1.000								
ACInd	0.055	0.159	0.065	0.149	1.000							
Csize	-0.012	0.008	0.250	0.722	0.173	1.000						
Lev	0.113	0.069	0.014	0.170	0.054	0.178	1.000					
CFO	-0.015	-0.105	0.015	0.024	-0.095	-0.005	-0.121	1.000				
ROA	0.226	-0.087	-0.052	-0.020	-0.024	-0.023	-0.077	-0.333	1.000			
BoardSiz	-0.027	0.180	0.059	0.272	0.359	0.267	0.109	-0.095	-0.106	1.000		
CEODual	-0.009	0.030	-0.022	0.172	-0.019	0.147	0.118	-0.054	-0.013	0.021	1.000	
BoardInd	0.048	0.004	-0.001	0.140	0.500	0.188	0.038	-0.090	-0.044	0.576	-0.075	1.000

***Note**: n=910, Significant level is 0.05.*

Appendix D: Correlation between Independent variables

	AuTen	AuSiz	AuInd
AuTen	1.000000		
AuSiz	0.046761*	1.000000	
AuInd	0.026979*	0.239627*	1.000000

Note: *n=910, Significant level is 0.05, *<0.8*

Appendix E: Regression Analysis (Pooled – OLS)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.50573	0.28717	1.761081	0.0786
AuTen	-0.00421	0.064512	-0.065257	0.9480
AuSiz	-0.121327	0.058144	-2.086682	0.0372*
AuInd	-0.048328	0.028915	-1.671392	0.0350*
ACInd	0.071469	0.029034	2.461539	0.014*
Csize	-0.044193	0.021927	2.01551	0.0442*
Lev	0.248552	0.109855	2.262545	0.0239*
CFO	-1.044416	0.452611	-2.307534	0.0213*
ROA	1.650011	0.185236	8.907622	0.0000*
BoardSiz	-0.025556	0.010292	-2.483073	0.0132*
CEODual	-0.016909	0.066413	-0.254604	0.7991
BoardInd	-0.000429	0.019937	-0.021519	0.9828
INDUSTRY_1	-0.702329	0.253316	-2.772541	0.0057*
INDUSTRY_2	-0.498553	0.113985	-4.373825	0.0000*
INDUSTRY_3	-0.422846	0.167393	-2.526068	0.0117*
INDUSTRY_4	-0.439267	0.128224	-3.425786	0.0006*
INDUSTRY_5	0.087261	0.111529	0.782404	0.4342
INDUSTRY_6	-0.218477	0.194845	-1.121286	0.2625
INDUSTRY_7	-0.502906	0.110012	-4.571356	0.0000*
INDUSTRY_8	-0.367331	0.170334	-2.156533	0.0313*
INDUSTRY_9	-0.072854	0.137386	-0.530283	0.5960
INDUSTRY_10	-0.348876	0.248756	-1.402481	0.1611
INDUSTRY_11	-0.32484	0.116923	-2.778231	0.0056*

INDUSTRY_12	-0.726351	0.124602	-5.829372	0.0000*
INDUSTRY_13	-0.28219	0.125622	-2.246333	0.0249*
INDUSTRY_14	0.162101	0.199634	0.81199	0.4170
INDUSTRY_15	-0.414274	0.193592	-2.139935	0.0326*
R-squared	0.483967			
Adjusted R-squared	0.462883			
F-statistic	13.46858	Durbin-Watson stat		1.850603
Prob(F-statistic)	0.000000			

*Note: n=910, *significant at 0.05 level*