

## **Financial Distress and Earnings Management: Evidence from Sri Lanka**

<sup>1</sup>Kannangara, H.A.R.D. and <sup>2</sup>Buvanendra S.

<sup>1,2</sup>Department of Finance, University of Colombo, Sri Lanka

<sup>1</sup>siroshdilka@gmail.com and <sup>2</sup>bkshanthu@dfn.cmb.ac.lk

### **Abstract**

This research's main intention is to scrutinise the impact of financial distress on earnings management in selected Sri Lankan listed firms. This study's sample covers two hundred and seven companies listed on the Colombo Stock Exchange (CSE), excluding the financial sector companies, which were chosen based on the availability of data from 2013 to 2017. Earnings management is approximated based on two strategies: accrual earnings management and real earnings management. The Modified Jones model developed by Dechow, Sloan, and Sweeney (1995) is used to calculate the measure of accruals earnings management. The Roychowdhury (2006) developed combined models of abnormal production costs and abnormal discretionary expenditures are used to assess the amount of real earnings management. The study outcomes indicated that financial distress is positively related to accrual earnings management while being negatively associated with the magnitude of real earnings management. This report's denouement offers greater comprehension for financial practitioners to make optimum financial choices.

**Keywords:** Accrual earnings management, Financial distress, Real earnings management, Sri Lankan firms

**JEL Classification:** G33, M41



## **Introduction**

The notion of earnings management is a well-known and repeatedly studied accounting phenomenon (Kothari, *et al.*, 2005). The rationale for this is that the earnings are utilised for various intentions, such as contractual commitments, i.e., debt covenants, asset valuation, and executive compensation. However, it is not always possible for the corporate to satisfy positive earnings. Consequently, in order to mislead the shareholders about the real economic performance of the company, the managers often manage earnings. This reduces the accuracy of reported earnings and increases risk and uncertainty. Further, the friction of interest between managers and owners is stimulating the management of earnings. Unlike fraud, earnings management encompasses the selection of accounting and estimates that conform to Generally Accepted Accounting Principles (GAAP). This implies that companies that practise earnings management would manage their earnings within the limits of accepted accounting procedures (Rahman and Ali, 2006). Within the context of Sri Lanka, the progressive adoption of the International Financial Reporting Framework issued by the International Accounting Standards Board has been proven by several researchers as inefficient in the reduction of earnings management practises (Nijam and Jahfer, 2016; Jayawardhana, 2018).

The current study aims to divulge the issue of earnings manipulation by the management when a company is facing financial distress. Financial distress refers to a company's ineptitude to service its debts or other commitments, emanating from low profitability and cash flows. It is the latter phase of a firm downswing, which can be followed by major occurrences such as bankruptcy, liquidation, or insolvency (Platt and Platt, 2002). Financial distress is a critical issue confronting governments and other stakeholders, as a decline in financial performance can lead to bankruptcy and an increase in costs. As per Gordon (1971), the curtailment in the company's capacity of earnings can evolve into the potentiality of the company's incompetence to compensate the principal or interest portion of the debt. Such a condition indicates the distressed financial state of the company. Consistent with Hu and Ansell (2005), financially distressed firms have a debt ratio greater than one or an interest coverage ratio lower than one.

On the other hand, distress may be an impermanent condition, and many companies authentically recover from it (Nagar and Sen, 2016). The financially distressed companies' managers commit fraud to conceal the adverse performance, with the end goal of obtaining more liquidity from the banks or sufficient personal interest. Further, Rogers and Stocken (2005) have shown that during distressed situations, managers are worried about whether they might lose their jobs as a result of the problematic prevailing context; thus, they provide incredibly optimistic predictions, assuring the reinstatement of healthy financial conditions in the company. As a result, managers can take advantage of the opportunity to manipulate by employing various accounting techniques that boost income while masking losses (Habib *et al.*, 2013). Golden Key and the Pramukha Bank cases are the best examples of the financial scandals that occurred due to mismanagement in Sri Lanka (Edirisinghe, 2015). Furthermore, the recent collapse of some finance companies clearly demonstrates poor financial reporting practices, and thus it is susceptible to manipulation in country settings.

In previous studies, the classification of earnings management into the two broad categories was based on the composition of earnings, including accruals and operating cash flow (Xu *et al.*, 2007). Managers may choose either one or both to reach their desired earnings targets. Previous studies have mainly discovered that companies escort higher levels of income when the distress level is high, decreasing accrual earnings management (Agrawal and

Chatterjee, 2015). On the other hand, other authors have discovered that more significant distress induces companies to adjust accruals to show a higher income level (Bisogno and De Luca, 2015). However, the effect of financial distress on the immensity of real earnings manipulation is not as undeniable as the extent of accrual earnings manipulation. Campa and Camacho-Miñano (2015) detected that firms encountering higher degrees of distress conduct higher degrees of income, increasing real earnings manipulation, as firms are belligerently seeking to circumvent authentic probable bankruptcy. In contrast, a few authors (Zang, 2012; Joosten, 2012) claimed that firms prefer to make real earnings adjustments to accrual-based earnings adjustments when exposed to more significant financial distress. Some studies view earnings management as a problem that needs an urgent remedy, while others consider it a purposeful intervention to gain some private benefits (Schipper, 1989; Dechow and Skinner, 2000; Callao et al., 2014). Therefore, it is essential to examine the effect of the firms' distress level and the two approaches to earnings adjustment. Hence, in light of the mixed evidence offered and the lack of literature about the Sri Lankan setting, this study aims to analyse financial distress's relationship with the two earnings manipulation techniques: accrual earnings and real earnings.

This is the first research to specifically examine how financial distress affects the manipulation of accrual earnings and real earnings in the context of Sri Lanka. From a societal perspective, this study is relevant as it has implications for investors. Investors should be aware that companies that face financial distress substitute AEM for REM to meet short-term targets. As a result, investors should be more sceptical and thoroughly examine the financial statements before investing in a company in financial distress. Furthermore, this study is relevant to auditors when auditing a company that faces financial distress, as it is likely that the company manages earnings. Furthermore, regulators should tighten regulations to prevent these companies from engaging in earnings management practices.

The paper is organised as follows. Extant literature and hypotheses are presented in the next section. Following this, research methodology and design are discussed. The findings of the study are elaborated in section four. The final section culminates with further suggestions and the implications of the study.

## **Literature Review**

### **Earnings manipulation theories**

Earnings are known as the bottom line in financial statements, but, it is the most prominent financial information required by the users of the financial statements of a company, such as investors, analysts, creditors, researchers, and regulators (Tabassum et al., 2015). As Healy and Wahlen mentioned in 1999:

Earnings management occurs when managers use judgement in financial reporting and structuring transactions to alter financial reports to mislead some stakeholders about its underlying economic performance or influence contractual outcomes that depend on reported accounting numbers (Healy and Wahlen, 1999, p.368).

The casualties of the earnings manipulation include investors, customers, suppliers, employees, regulators, bankers as well as competitors of the company (Lo, 2008). According to Yaping (2005), exercising of earnings manipulation entailed the managerial judgment to change the estimations and policies in accounting. It is believed that capital markets do not like earnings surprises and hence companies systematically resort to earnings management practises to smoothen the effect of 'surprise'. For earnings manipulation, there is no unified definition agreed upon internationally. The more recent definition of Gastón,

Jarne, and Wroblewski (2014) amalgamates various components covered by previous researchers. According to them, earnings manipulation corresponds to:

A purposeful intervention in financial reporting is designed to reach earnings targets by varying accounting practices. However, it can occur without necessarily violating accounting regulations by taking advantage of the possibilities of choice in accounting policy. The action may mislead stakeholders, causing them to make decisions based on financial reports that they would not have made otherwise (Gastón, *et al.*, 2014, p.137).

Following the global financial crisis in 2007, the allure towards earnings management was escalated (Alzoubi and Selamat, 2012). For instance, in 2013, the Securities and Exchange Board of India released a study by its Development Research Group on earnings management that examined and quantified the extent of earnings management in India. The study looked at a cohort of 2229 listed Indian (non-financial) companies during 2008-2011. The study found that average earnings management in the Indian corporate sector was 2.9% of total assets.

The studies done on earnings manipulation have demonstrated that the agencies' principle is a key guiding theory that can easily explain the phenomenon of earnings manipulation. An agency arrangement occurs when an entity grants duties to an employee to conduct activities on the representation of the owners under the terms of the agreement (Fama, 1980). According to the above principle, the separation between ownership and management characterises large businesses. This division creates an agency problem that appears as a sequel to the agents' self-interests. The philosophy of the agency culminates in the potential for managers to use their circumspection to document accounting reports for their own gain, while earnings are often used as a measure of performance and a standard of pay (Cohen, *et al.*, 2007). Therefore, managers deploy the knowledge they have earned about the firm's prevailing conditions to contrive the information, thus conveying an accurate and fair perspective of the business's financial setting and performance. The Enron financial scandal is an epitome, which eventuated its managers' dishonest conduct in augmenting their rewards at the expense of other interested parties of the firm (Arnold and De Lange, 2004).

The most notorious incident that took place in the local context, known as Golden Key Credit Card Company LTD, is an ideal example. Due to the mismanagement of its Chief Executive Director, the company got into financial difficulties where the interest for depositors got delayed and some of the cheques issued by them started to revert back. The Sakvithi scandal and 'word of mouth' information triggered large-scale fund withdrawals from the company, which led the company to collapse. The same scenario could be observed at Pramuka Savings and Development Bank, which led to thousands of depositors being helpless and desperate after being deprived of money deposited with the bank.

Based on the above literature, it is apparent that mainly earnings are composed of cash flow from accruals and operations, which are the two alternatives discussed in this study as the methods used by managers to manage earnings. Hence, the two alternative earnings management concepts are, viz, accrual versus real earnings manipulation. The first alternative is to amend the degree of accruals through the judgements made in financial reporting until the desired level of earnings is achieved, termed accrual earnings management (Healy and Wahlen, 1998). The more recent definition is "Accrual earnings management refers to the change in accounting methods or use of opportunistic estimates to inflate earnings" (Nagar and Sen, 2016, p.2).

While total accruals are explicitly correlated with the manipulation of earnings, it should be acknowledged that total accruals are not wholly associated with the manipulation of

earnings. It is possible to systematise total accruals into two categories. The first constituent comprises of non-discretionary accruals are based on the managers' approximations of the performance of the firms. The other aspect of total accruals is discretionary accruals, the proportion of total accruals managed by management, meeting the accounting rules (Rahman and Ali, 2006). Hence, to grasp earnings manipulation, discretionary accruals must be implemented. Accordingly, as a proxy for earnings manipulation, this study analysed discretionary accruals (Becker, *et al.*, 1998; Rahman and Ali, 2006).

The second alternative is to influence earnings through the divergence from the ordinary business functioning, which is elucidated as real earnings manipulation (Roychowdhury, 2006; Xu, *et al.*, 2007). While accrual earnings manipulation makes explicit modifications to the income statement, real earnings manipulation alters the primary functioning of a business (Yaping, 2005). As explicated by Roychowdhury (2006):

Departures from regular operational practices, motivated by managers' desire to mislead at least some stakeholders into believing specific financial reporting goals have been met in the course of the ordinary operation. These departures do not necessarily contribute to firm value, even though they enable managers to meet reporting goals (Roychowdhury, 2006, p.337).

To evaluate the real activity manipulation, Roychowdhury (2006) analysed the control of revenue, the loss of discretionary costs, over-production, and the curtailment of research and development costs as proxies. However, real earnings management activities are not the optimal activities for a business, thus those activities may affect negatively to the future worth of a company (Roychowdhury, 2006; Moradi *et al.*, 2015). Studies have advocated that real earnings manipulation is more exorbitant than accrual earnings manipulation because it creates detrimental consequences on its cash flows and efficacy in the long run (Ewert and Wagenhofer, 2005; Roychowdhury, 2006; Cohen, *et al.*, 2008; Chi, *et al.*, 2011).

Even though real earnings management results in impressive negative ramifications, most of the time these activities are preferred over accrual earnings management. As per the analysis done by Xu *et al.* (2007), the companies that have used real earnings manipulation practices, have not shown a notable reduction in operating performance in the following years. Gunny (2010) has mentioned that though the relative cost is high in real earnings management, if the earnings targets are met accordingly, the benefits generated would outperform the cost involved. Paredes and Wheatley (2017) have found that real earnings manipulation is interrelated with future performance advancement. This reflects that finance controllers mostly prefer real earnings management over accrual earnings management practices though there are negative consequences.

When analyzing the above mentioned previous studies, it is apparent in general that researchers have differentiated accrual earnings management and real earnings management under four main points. First, as accrual earnings management deals with accounting standards and principles, it does not have an intense efficacy on the cash flows of the company, whereas real earnings management has long term implications on cash flow operations (Roychowdhury, 2006). Second, accrual earnings management is restricted due to auditor inspection and investor protection procedures, while real earnings management is less likely to be detected by the auditors (Gunny, 2010). Third, accrual earnings management involves uncertainty as to whether the adjustments made will be accepted by the auditor or not as accrual earnings management practises can be done quarterly or at the end of the year (Barton and Simko, 2002). However, in real earnings management, adjustments could be made throughout the year or at the last quarter of the

year. Fourth, accrual earnings management activities depend on the acceptance of the auditor, whereas real earnings management activities are under the dominance of the manager (Gunny, 2010). Further, as per Zang (2012), the cost involved in applying the two techniques depends on the limitations enforced on them.

### **Earnings management and financial distress**

Companies need sufficient capital to sustain their activities, including adequate cash to cover their debt. If an organisation is lacking the capital to meet its demands, it will suffer from financial pressure. In the face of financial distress, firms manage earnings as a performance measurement procedure and provide positive news to the capital market, thereby preventing a corporate downturn (Ranjbar and Amanollahi, 2018). Financial instability corresponds to the impotence of a corporation to relieve its loans or other liabilities resulting from poor profits and cash flows (Hayes, 2021). Bartov, Givoly, and Hayn (2002) showed that the incentives for conquering or exceeding analysts' expectations are also larger for financially troubled businesses than for financially stable companies. They recommend that financially struggling firms express their survival potential to economic actors by meeting or exceeding this analyst expectation.

Previous research has found that pressures from financial distress offer an opportunity for management to transmit false details. (Carcello and Palmrose, 1994; Ettredge, *et al.*, 2010). Bisogno and De Luca (2015) indicated that small and private business managers prefer to use more revenue-enhancing accrual strategies to exploit earnings to retain bank loans, not only to meet investor and analyst standards. They indulge in the improper identification of profits and the exploitation of liability expenses. Callen, Robb, and Segal (2008) noted that companies with chronic losses have high receivables investments and are exploiting revenue. This result is in line with the observations of Graham, Harvey, and Rajgopal in 2005, who discovered that unprofitable company managers perceive sales to be a more significant financial criterion for outsiders compared to managers of profitable firms.

The managers of financially distressed companies are induced to manipulate earnings and cash flows by concealing the distress faced by the company, in order to gain financing or to lessen the possibility of bankruptcy, accession or an antagonistic takeover (Rosner, 2003). If the company is financially distressed, the managers presume that they may experience reductions in their bonuses, get replacements, and face deterioration of their reputation (Liberty and Zimmerman, 1986). The study by Habib, Bhuiyan, and Islam (2013) investigates the earnings management practises of financially distressed companies, aiming to understand whether these practises have been affected by the global financial crisis. Focusing on the New Zealander context, the authors highlight that financial distress, expressed through three different measures, provides incentives to managers for earnings manipulation: even though the direction of the earnings management could be either income-increasing or income-decreasing, according to the findings of the study, the latter reports a higher frequency. However, as the authors point out, income-decreasing earnings management practises are just as dangerous as income-increasing ones: both can obscure the companies' true underlying economic performance and present a misleading picture to corporate stakeholders.

According to Beneish (2001), income increasing earnings management practises are widely used more than income decreasing earnings management practises with the intent to conceal substandard performance, which makes managers sell their equity-based wealth at higher prices. Rosner (2003) found that the companies that did not signal distress earlier but actually became insolvent often used income-increasing earnings manipulation practices. On the contrary, the study done by Charitou *et al.* (2007), using 859 bankruptcy-filing

companies in the United States during the period 1986 - 2004 as the sample, has indicated that newly appointed managers are involved in income-decreasing earnings management practises preceding an insolvency. In addition, DeAngelo, DeAngelo, and Skinner (1994) found that managers employ income-reducing earnings manipulation activities through negative abnormal accruals and discretionary write-offs rather than any attempt to inflate reported income.

According to the study conducted by Agrawal and Chatterjee (2015), in India, slightly distressed companies or those in the early stages of becoming distressed businesses apply increasing accrual earnings management techniques, whereas companies that are intensely distressed use decreasing accrual earnings techniques. They noticed that the way managers manipulate income varies with the company's financial situation. As Jaggi and Lee mentioned in 2002, the category of accruals - income growth or income lowering relies on the meticulousness of financial distress. In particular, all previous studies show a close correlation between financial distress and the abuse of accrual earnings. The first hypothesis, then, is as follows:

**H<sub>1</sub>:** Financial distress has a positive effect on the level of accrual earnings manipulation

Nevertheless, just a few research pieces have focused on the effect of financial uncertainty on the manipulation of real earnings. Furthermore, they have demonstrated opposing opinions. Kim, Lisic, and Pevzner (2011) suggest that managers are disproportionately engaged in revenue enhancing real earnings management practises during net worth covenant slack, where borrowers face a higher risk of insolvency. This fact is also consistent with the study carried out by Campa and Camacho-Miñano (2015), which explored the effects of financial distress on accrual earnings management and real earnings management. Small and medium-sized private businesses have been found to engage in exhaustively rising pre-insolvency real earnings manipulation practises and moderately, where the extent of financial pressure is significant, to improve accrual earnings manipulation. This is due to the unconvincing backdrop that managers face when the company is in a less financially troubled position. In addition, Zang (2012) has observed that businesses handle real earnings more aggressively at the early stages of financial difficulty than accrual earnings manipulation. Those firms can deviate from optimum market practises due to the strategic advantage they encounter in the industry. Gunny (2010) admits that actual (real) operations' coercion is expensive due to economic implications and claims that the advantages of implementing real earnings control outweigh the costs if the earnings goals are fulfilled. Furthermore, in 2016, Nagar and Sen clarified that firms employ the actual manipulation of earnings by reducing discretionary spending in the preliminary phase of financial distress. In contrast, they use accrual earnings management techniques to overly control the degree of financial distress. This opinion is reinforced by Muljono and Kim (2018) and has demonstrated that actual earnings manipulation is dangerous owing to its long-term financial consequences for firms in severe distress. The second hypothesis reads as follows:

**H<sub>2</sub>:** The effect of financial distress on the magnitude of real earnings control is negative

With consideration of inconclusive evidence on the association seen between financial crisis and earnings manipulation strategies, previous research in the Sri Lankan context seemed to focus only on areas such as the effects of financial turmoil on the financial performance of the non-bank financial firms listed in Sri Lanka (Madhushani and Kawshala, 2018) and the connection between financial leverage and financial distress on the Colombo Stock Exchange's listed banks in Sri Lanka (Abdullah and Ansar, 2013). This research is thus the first form of research to examine in detail the influence of financial uncertainty on accrual earnings exploitation and the distortion of real earnings operations in the context of Sri

Lanka. Consequently, the study contributes to the local literature and assists investors and policymakers in effective decision making.

## **Methodology**

### **Data and sample**

Secondary data is used in the analysis. Data are collected from the Colombo Stock Exchange (CSE) database. The sample population is composed of companies listed in the CSE covering the period of 2012 to 2017. The financial year 2012 was considered since the data set included some figures calculated using the previous year's values. Before the 2012 period, the data is excluded from consideration due to the unavailability of the CSE website reports as the adoption of Sri Lankan Financial Reporting Standards (SLFRS) came into effect on 01<sup>st</sup> January 2012. Since the secondary data's inherent limitations are known it is assumed that the companies adopt the same accounting methods and prepare the financial statements accordingly. This study is only considering the period after the new changes were adopted in the Sri Lankan accounting standard. This research was carried out during 2018-2019, hence the data was collected only until 2017. The Covid-19 pandemic has had a huge impact on the Sri Lankan economy, so the trends may not be an accurate representation of what has happened in the past period; hence, the period after 2019 is excluded from consideration. Besides, the following are excluded from the sample:

- Listed bank, finance, and insurance companies due to their nature of being highly regulated
- Firm-year findings, which comprise fewer than four firm-year observations
- Companies that have changed their financial reporting period, and do not have consistency in reporting (from March to December or December to March) during the sample period

Finally, data are capped at 1% of the outliers to reduce the noise. After all the exclusions mentioned above, this research's final suitable sample consists of 15 sectors, 207 companies, and 1,035 firm-year observations from 2013 to 2017.

### **Model specifications and method of analysis**

#### *Z-score model of Altman*

The first Z-score model to estimate financial distress was initially proposed by Altman in 1968. The 66 United States (US) manufacturing companies are tested initially to see the practicality of the model. Over the years, the creator (Altman, *et al.*, 1998; Altman, *et al.*, 2013) has updated the Z-score model to change the criteria and adjust the model for private businesses as well as in various situations other than the US. Altman, Hartzell, Heine, and Peck mainly derived the model in 1998 for businesses operating in developing countries. Therefore, the most appropriate model for forecasting the financial distress of firms operating in Sri Lanka is chosen for this analysis. In addition, past scholars (Samarakoon and Hasan, 2003; Gunathilaka, 2014) prove that Altman models show greater precision in forecasting Sri Lankan companies' financial distress.

The independent variable (Financial distress) was evaluated in this analysis by adopting the Altman Z-score model (1998). A corporation is known as distressed if its Z-score is lower than 1.1. Further, between 1.1 and 2.6 is considered to be the range where bankruptcy cannot be predicted, while more than 2.6 is considered to be the range where bankruptcy is not likely to occur. Thus, the Z-score model is as follows:

$$Z = 3.25 + 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4 \quad (1)$$

**Table I: Altman Z-score Model**

Variable Name	Definition
Z	Overall index
X <sub>1</sub>	Working capital/Total assets
X <sub>2</sub>	Retained earnings/Total assets
X <sub>3</sub>	Earnings before interest and taxes/Total assets
X <sub>4</sub>	Book value of equity/Book value of total liabilities

Source: Adapted from Altman Z-score model. Retrieved from <https://strategiccfo.com/z-score-model/>

*Measurement model of accrual earnings management*

Accrual-based earnings management is calculated using discretionary accruals adopted from Dechow, Sloan, and Sweeney's Modified Jones model (1995). Total accrual (TA<sub>it</sub>) is considered a condition for regression to be performed. All factors are scaled by prior year total assets (A<sub>it-1</sub>) to control heteroscedasticity.

$$TA_{it}/A_{it-1} = \beta_0 + \beta_1[1/A_{it-1}] + \beta_2[\Delta REV_{it}/A_{it-1} - \Delta REC_{it}/A_{it-1}] + \beta_3[PPE_{it}/A_{it-1}] + \varepsilon_{it} \quad (2)$$

This research then followed a cash flow approach to calculate total accruals (TA) since this methodology was considered ascendant in the balance sheet system (Hribar and Collins, 2002). Further, this is consistent with prior studies by Alves (2012), Idris (2012), and Alzoubi (2016). According to the cash flow approach, the TA is the discrepancy between net profits before extraordinary items (NI) and cash flow from operations (OCF), as seen in the following formula.

$$TA_{it} = NI_{it} - OCF_{it} \quad (3)$$

Total accrual is used every year by regressing each sector to obtain the abnormal values of discretionary accruals by extracting the coefficients from equation 2:

$$NDA_{it}/A_{it-1} = \beta_0 + \beta_1[1/A_{it-1}] + \beta_2[\Delta REV_{it}/A_{it-1} - \Delta REC_{it}/A_{it-1}] + \beta_3[PPE_{it}/A_{it-1}] + \varepsilon_{it} \quad (4)$$

The residual obtained from the equation below is considered the absolute discretionary accruals.

$$ABSDA_{it} = ABS[TA_{it} - NDA_{it}] \quad (5)$$

**Table II: Variables used in the Modified Jones Model**

Variable Name	Definition
TA <sub>it</sub>	Total accruals for the firm i in the year t
NDA <sub>it</sub>	Non-discretionary accruals for the firm i in the year t
ABSDA <sub>it</sub>	Absolute discretionary accruals for the firm i in the year t
A <sub>it-1</sub>	Total assets for the company i in the year t-1
β <sub>0</sub>	Intercept
β <sub>1</sub> , β <sub>2</sub> , β <sub>3</sub>	Coefficients
ΔREV <sub>it</sub>	Change in revenue for the firm i calculated as REV <sub>it</sub> – REV <sub>it-1</sub>
ΔREC <sub>it</sub>	Change in receivables for the firm i calculated as REC <sub>it</sub> – REC <sub>it-1</sub>
PPE <sub>it</sub>	Property, plant, and equipment for the firm i in the year t
ε <sub>it</sub>	Residual for the firm i in the year t

Source: Adapted from *Detecting Earnings Management* (p.9), by P.M. Dechow, R.G. Sloan, and A.P. Sweeney, 1995, New York: American Accounting Association. Retrieved from [http://lib.cufe.edu.cn/upload\\_files/other/4\\_20140516025030\\_9.pdf](http://lib.cufe.edu.cn/upload_files/other/4_20140516025030_9.pdf)

*Measurement model of real earnings management*

Real earnings management is calculated by following the measurement introduced by Roychowdhury (2006). This model included both abnormal production costs and abnormal discretionary costs. He concludes that earnings control is the desired method of deviating from standard corporate procedures to direct earnings. It calculates anomalies through abnormalities in operating cash flows, manufacturing costs, and discretionary expenditures. Following Zang (2012), this analysis utilises abnormal manufacturing costs and abnormal discretionary expenditures. The models utilised in this research are as follows:

$$PROD_{it}/A_{it-1} = \beta_0 + \beta_1[1/A_{it-1}] + \beta_2[S_{it}/A_{it-1}] + \beta_3[\Delta S_{it}/A_{it-1}] + \beta_4[\Delta S_{it-1}/A_{it-1}] + \epsilon_{it} \quad (6)$$

$$DISEXP_{it}/A_{it-1} = \beta_0 + \beta_1[1/A_{it-1}] + \beta_2[S_{it-1}/A_{it-1}] + \epsilon_{it} \quad (7)$$

All variables are divided by prior year total assets ( $A_{it-1}$ ) to control for heteroscedasticity.

**Table III: Roychowdhury's (2006) Models**

Variable Name	Definition
$PROD_{it}$	$COGS_{it} + \Delta INV_{it}$ or production costs for the firm $i$ in the year $t$
$DISEXP_{it}$	Discretionary expenses for the firm $i$ in the year $t$
$\beta_0$	Intercept
$\beta_1 - \beta_4$	Coefficients
$A_{it}$	Total assets for the firm $i$ at the end of period $t$
$A_{it-1}$	Total assets for the firm $i$ in the year $t-1$
$S_{it}$	Total sales for the firm $i$ in the year $t$
$S_{it-1}$	Total sales for firm $i$ in the year $t-1$
$\Delta S_{it}$	Change in sales for the firm $i$ calculated as $S_{it} - S_{it-1}$
$\Delta S_{it-1}$	Change in sales for the firm $i$ calculated as $S_{it-1} - S_{it-2}$
$\epsilon_{it}$	Residual for the firm $i$ in the year $t$

Source: Adapted from *Earnings management through real activities manipulation* (p.345) by S. Roychowdhury, 2006, Cambridge, *Journal of Accounting and Economics: Massachusetts Institute of Technology*.

**Control variables of the study**

The primary effect on earnings management is attributed to company-specific variables. Company-specific variables such as return on investment, leverage, size, market-to-book ratio, and operating cash flows are being used as control variables in this analysis to control the impact of these variables. Klein (2002) and Chen, Elder, and Hsieh (2007) offer evidence that businesses with higher (lower) profitability have less (or more) interest in earnings management practices. Januarsi, Badina, and Febrianti (2014) and Bisogno and De Luca (2015) claim that debt triggers higher levels of control over accrual profits since, to secure still more loans, heavily leveraged firms need to demonstrate strong financial results. Others (Iturriaga and Hoffmann, 2005; Nikoomaram, et al., 2012) also claimed the contrary, explaining that heavily leveraged firms are limited to higher-income control stages because their financial position attracts more vigorous attention from creditors. Zamri, Rahman, and Isa (2013) explain that the opposite relationship exists between leverage and real earnings management, as they are constrained from performing earnings management activities by the financial status of heavily leveraged firms. Also, organisational size is one of the significant variables impacting the control of profits. According to Zamri et al. (2013), more

prominent firms prefer to handle real earnings less because large businesses are now experiencing economies of scale and economies of reach, so they withdraw from operating in real earnings management. Bisogno and De Luca (2015) suggest, on the other hand, that smaller firms are interested in higher control of accrual earnings since they are not much bothered about disclosure standards and guidelines. Growing firms are more concerned with earnings adjustment, as such firms are expected to achieve their earnings target (Roychowdhury, 2006). Campa and Camacho-Miñano (2015) observed a lower level of cash flows from activities when earnings are higher.

The regression results using the study's regression models were subsequently collected using the most suitable panel data model (fixed effect). The effect of financial distress on the management of accrual earnings (H<sub>1</sub>) is analysed using the following model:

$$AEM_{i,t} = \beta_0 + \beta_1 Z_{i,t} + \beta_2 ROA_{i,t} + \beta_3 LEV_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 MTB_{i,t} + \beta_6 CFO_{i,t} + \varepsilon_{i,t} \quad (\text{Model 1})$$

**Table IV: Variables Used in Model 1**

Variable Name	Definition
AEM <sub>i,t</sub>	AEM, as measured by the absolute value of abnormal discretionary accruals, for the firm i in the year t
β <sub>0</sub>	Intercept
β <sub>1</sub> – β <sub>6</sub>	Coefficients
Z <sub>i,t</sub>	Financial distress, as measured by Altman Z-score, for the firm i in the year t
ROA <sub>i,t</sub>	Return on assets, as measured by net income scaled by lagged total assets, for the firm i in the year t
LEV <sub>i,t</sub>	Leverage ratio, as measured by total debt scaled by total assets, for the firm i in the year t
SIZE <sub>i,t</sub>	Size, as measured by the natural logarithm of total assets, for the firm i in the year t
MTB <sub>i,t</sub>	Market-to-book ratio, as measured by the market value of equity divided by the book value of equity, for the firm i in the year t
CFO <sub>i,t</sub>	Operating cash flows, as measured by operating cash flows scaled by total assets, for the firm i in the year t
ε <sub>it</sub>	Residual for the firm i in the year t

The relationship between financial distress and the management of actual earnings (H<sub>2</sub>) is then evaluated using the following model:

$$REM_{i,t} = \beta_0 + \beta_1 Z_{i,t} + \beta_2 ROA_{i,t} + \beta_3 LEV_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 MTB_{i,t} + \beta_6 CFO_{i,t} + \varepsilon_{i,t} \quad (\text{Model 2})$$

**Table V: Variables Used in Model 2**

Variable Name	Definition
REM <sub>i,t</sub>	Management of real earnings, as determined by the absolute value of the abnormal cost of production and the abnormal discretionary cost of equations (6) and (7), for business i in year t
Z <sub>i,t</sub>	Financial distress for the business i in the year t, as calculated by Altman Z-score,
ROA <sub>i,t</sub>	Return on assets for the business i for the year t, as calculated by net profits scaled by lagged total assets
LEV <sub>i,t</sub>	Leverage ratio for the business i as calculated by total debt scaled by total assets, in the year t

SIZE <sub>i,t</sub>	Size of the business <i>i</i> in the year <i>t</i> , as determined by the natural logarithm of total assets
MTB <sub>i,t</sub>	Market-to-book ratio, as measured by the market value of equity divided by the book value of equity, for the firm <i>i</i> in the year <i>t</i>
CFO <sub>i,t</sub>	Operating cash flows, as measured by operating cash flows scaled by total assets, for the firm <i>i</i> in the year <i>t</i>
ε <sub>it</sub>	Residual for the firm <i>i</i> in the year <i>t</i>

---

## **Findings and Discussion**

Findings of the analysis, along with related statistics, are discussed in depth in section 4. Descriptive statistics, correlation analysis findings, and the unit root test are stated commensurately in Appendices 1, 2, and 3.

According to the selected sample descriptive statistics, the mean of discretionary accruals is positive (0.071) with a maximum of 1.119 and a minimum of 7.53E-05, reflecting that Sri Lankan listed firms engage in income-increasing accrual earnings management, followed by a very low standard deviation (0.094). Further, the mean value is higher in comparison to the results recorded in other developing countries such as Jordan (Alzoubi, 2016), and Malaysia (Rahman and Ali, 2006), but is lower than the 0.22 recorded by Chung and Kallapur (2003) and the 0.62 recorded by Rusmin (2010) for the developed countries of the US and Singapore, respectively. The results further illustrate that most of the listed firms in Sri Lanka engage in real earnings management practices, indicating a mean value of 41.9% with a low standard deviation of 0.531, compared to accrual earnings management practices with a low mean value of 7%. This provides evidence that listed companies in Sri Lanka do manage their earnings. The evidence is supported by the results of Fernando and Kelum (2011), who studied whether quoted public companies in Sri Lanka engage in earnings management practices and concluded that the listed companies in Sri Lanka did show indications of earnings management. Furthermore, the mean value of Altman's Z-Score of the selected sample firms is positive (8.627) and greater than 2.6 which means that the selected sample firms are on an average are considered as firms in which bankruptcy is not likely to occur. There is also a wide range of difference that exists between sample firms because the standard deviation is high (5.078).

There is an indication of the low profitability of the sample firms during the study period, where the mean value of return on assets is very low at 6.6%. This indicates that the sample firms are less effective in utilising their assets in generating earnings. The difference in return on assets ranged from profitability of 0.792 (maximum value) to a loss of -0.273 (minimum value) for the listed companies in Sri Lanka. This is consistent with the findings of Manawaduge, De Zoysa, and Rudkin (2009), which also record an average ROA of 6.68% for listed companies in Sri Lanka based on the study conducted during the financial year 2007/2008. This indicates a great disparity in profitability among the listed firms. When considering the measure of leverage ratio, which indicates a mean value of 0.404, it implies that only around 40% of total assets are financed through debt by listed firms in Sri Lanka, with a low standard deviation of 0.294. The median value highlights that 50% of the samples operate with a gearing of less than 40% of their total assets. These imply that most companies operate at a lower gearing. Thus, the use of debt by Sri Lankan listed firms is quite low. According to the empirical results obtained by Randeniya, Jayathilake, Dayarathna, Manapurawa, Madushanka, Vijitharathna, Gunasingha, Tennakoon, Chathuranga, and Lakmal (2018) during the period 2011-2016 considering manufacturing firms in Sri Lanka, the mean for leverage was 23%. This shows the leverage among the Sri

Lankan listed manufacturing companies is low, further supporting the leverage ratio findings of this study. Prior literature highlights that mean leverage in France (Piot and Janin, 2007), Portugal (Alves, 2013) and Singapore (Chia, Lapsley, and Lee, 2007) are much higher compared to Sri Lanka. This indicates that most public listed companies in Sri Lanka align their capital structure with a higher weighting to equity than predominance to debt sources. This is consistent with the claim made by Samarakoon (1999) that the use of debt financing is much lower in Sri Lanka, due to the majority of family-owned businesses being listed on the Colombo Stock Exchange.

The mean value of the listed firm’s size is 15.050, with a range of 10.973 to 18.776. Also, it should be noted that the mean of the market to book ratio is equal to 2.832, which means that the market value of equity represents 2.832 of the book value of equity and is followed by a very high standard deviation (10.647). This implies that the market to book ratio varies widely across the sample firm. The analysis indicates a maximum market value of 124 times the book value of equity. Further, there is no company within the sample with a negative market to book value, unlike what was reported in Habbash (2010) and Lin, Li, and Yang (2006). This indicates that no company operates with a negative equity balance sheet, where total liabilities exceed total assets. This is also corroborated by the lower level of leverage reported earlier. When considering the operating cash flows scaled by total assets, it indicates a mean value of 0.065 ranging from -0.338 to 0.803, which elaborates low quality of earnings among listed firms in Sri Lanka where the efficiency at using company assets in generating cash from sales and customers is less. This is consistent with the results of Taiwan (Chen et al., 2005), Iran (Gerayli, Yanesari, and Ma’atoofi, 2011) and Turkey (Yaşar, et al., 2013). However, this is much less significant compared to findings reported in Singapore (Rusmin, 2010) and France (Piot and Janin, 2007). Additionally, this result further indicates that the most volatile variable among the examined variables is the market to book ratio with a standard deviation of 10.647, followed by financial distress with a standard deviation of 5.078, while the least volatile (most stable) variable is the AEM with a standard deviation of 0.094, followed by ROA with a standard deviation of 0.113.

Next, independently, the two sets of proposed models were assessed. The diagnostic tests followed the assumptions required for panel regression to be carried out. The correlation between the variables was minimal, indicating the non-existence of strong or ideal pair-wise correlations between the variables that would indicate multicollinearity, which is asserted if the value is less than ten by using the variance inflation factor (VIF). Centered on the PP-Fisher Chi-square test, all the variables are stationary. Durbin Watson statistics verify the non-existence of serial correlation. No concern with heteroscedasticity is dependent on the estimator procedure of Newey-West (1987). In particular, the Fixed Effect (FE) or Random Effect (RE) panel regression models that should be run are decided based on the Hausman Specification Test.

**Accrual earnings management and financial distress**

Table VI shows fixed effect regression findings for AEM after testing for results of the Hausman test. The null hypothesis of this test, which is that the random effect model is chosen, is dismissed at a 1% significance level, according to the findings, reflecting that the fixed effect model is the best model for AEM regression testing.

**Table VI: Hausman Test**

Test Summary	Chi-sq. Statistic	Chi-sq. d.f.	Probability
Cross-section random	99.952	6	0.000

*Note: Significant at 1% level*

Table VII reports the findings of model 1 panel regression (fixed effect) that elucidates the effects of financial distress on AEM. The model's validity is determined by a 1% degree of relevant F statistics and a modified R<sup>2</sup> coefficient of 0.573. This AEM model's VIF value is 2.959, which is less than 10, and this shows the absence of multicollinearity. In comparison, the Durbin-Watson numbers used to assess the presence of autocorrelation are also below 2.5, which shows the safe range. Following the findings, the key result suggests that financially distressed firms conduct a higher control rate of accrual earnings and vice versa. When distress is comparatively more significant when they have lost their competitive financial gains within the industry, businesses turn to accrual earnings control, so they are prohibited from deviating from their most efficient business activities. However, the findings suggest a statistically negligible association between financial hardship and AEM, according to Table VII. The results of Habib, Bhuiyan, and Islam (2013) and Irawati, Sadalia, and Marlina (2018) are backed by this.

**Table VII: Results of Panel Regression Analysis for AEM (Fixed Effect Estimation)**

Variable	Coefficient	Std. Error	t-Statistic
Intercept	-0.658***	0.247	-2.665
Z	0.0002	0.0001	1.293
ROA	0.853***	0.038	22.237
LEV	0.014	0.012	1.144
SIZE	0.044**	0.016	2.753
MTB	-0.001	0.002	-0.703
CFO	-0.059	0.040	-1.473
R <sup>2</sup>	0.662		
Adjusted R <sup>2</sup>	0.573		
F-statistic	7.480***		
Durbin-Watson	2.428		

Note: \*\*Significant at 5% level; \*\*\*Significant at 1% level

ROA and size have a significant positive impact on AEM at 5% and 1% levels among the chosen control variables. The favourable relationship between ROA and AEM suggests that the more profitable the companies are, the more discretionary accruals there are in the Sri Lankan context. To keep their records high and to be more successful, managers of profitable companies should be required to indulge in earnings management. This result is endorsed by Ryu and Ji (2015). In comparison, size indicates that larger companies have a higher contribution to accrual earnings control relative to smaller businesses in Sri Lanka. This evidence could be attributed to the fact that large corporations are classified and tracked by shareholders or authorities. Due to the greater availability of information at a lower cost, larger firms are more likely than small businesses to engage in opportunistic behaviour and fraudulent accounting practices. Although leverage, operational growth, and cash flow have an insignificant correlation with AEM. However, leverage has a positive coefficient and indicates that businesses have more debts tightly related to accrual earnings management's actions to hide their actual results in Sri Lanka. This outlook is consistent with previous research (Alves, 2013; Alzoubi, 2016). Higher growth businesses and more substantial cash flow firms are predicted, subject to lower accrual earnings accounting, suggesting a lower earnings management practise (DeFond and Jiambalvo, 1994; Habbash, 2010).

### **Real earnings management and financial distress**

Table VIII displays the Hausman test findings and shows that the significant chi-square value favours the fixed effect model over the random effect model.

**Table VIII: Hausman Test**

Test Summary	Chi-sq. Statistic	Chi-sq. d.f.	Prob.
Cross-section random	6.172	6	0.040

*Note: Significant at 5% level*

As per Table IX, the model's validity is established at a 1% level by substantial F statistics. The modified R<sup>2</sup> coefficient is 0.739, which reveals that all the model's explanatory variables collectively describe the magnitude of the 73.9% difference in the control of actual earnings. This REM model's VIF value is 5.181, which is less than 10, and this shows the absence of multicollinearity. Furthermore, the Durbin-Watson numbers are 1.861, suggesting a lack of autocorrelation.

**Table IX: Results of Panel Regression Analysis for REM (Fixed Effect Estimation)**

Variable	Coefficient	Std. Error	t-Statistic
Intercept	2.781**	1.250	2.225
Z	-0.013**	0.005	-2.347
ROA	2.233***	0.262	8.493
LEV	-0.056	0.075	-0.747
SIZE	-0.150*	0.083	-1.813
MTB	-0.005	0.008	-0.601
CFO	-0.362*	0.196	-1.843
R <sup>2</sup>	0.807		
Adjusted R <sup>2</sup>	0.739		
F-statistic	11.901***		
Durbin-Watson	1.861		

*Note: \*Significant at 10% level; \*\*Significant at 5% level; \*\*\*Significant at 1% level*

Similar to the predicted performance, financial instability is favourably correlated with REM, which is substantial at the 5% point, based on table IX above. Subsequently, financially troubled Sri Lankan companies are less able to handle actual earnings, and vice versa. According to Zang (2012) and Joosten (2012), since more unsatisfactory financial conditions do not enable them to deviate from optimum market practices, troubled businesses conduct lower levels of real earnings management. Joosten (2012) also indicates that actual earnings management is carried out to reach short-term goals in comparatively healthy circumstances.

The substantial positive relationship between ROA and actual earnings management at a 1% level indicates that the more profitable firms are, the more irregular production and discretionary expenditures are prevalent in the sector. To keep their records high and be more competitive in the strategic labour market, Sri Lankan managers of successful companies are urged to participate in real earnings management. This evidence is supported by Ryu and Ji (2015). Leverage indicates a negative sign for REM, which is supported by the suggestion of Iturriaga and Hoffmann (2005) that a high leverage ratio within a company restricts the flexibility for managers to manage real earnings because it requires more monitoring. Firm size shows a marginally negative relationship with REM at 10%, consistent with Zamri et al. (2013) which explained that larger firms enjoy economies of scale and have fewer incentives to manage earnings upward..

Similarly, operating cash flow is still slightly negative. Consequently, when firms have low operational cash flow ratios, they attempt to manipulate their activities to achieve the optimal amount of revenue that masks liquidity concerns. This result further confirms the

findings of Abdul Rauf, Johari, Buniamin, and Abd Rahman (2012) and Sukeecheep, Yarram, and Al Farooque (2013). Oppositely, leverage and growth show insignificant coefficient values and lose their relationship with REM.

### **Testing of hypothesis**

**Table X: Hypothesis Analysis**

Hypothesis	p-value Significance	Decision
H <sub>1</sub>	Insignificant	Not Supportive
H <sub>2</sub>	Significant	Supportive

In general, the findings suggest that financial instability and AEM have a statistically negligible relationship in Sri Lanka. However, the results demonstrated the study's first theory that there is a favourable connection between the extent of financial distress and the degree of accrual earnings control. However, at a 5% level, the results revealed that financially struggling businesses perform at lower real earnings management levels and vice versa. Findings confirm the second research hypothesis of a strong connection between the level of financial distress and the severity of actual earnings control in Sri Lankan firms.

### **Conclusion**

This paper analysed financial distress's influence on earnings management's two major approaches: real earnings management and accrual earnings management for firms listed on the Colombo Stock Exchange over five years (2013-2017). The key finding of the analysis is consistent with the predicted findings that, in the sense of Sri Lanka, healthy firms (less troubled companies) perform considerably greater magnitude of real earnings management and vice versa. This result is proved earlier by Zang (2012) and Joosten (2012). Accordingly, they revealed that real earnings practises are more when firms have a lower level of distress, since firms are allowed to deviate from optimum market operations as they are in a healthier financial condition. Joosten (2012) also indicates that actual earnings control is achieved to reach short-term expectations in comparatively healthier circumstances. However, as distress is comparatively greater when distressed firms have missed their strategic monetary benefits inside the industry, firms turn to accrual earnings control because they are discouraged from deviating from their most efficient company activities.

In summary, the magnitude of real earnings management has been shown to have a strong negative relationship with financial distress, whereas the magnitude of accruals earnings management has a strong positive relationship. As a result, the larger the scale of real profits management achieved by managing production costs and discretionary spending, the healthier the organization. The scale of accruals and earnings management, on the other hand, is increased by controlling the discretionary component of accruals, the worse the company's financial condition. The phenomenon can be interpreted in terms of the concept that a company's ability to stray from ideal business practises in order to meet profit targets increases with its level of health.

Early identification of financial pressure is also an appropriate starting point for improved control and practises (Wruck 1990; Whitaker, 1999). This research paper's findings have many implications for listed companies operating in Sri Lanka and other emerging market economies, particularly in South Asia. Furthermore, this analysis will make it easier for investors to make smarter investment choices for firms facing financial difficulties. Furthermore, the results have ramifications for analysts who issue estimates based on

projected earnings; lenders can hide their real success as troubled firms; and regulators, as the misclassification of income statement products, is a breach of accounting standards.

When interpreting the conclusions specific to related countries like Sri Lanka, certain drawbacks that this study's consumers must be aware of are considered, for the research is limited to five years. Besides, it is believed that all non-financial entities practise the same accounting standards. A cross-country study of the relationship between financial distress and earnings management practises may be quite useful, and the contrast between developed countries will illustrate the critical gaps in management behaviour in various contexts.

## **Appendices**

### **Appendix A. Descriptive Statistics**

Variable	Mean	Median	Maximum	Minimum	Std.Dev.
REM	0.419	0.331	2.928	-0.153	0.531
AEM	0.071	0.048	1.119	7.53E-05	0.094
Z	8.627	7.653	32.069	-1.165	5.078
ROA	0.066	0.058	0.792	-0.273	0.113
LEV	0.404	0.398	5.114	0.037	0.294
SIZE	15.050	15.170	18.776	10.973	1.279
MTB	2.832	0.975	124.466	0.020	10.647
CFO	0.065	0.057	0.803	-0.338	0.125

### **Appendix B. Correlation Analysis**

Variable	Z	ROA	LEV	SIZE	MTB	CFO	REM	AEM
Z	1.000							
ROA	0.249	1.000						
LEV	-0.520	-0.035	1.000					
SIZE	-0.152	0.166	0.143	1.000				
MTB	0.084	0.344	0.009	0.137	1.000			
CFO	0.122	0.596	0.005	0.155	0.236	1.000		
REM	0.014	0.176	0.138	-0.046	0.175	0.101	1.000	
AEM	-0.075	0.253	0.068	-0.049	0.088	0.095	0.075	1.000

### **Appendix C. Unit root analysis: PP - Fisher Chi-square**

Variable	t - Statistics	p - value
Z	742.708	0.0000
ROA	731.089	0.0000
LEV	1053.59	0.0000
SIZE	891.818	0.0000
MTB	960.505	0.0000
CFO	1025.20	0.0000
REM	486.767	0.0000
AEM	573.745	0.0000

*Note: Significant at 1% level*

## References

- Abdul Rauf, F. H., Johari, N. H., Buniamin, S. and Abd Rahman, N. R., 2012. The Impact of Company and Board Characteristics on Earnings Management: evidence from Malaysia. *Global Review of Accounting and Finance*, September, 3(2), pp. 114-127.
- Abdullah, M. and Ansar, M., 2013. *A study on financial leverage and financial distress in the listed banks on Colombo stock exchange in Sri Lanka*, Oluvil: Faculty of Management and Commerce SEUSL.
- Agrawal, K. and Chatterjee, C., 2015. Earnings Management and Financial Distress: evidence from India. *Global Business Review*, 22 September, 16(5\_suppl), pp. 140-154. doi: 10.1177/0972150915601928.
- Altman, E., Danovi, A. and Falini, A., 2013. Z-score Models' Application to Italian Companies Subject to Extraordinary Administration. *Journal of Applied Finance (Formerly Financial Practice and Education)*, 23(1), pp. 128-137.
- Altman, E., Hartzell, J. and Peck, M., 1998. Emerging market corporate bonds — a scoring system. *Emerging Market Capital Flows*, Volume 2, pp. 391-400. doi: 10.1007/978-1-4615-6197-2\_25.
- Alves, S., 2012. Ownership Structure and Earnings Management: evidence from Portugal. *Australasian Accounting, Business and Finance Journal*, 6(1), pp. 57-74.
- Alves, S., 2013. The impact of audit committee existence and external audit on earnings management: Evidence from Portugal. *Journal of Financial Reporting and Accounting*, 11(2), pp. 143-165. doi: 10.1108/JFRA-04-2012-0018.
- Alzoubi, E. S. S., 2016. Ownership structure and earnings management: evidence from Jordan. *International Journal of Accounting & Information Management*, 24(2), pp. 135-161. doi: 10.1108/IJAIM-06-2015-0031.
- Alzoubi, E. and Selamat, M., 2012. The Effectiveness of Corporate Governance Mechanisms on Constraining Earnings Management: Literature Review and Proposed Framework. *International Journal of Global Business*, Volume 5, pp. 17-35.
- Arnold, B. V. and De Lange, P. A., 2004. Enron: an examination of agency problems. *Critical Perspectives on Accounting*, 15(6-7), pp. 751-765. doi: 10.1016/j.cpa.2003.08.005.
- Barton, J. and Simko, P., 2002. The balance sheet as an earnings management constraint. *The Accounting Review*, 77(s-1), pp. 1-27.
- Bartov, E., Givoly, D. and Hayn, C., 2002. The rewards to meeting or beating earnings expectations. *Journal of Accounting and Economics*, 33(2), pp. 173-204. doi: 10.1016/S0165-4101(02)00045-9.
- Becker, C., Defond, M., Jiambalvo, J. and Subramanyam, K., 1998. The Effect of Audit Quality on Earnings Management. *Contemporary Accounting Research*, 15(1), pp. 1-24. doi: 10.1111/j.1911-3846.1998.tb00547.x.

- Beneish, M., 2001. Earnings management: A perspective. *Managerial Finance*, 27(12), pp. 3-17.
- Bisogno, M. and De Luca, R., 2015. Financial Distress and Earnings Manipulation: evidence from Italian SMEs. *Journal of Accounting and Finance*, 4(1), pp. 42-51.
- Callao, S., Jarne, J. and Wroblewski, D., 2014. The development of earnings management research: A review of literature from three different perspectives. *Zeszyty Teoretyczne Rachunkowosci*, 79(135), p. 135.
- Callen, J., Robb, S. W. G. and Segal, D., 2008. Revenue Manipulation and Restatements by Loss Firms. *A Journal of Practice & Theory*, 27(2), pp. 1-29. doi: 10.2308/aud.2008.27.2.1.
- Campa, D. and Camacho-Miñano, M. M., 2015. The impact of SME's pre-bankruptcy financial distress on earnings management tools. *International Review of Financial Analysis*, Volume 42, pp. 222-234. doi: 10.1016/j.irfa.2015.07.004.
- Carcello, J. V. and Palmrose, Z. V., 1994. Auditor Litigation and Modified Reporting on Bankrupt Clients. *Journal of Accounting Research*, Volume 32, pp. 1-30. doi: 10.2307/2491436.
- Charitou, A., Lambertides, N. and Trigeorgis, L., 2007. Earnings Behaviour of Financially Distressed Firms: The Role of Institutional Ownership. *Abacus*, 43(3), p. 271–296.
- Chen, K. Y., Elder, R. J. and Hsieh, Y. M., 2007. Corporate Governance and Earnings Management: the implications of Corporate Governance Best-practice Principles for Taiwanese Listed Companies. *Journal of Contemporary Accounting & Economics*, 3(2), pp. 73-105. doi: 10.1016/S1815-5669(10)70024-2.
- Chen, K., Lin, K. and Zhou, J., 2005. Audit quality and earnings management for Taiwan IPO firms. *Managerial Auditing Journal*, 20(1), pp. 86-104.
- Chi, W., Lisic, L. L. and Pevzner, M., 2011. Is Enhanced Audit Quality Associated with Greater Real Earnings Management?. *Accounting Horizons*, 25(2), pp. 315-335. doi: 10.2308/acch-50082.
- Chia, Y., Lapsley, I. and Lee, H., 2007. Choice of auditors and earnings management during the Asian financial crisis. *Managerial Auditing Journal*, 22(2), pp. 177-196.
- Cohen, D. A., Dey, A. and Lys, T. Z., 2008. Real and accrual-based earnings management in the pre- and post-Sarbanes-Oxley periods. *Accounting Review*, 83(3), pp. 757-787. doi: 10.2308/accr.2008.83.3.757.
- Cohen, D. A., Dey, A., Lys, T. Z. and Sunder, S. V., 2007. Earnings announcement premia and the limits to arbitrage. *Journal of Accounting and Economics*, 43(2-3), pp. 153-180. doi: 10.1016/j.jacceco.2007.01.008.
- Cohen, D. A. and Zarowin, P., 2010. Accrual-based and real earnings management activities around seasoned equity offerings. *Journal of Accounting and Economics*, 50(1), pp. 2-19. doi: 10.1016/j.jacceco.2010.01.002.
- DeAngelo, H., DeAngelo, L. and Skinner, J., 1994. Accounting choice in troubled companies. *Journal of Accounting and Economics*, Volume 17, pp. 113-143.

- Dechow, P. M., Sloan, R. G. and Sweeney, A. P., 1995. Detecting Earnings Management. *The Accounting Review*, 70(2), pp. 193-225.
- DeFond, M. L. and Jiambalvo, J., 1994. Debt covenant violation and manipulation of accruals. *Journal of Accounting and Economics*, 17(1-2), pp. 145-176. doi: 10.1016/0165-4101(94)90008-6.
- Edirisinghe, A., 2015. *Corporate Governance of Banks: a critical analysis of Sri Lankan Law and practice*. Ratmalana, Sri Lanka, General Sir John Kotelawala Defence University, pp. 64-72.
- Ettredge, M., Scholz, S., Smith, K. R. and Sun, L., 2010. How Do Restatements Begin? Evidence of Earnings Management Preceding Restated Financial Reports. *Journal of Business Finance & Accounting*, 37(3-4), pp. 332-355. doi: 10.1111/j.1468-5957.2010.02199.x.
- Ewert, R. and Wagenhofer, A., 2005. Economic Effects of Tightening Accounting Standards to Restrict Earnings Management. *The Accounting Review*, 80(4), pp. 1101-1124.
- Fama, E. F., 1980. Agency Problems and the Theory of the Firm. *Journal of Political Economy*, 88(2), pp. 288-307. doi: 10.1016/j.iref.2020.08.007.
- Frankel, R. M., Johnson, M. F. and Nelson, K. K., 2002. The Relation between Auditors' Fees for Nonaudit Services and Earnings Management. *The Accounting Review*, Volume 77, pp. 71-105. doi: 10.2308/accr.2002.77.s-1.71.
- Gastón, S. C., Jarne, J. I. and Wroblewski, D., 2014. The development of earnings management research A review of literature from three different perspectives. *Zeszyty Teoretyczne Rachunkowości*, 79(135), pp. 135-177. doi: 10.5604/16414381.1133395.
- Gerayli, H., Yanesari, M. and Ma'atoofi, A., 2011. Effect of Corporate Governance on Capital Structure: Case of the Iranian Listed Firms. *European Journal of Economics*.
- Gordon, M. J., 1971. Towards a theory of financial distress. *The Journal of Finance*, 26(2), pp. 347-356. doi: 10.1111/j.1540-6261.1971.tb00902.x.
- Graham, J. R., Harvey, C. R. and Rajgopal, S., 2005. The economic implications of corporate financial reporting. *Journal of Accounting and Economics*, Volume 40, pp. 3-73. doi: 10.1016/j.jacceco.2005.01.002.
- Gunathilaka, C., 2014. Financial Distress Prediction: a comparative study of Solvency Test and Z-score Models with reference to Sri Lanka. *The IUP Journal of Financial Risk Management*, 11(3), pp. 39-51.
- Gunny, K. A., 2010. The Relation Between Earnings Management Using Real Activities Manipulation and Future Performance: evidence from meeting Earnings Benchmarks. *Contemporary Accounting Research*, 27(3), pp. 855-888. doi: 10.1111/j.1911-3846.2010.01029.x.
- Habbash, M., 2010. *The effectiveness of corporate governance and external audit on constraining earnings management practice in the UK*, Durham: Durham University Business School.

- Habib, A., Uddin Bhuiyan, B. and Islam, A., 2013. Financial distress, earnings management and market pricing of accruals during the global financial crisis. *Managerial Finance*, 39(2), pp. 155-180. doi: 10.1108/03074351311294007.
- Hayes, A., 2021. *Financial Distress*. [Online]
- Available at: [https://www.investopedia.com/terms/f/financial\\_distress.asp](https://www.investopedia.com/terms/f/financial_distress.asp)
- Healy, P. and Wahlen, J. M., 1998. A Review of the Earnings Management Literature and its Implications for Standard Setting. *SSRN Electronic Journal*, pp. 1-34. doi: 10.2139/ssrn.156445.
- Healy, P. and Wahlen, J.M., 1999. A Review of the Earnings Management Literature and Its Implications for Standard Setting. *Accounting Horizons*, Volume 13, pp. 365-383. doi: 10.2308/acch.1999.13.4.365.
- Hribar, P. and Collins, D. W., 2002. Errors in Estimating Accruals: implications for Empirical Research. *Journal of Accounting Research*, 40(1), pp. 105-134. doi: 10.1111/1475-679X.00041.
- Hu, Y. C. and Ansell, J., 2005. *Developing Financial Distress Prediction Models: a study of US, Europe and Japan Retail Performance*, UK: University of Edinburgh.
- Idris, M. I. I., 2012. *The Impact of Ownership Structure and External Audit on Accruals and Real Activities Earnings Management in Jordan*, Cheltenham: University of Gloucestershire.
- Irawati, N., Sadalia, I. and Marlina, L., 2018. *Company Performance Predictions By AgencyCost, Earning Management Using the Z-score (Case Study in Indonesia)*. Sumatera Utara, KnE Social Sciences, pp. 1004-1012. doi: 10.18502/kss.v3i10.3443.
- Iturriaga, F. J. L. and Hoffmann, P. S., 2005. Earnings management and internal mechanisms of corporate governance: empirical evidence from Chilean firms. *Corporate Ownership & Control*, 3(1), pp. 17-29. doi: 10.22495/cocv3i1p2.
- Jaggi, B. and Picheng, L., 2002. Earnings Management Response to Debt Covenant Violations and Debt Restructuring. *Journal of Accounting, Auditing & Finance*, 17(4), pp. 295-324. doi: 10.1177/0148558X0201700402.
- Januarsi, Y., Badina, T. and Febrianti, D., 2014. Leverage, Corporate Strategy and Earnings Management: case of Indonesia. *GSTF Journal on Business Review*, 3(2), pp. 54-59. doi: 10.5176/2010-4804\_3.2.309.
- Jayawardhana, A., 2018. IFRS adoption and earnings management in Sri Lanka. *Journal for Research on Business and Social Science*, July, 1(1), pp. 8-13.
- Jensen, M. C. and Meckling, W. H., 1976. Theory of the firm: Managerial behaviour, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), pp. 305-360. doi: 10.1016/0304-405X(76)90026-X.
- Joosten, C., 2012. *Real earnings management and accrual-based earnings management as substitutes*, Tilburg: KMPG.

- Kim, B., Lisic, L. L. and Pevzner, M., 2011. *Debt Covenant Slack and Real Earnings Management*, Virginia: George Mason University. doi: 10.2139/ssrn.1701218.
- Klein, A., 2002. Audit committee, board of director characteristics, and earnings management. *Journal of Accounting and Economics*, 33(3), pp. 375-400. doi: 10.1016/S0165-4101(02)00059-9.
- Kothari, S., Leone, A. and Wasley, C. E., 2005. Performance matched discretionary accrual measures. *Journal of Accounting and Economics*, 39(1), pp. 163-197. doi: 10.1016/j.jacceco.2004.11.002.
- Liberty, S. and Zimmerman, J., 1986. Labor Union Contract Negotiations and Accounting Choices. *The Accounting Review*, 61(4), pp. 692-712.
- Lin, J., Li, J. and Yang, J., 2006. The effect of audit committee performance on earnings quality. *Managerial Auditing Journal*, 21(9), pp. 921-933.
- Lo, K., 2008. Earnings management and earnings quality. *Journal of Accounting and Economics*, pp. 350-357.
- Madhushani, I. and Kawshala, B. H., 2018. The impact of financial distress on financial performance. *International Journal of Scientific and Research Publications*, February, 8(2), pp. 393-405.
- Manawaduge, A., De Zoysa, A. and Rudkin, K., 2009. Performance implication of ownership structure and ownership concentration: evidence from Sri Lankan firms, s.l.: s.n.
- Moradi, M., Salehi, M. and Zamanirad, M., 2015. Analysis of incentive effects of managers' bonuses on real activities manipulation relevant to future operating performance. *Management Decision*, 53(2), pp. 432-450.
- Muljono, D. R. and Kim, T. S., 2018. Impacts of financial distress on real and accrual earnings management. *Jurnal Akuntansi*, 22(2), pp. 222-238. doi: 10.24912/ja.v22i2.349.
- Nagar, N. and Sen, K., 2016. *Earnings Management Strategies during Financial Distress*, Ahmedabad: IIMA.
- Newey, W. and West, K., 1987. A Simple, Positive Semi-Definite, Heteroskedasticity and Autocorrelation Consistent Covariance Matrix. *Econometrica*, 55(3), pp. 703-708.
- Nijam, H. and Jahfer, A., 2016. IFRS adoption and financial reporting quality: a review of evidences in different jurisdictions. *International Letters of Social and Humanistic Sciences*, 31 July, Volume 69, pp. 93-106.
- Nikoomaram, H., Banimahd, B. and Shokri, A., 2012. An Empirical Analysis of Earnings Management Motives in Firms Listed on Tehran Stock Exchange. *Journal of Basic and Applied Scientific Research*, 2(10), pp. 9990-9993.
- Paredes, A. and Wheatley, C., 2017. Real earnings management or "just business". *Journal of Financial Economic Policy*, 9(3), pp. 268-283.
- Piot, C. and Janin, R., 2007. External Auditors, Audit Committees and Earnings Management in France. *The European Accounting Review*, Volume 16, pp. 429-454.

- Platt, H. D. and Platt, M. B., 2002. Predicting corporate financial distress: reflections on choice-based sample bias. *Journal of Economics and Finance*, 26(2), pp. 184-199.
- Rahman, R. A. and Ali, F. H. M., 2006. Board, audit committee, culture and earnings management: Malaysian evidence. *Managerial Auditing Journal*, 21(7), pp. 783-804. doi: 10.1108/02686900610680549.
- Ranjbar, S. and Amanollahi, G. F., 2018. The effect of financial distress on earnings management and unpredicted net earnings in companies listed on Tehran Stock Exchange. *Management Science Letters*, 8(9), pp. 933-938. doi: 10.5267/j.msl.2018.6.015.
- Rogers, J. L. and Stocken, P. C., 2005. Credibility of Management Forecasts. *The Accounting Review*, October, 80(4), pp. 1233-1260. doi: 10.2308/accr.2005.80.4.1233.
- Rosner, R., 2003. Earnings Manipulation in Failing Firms. *Contemporary Accounting Research*, 20(2), pp. 361-408.
- Roychowdhury, S., 2006. Earnings management through real activities manipulation. *Journal of Accounting and Economics*, December, 42(3), pp. 335-370. doi: 10.1016/j.jacceco.2006.01.002.
- Rusmin, R., 2010. Auditor quality and earnings management: Singaporean evidence. *Managerial Auditing Journal*, 25(7), pp. 618-638.
- Ryu, Y. and Ji, S., 2015. *A Study on the impact of foreign investors on earnings management: using investment horizons of foreign investors*, s.l.: International Accounting Research Society.
- Saleh, N. M., Iskandar, T. M. and Rahmat, M. M., 2005. Avoidance of reported earnings decreases and losses: evidence from Malaysia. *Malaysian Accounting Review*, July, 4(1), pp. 25-37.
- Samarakoon, L., 1999. The Ownership Structure of Sri Lankan Companies. *Journal of Management*, Volume 4, pp. 143-157.
- Samarakoon, L. P. and Hasan, T., 2003. Altman's Z-score Models of Predicting Corporate Distress: evidence from the Emerging Sri Lankan Stock Market. *Journal of the Academy of Finance*, Volume 1, pp. 119-125.
- Schipper, K., 1989. Commentary on earnings management. *Accounting Horizons*, Volume 3, pp. 91-102.
- Sukeecheep, S., Yarram, S. and Al-farooque, O., 2013. *Earnings management and board characteristics in Thai listed companies*. Bangkok, Thailand, s.n.
- Tabassum, N., Kaleem, A. and Nazir, M., 2015. Real earnings management and future performance. *Global Business Review*, February, 16(1), pp. 21-34.
- Whitaker, R., 1999. The early stages of financial distress. *Journal of Economics and Finance*, 23(2), pp. 123-132. doi: 10.1007/BF02745946.

- Wruck, K. H., 1990. Financial distress, reorganization, and organizational efficiency. *Journal of Financial Economics*, 27(2), pp. 419-444. doi: 10.1016/0304-405X(90)90063-6.
- Xu, R. Z., Taylor, G. K. and Dugan, M., 2007. Review of Real Earnings Management Literature. *Journal of Accounting Literature*, Volume 26, pp. 1-27.
- Yaping, N., 2005. The Theoretical Framework of Earnings Management. *Canadian Social Science*, 1(3), pp. 32-38. doi: 10.3968/j.css.1923669720050103.004.
- Yaşar, H., Ceylan, M. and Canbilen, A., 2013. Yasar-2013. *International Journal of Electronics*, January.
- Zamri, N., Rahman, R. A. and Isa, S. M., 2013. The Impact of Leverage on Real Earnings Management. *Procedia Economics and Finance*, 7(1), pp. 86-95. doi: 10.1016/S2212-5671(13)00222-0.
- Zang, A. Y., 2012. Evidence on the Trade-off between Real Activities Manipulation and Accrual-based Earnings Management. *The Accounting Review*, 87(2), pp. 675-703. doi: 10.2308/accr-10196.