The Value Relevance of Financial Statements and Stock Price Returns: With Reference to the Companies at Colombo Stock Exchange

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ABSTRACT

Purpose: The study aimed to examine whether the financial statements of the listed companies at the Colombo Stock Exchange are value-relevant and what impact they have on stock price returns.

Methodology: A model based on red flag ratios that have been proven to be possible fraud indicators of falsified financial statements in various contexts was developed and employed. Furthermore, the accruals quality was measured by discretionary and non-discretionary accruals and estimated using the Modified Jones Model (MJM). Data were collected from a sample of 91 non-financial listed companies in Sri Lanka from 2014 to 2018, and panel regression analysis was utilized to achieve the study objectives.

Findings: The majority of the ratios indicated poor financial performance and condition. In contrast, some ratios yielded contradicting results, attesting that financial information disseminated by financial statements of the Sri Lankan context is less value-relevant. The findings revealed that ratios of net profit to total assets and receivables to sales ratios negatively influence stock returns. The ratios of net profits to sales and working capital to total assets, on the other hand, have a positive impact. Moreover, both forms of accruals play a vital role in explaining stock price movements, with non-discretionary accruals becoming increasingly essential. The findings show that earnings variability is determined by both company conditions and managerial interventions, with business conditions appearing to be more critical.

Originality / Value: The study contributes to expanding existing literature by investigating the issues of value relevance of financial statements within the Sri Lankan context, incorporating both red flags and accrual components.

I. Introduction

Financial reporting entails communicating financial and non-financial information to a variety of stakeholders, including shareholders, investors, lenders, banks and other regulatory bodies such as the Inland Revenue Department (IRD), in order for them to make accurate decisions based on financial statements. Financial statements are vital instruments that disclose how a company receives its resources (financing), where and how those resources are employed (investment), and how effectively those resources are deployed (operating profitability) (Subramanyam & Wild, 2009).

Due to the complexity of operationalizing the current corporate setting, ownership, and management appear to be separated, with owners providing funds to maximize their wealth and managers tasked with overseeing business operations. As a result, the owners and the managers have a dual stake in the business entity. Owners are interested in useful and reliable information from a credible source like genuine (true and fair view) financial statements to make profitable investment decisions by assuring their wealth maximization. On the other hand, as employees of the corporate entity, managers are motivated to sustain favorable profits growth because their remuneration and status are intimately linked to earnings numbers (Dimitropoulos & Asteriou, 2009; Kumari, 2015). As the party in charge of controlling or making profitable investment decisions,

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most managers are entitled to compensation based on profits earned by the corporation (proportion of earnings) to recognize their efforts in maximizing the firm's value and future career advancement in their positions based on performance in achieving predetermined corporate earnings targets. Hence, the essence of the value relevance, especially earnings value relevance of financial reports prepared by the management of the corporates, comes into action recently as general users or the stakeholders of the corporates are highly relying on financial statements as a tool of the proper decision-making process. As a result, the current research looked into whether the financial statements of listed firms of the Colombo Stock Exchange (CSE) are value-relevant, as well as their impact on stock prices. The ability of financial statements to summarize valuable information that affects stock price fluctuations and assist investors in appraising the firm's value is referred to as value relevance (Dimitropoulos & Asteriou, 2009; Kumari, 2015).

The generally accepted accounting principles (GAAP) aim to provide financial statements in a true and fair manner. The reality may differ from the anticipation due to the existence of emerging concepts of creative accounting and window dressing. Managers' efforts to manipulate earnings figures for their own benefit are reflected in the concept of creative accounting (Dimitropoulos & Asteriou, 2009) and the techniques used to manipulate financial and non-financial figures in order to make entity appear financially healthier than it is by concealing the true financial picture of the entity for a variety of reasons such as avoiding tax payments, obtaining loans, attracting investments, and so on (Brous et al., 2001; Dechow & Skinner, 2000; Eckbo et al., 2000; Patten & Trompeter, 2003; Shivakumar, 2000 as cited in Dimitropoulos & Asteriou, 2009). These manipulations may cause earning figures to deviate from their original value, misleading market participants and decision-makers about the return-earnings

relationship (Dimitropoulos & Asteriou, 2009).

According to paragraph 4 of 2017 Sri Lankan Auditing Standards (SLAuSs) 240, the auditor's responsibilities relating to fraud in an audit of financial statements, the primary responsibility for preventing and detecting frauds rests with both those charged with entity governance and management. If there is a chance that managers may manipulate financial statements, the core purpose of fraud prevention and detection by management will be questioned. Furthermore, as an auditor conducting an audit in accordance with SLAuSs for obtaining a reasonable assurance that the financial statements taken as a whole are free from material misstatement, whether caused by fraud or error, there is a risk of not detecting all the frauds and errors committed by management through the use of a sample basis of accounting records. As a result, due to the audit's intrinsic limitations, the audit reports may not cover the true element of detecting all management frauds and financial statement inaccuracies. As impartial evaluators of financial statements, users of financial statements think auditors will uncover all frauds or errors done by management. As a result of this perception, users of financial statements are highly sensitive to the auditor's opinion regarding the financial statements. As a result, from the user's perspective, there is a gap between management and auditors' obligations. Consequently, an accurate measure of earnings relevance is required for evaluating future stock price movements and overall return-earning relationships.

Although many researchers have made substantial contributions to value relevance, some studies have been limited by the use of a few red flag ratios, as well as the method of depreciation and inventory valuation policy (Dimitropoulos & Asteriou, 2009; Kumari, 2015). To close the gaps indicated above, this study included seven (07) red flag ratios, along with accrual components. This research focused on the depreciation method for

property, plant, and equipment, as well as stock valuation policy, which researchers had previously ignored (e.g., Dimitropoulos & Asteriou, 2009; Kumari, 2015). Accordingly, the problem of the present study was whether the red flags affect the return earnings relation as well as whether there is an issue of earnings value relevance in the context of the Sri Lankan capital market referred to CSE.

The rest of the paper is structured as follows. The study's literature review is presented in the second section, with an emphasis on the rationality of concepts and the formulation of hypotheses that were examined. The data selection approach, conceptualization, operationalization, and data analysis tools used in this study are all described in the third section. In the fourth section, the results of the data analysis were presented and discussed. The conclusion is drawn based on the findings of the analysis, and comments and ideas are made for future studies.

II. Literature Review

Review of Empirical Studies

Siegel and Shim (1981) were the first to investigate earnings relevance as a distinct part of the return-earnings relationship, based on the notion that investors place a higher value on companies with identical nominal earnings, those with higher quality (Dimitropoulos & Asteriou, 2009). In conclusion, the study specifies that the price-earnings multiple (ratio) is affected by the quality of earnings factors. The findings showed that companies with higher quality earnings have a higher price-earnings ratio, and vice versa, demonstrating the positive relationship between price-earnings ratio and quality of earnings.

Mostafa (2017) examined whether there is an association between earnings management and the value relevance of earnings to confirm that opportunistic earnings management negatively influences the value relevance of earnings. His finding confirmed that firms with low operating performance have a positive and significantly high

discretionary accrual (DAC) than firms with high operating performance. It suggested that low operating performance firms increase earnings management practices, possibly by increasing reported earnings speculatively to mask their low performance. Further, the results showed that the earnings response coefficient is significantly smaller for low operating performance firms than the earnings of high operating performance firms. Furthermore, the findings showed that earnings of low-performing firms (those using opportunistic earnings management strategies) have lower value relevance than earnings of high-performing firms. Accruals which is the difference between accounting earnings and cash flow from operations are reliably, negatively related to future stock returns. Earnings increases accompanied by high accruals, suggesting low-quality earnings associated with poor future returns, were proved by Chan et al. (2001), which assumes that high accruals are signs of earnings manipulation by the managers.

Shaw (2003) found an inverse relationship between disclosure quality ratings and DACs, implying that firms with better disclosures are more conservative in accruals recognition. Furthermore, the study shows that this apparent conservatism is limited to years with good news; in years with bad news, disclosure quality ratings are positively associated with DACs. This collection of findings implies that high-quality firms use DACs to aggressively smooth extreme earnings news and that this income smoothing behavior affects the timeliness with which accounting earnings identify some value-relevant events.

Generally, managerial interventions drive earnings variability making the issue of earnings quality as the managers' intent in nourishing an attractive earnings growth as their compensation (rewards) and position are highly related to the earnings of the reporting entity (Dimitropoulos & Asteriou, 2009). However, in real operationalization of businesses, managerial interferences together with the business conditions are important

factors that affect the returns-earnings relation, which was proved by Dimitropoulos and Asteriou (2009) in the context of Greece and Kumari (2015) in the context of Sri Lanka. These findings indicate that the accruals have incremental importance in explaining stock return movements with the non-discretionary accruals (NDACs), which capture business conditions appearing to be more critical than the discretionary one, which reflects management condition. Jones (1991) was the first scholar who identified the distinction between DAC and NDAC (Dimitropoulos & Asteriou, 2009). There are several models to measure accruals in terms of whether they are discretionary or non-discretionary. From among accrual-based models of the Healy model, the Deangelo model, the industry model, the Jones model, and recently the MJM have proven their validity in measuring DACs and NDACs as the Jones model was the first econometric approach to estimate DACs. Some of the scholars tested these models for detecting how effectively DACs depicted by those models. The ultimate result of most of the researches emphasizes the power of detecting earnings management through the distinction of DACs and NDACs is rest with the modified version of the Jones model that overcomes the limitations of the Jones model (Chen, 2010; Dechow et al., 2012; Lee & Vetter, 2015; Subramanyam, 1996).

In Greek business settings, there is a tendency to falsify financial statements, and some scholars examined publicly available data to develop models for detecting factors associated with the falsification of financial statements. Among them, Spathis (2002) has identified ten sets of red flags, which are known to be the possible indicators of fraud. The scholar found that the companies with high inventories with respect to sales, high debt to total assets, low net profit to total assets, and low working capital to total assets are more likely to falsify financial statements. Furthermore, an improvement in a firm's liquidity position or profitability will have a

negative impact on the likelihood of falsifying financial statements.

Based on the distinction between DACs and NDACs, which measures accruals quality by the MJM and red flags, which were proven to be possible fraud indicators through previous research by Spathis (2002). Moreover, some scholars attempted to examine the issue of earnings relevance and whether earnings relevance affects return earning relation. Accordingly, a few studies conducted in different contexts (for example, in Greece and Sri Lanka) show that business conditions (non-discretionary component) and managerial interventions (DACs) drive earnings variability, making the issue of earnings quality an important factor affecting the returns-earnings relationship. The results further prove that profitability is the most relevant accounting variable. The less a manager is investing in current assets, the better the impact on the firm's stock price (Dimitropoulos & Asteriou, 2009; Kumari, 2015). When evaluating the returns-earnings relationship, accruals and specific ratios are crucial aspects to consider. All previous researches have demonstrated that accruals and red flag ratios are useful indicators of the quality of the disclosed information.

The majority of researchers have attempted to determine whether there is a link between the value relevance of financial statements and stock price in terms of sector, country, and firm. Examination of the value relevance of German accounting measures found that accounting measures are significantly associated with stock price levels and returns for a sample of German firms (Harris et al., 2013). According to one study based on an examination of accounting information, value relevance, and investor behavior in the Egyptian equities market, stock prices in Egypt provide less information about the firm's future worth than accounting information (Ragab & Omran, 2006). The study, which examined the value relevance and stock price in the Sri Lankan context, found that accounting information's value relevance significantly impacts share price

and that accounting information's value relevance is significantly correlated with share price (Vijitha & Nimalathasan, 2014). As a result, it is worth investigating the relationship between stock price and value relevance, particularly earnings value relevance, as well as red flags and deconstructed accruals in terms of DAC and NDAC).

Hypotheses Development

In order to find the answers to the research questions raised, the author has developed nine hypotheses to test the impact of seven red flag ratios and two accrual components of DACs and NDACs on stock price, supported by previous studies.

There is a tendency for manipulating financial statements to meet debt covenants and this was suggested that the high level of debt structure may raise the possibility of falsification of financial statements. So, this was measured by Spathis (2002) by using two ratios of total debt to total assets (TDTA) and long-term debt to equity (LDEQ) and his results were signified that the high debt to total assets is significant in falsifying financial statements. Further, the impact of debt structure was tested on the stock price by Dimitropoulos and Asteriou (2009) and Kumari (2015) by using TDTA as considering it as one of the red flag ratios. Therefore, the researcher is also going to test the impact of debt structure on the stock price by using both ratios of TDTA and LDEQ as these two red flag ratios constitute the measurement of debt structure from the assets perspective and the equity perspective and the researcher developed following two hypotheses.

H₁: Red flag ratio of Total Debt to Total Assets (TDTA) has an impact on the stock price.

H₂: Red flag ratio of Long-Term Debt to Equity (LDEQ) has an impact on the stock price.

Many scholars have suggested that the manipulations made through inventories to financial statements are one of the major concerns. They further specified that the managers might not match sales with the corresponding cost of goods sold so as to increase the gross profit of the corporate and in reporting inventory values, they may report lower of cost or market value which ultimately variate the real value of inventory from financial statements (Persons, 1995; Schilit, 1993; Stice, 1991; Vanasco, 1998 as cited in Spathis, 2002). This was measured by Spathis (2002) through the ratio of inventory to sales (InvSal) and he concluded that the high inventories with respect to sales have a significant impact on the falsification of financial statements. As a red flag ratio, this was also tested on stock price to identify its impact on stock price by some scholars (Dimitropoulos & Asteriou, 2009; Kumari, 2015) and by considering their studies the researcher also attempts to incorporate the red flag ratio of InvSal in this study to identify its impact on stock price through testing the following hypothesis.

H₃: Red flag ratio of Inventory to Sales (InvSal) has an impact on the stock price.

Some scholars found that profit comparative to the industry was inadequate for 35 percent of companies with fraud in their sample (Loebbecke et al., 1989 as cited in Spathis, 2002). They have discovered net profit to total assets (NPTA) and net profit to sales (NPSal) as red flag ratios with their ability to predict falsification of financial statements as profit figures and sales values are the items those subjected to alterations when the companies perform poorly. Both ratios are also tested in identifying their impact on the stock price by previous scholars (Dimitropoulos & Asteriou, 2009; Kumari, 2015). The researcher also considered these two ratios in this study since they significantly contributed as value relevant measures and he developed the following hypotheses to test.

H₄: Red flag ratio of Net Profit to Sales (NPSal) has an impact on the stock price.

H₅: Red flag ratio of Net Profit to Total Assets (NPTA) has an impact on the stock price.

Firms with low working capital are likely to falsify financial statements in order to show they are financially healthier and this was concluded by Spathis (2002) in his attempt of developing a model for detecting falsified financial statements and this was measured by working capital to total assets (WCTA) ratios. As this was proven to be a possible fraud indicator, later on, some scholars use it in their models of detecting value relevance and examining its impact on stock price (Dimitropoulos & Asteriou, 2009; Kumari, 2015). Therefore, the researchers considered this red flag ratio as this was commonly used by previous scholars in the same disciplinary area and tests for the following hypothesis.

H₆: Red flag ratio of Working Capital to Total Assets (WCTA) has an impact on the stock price.

Many researchers stated that due to the subjective nature of judgment involved with accounts receivables there is a high possibility to manipulate financial statements through recording sales before they earned with the use of these accounts receivables (Feroz et al., 1991; Green, 1991; Persons, 1995; Schilit, 1993 & Stice, 1991 as cited in Spathis, 2002). Therefore, the researcher considered this ratio as the red flag ratio as it is proven to be a possible fraud indicator and developed the following hypothesis in order to identify its impact on the stock price.

H₇: Red flag ratio of account receivables to sales (RecSal) has an impact on the stock price.

In addition to red flag ratios, the researcher tries to examine the impact of accrual components while decomposing accruals into DACs and NDACs by using MJM as they were significant in explaining stock price movements in previous studies (Dimitropoulos & Asteriou, 2009; Kumari, 2015). Therefore, the researcher developed the following two hypotheses in order to identify their individual impact on stock prices.

H₈: Non-Discretionary Accruals (NDAC) has an impact on the stock price.

H₉: Discretionary Accruals (DAC) has an impact on the stock price.

III. Methodology

The red flag ratios come under the first measure of earnings relevance, are primarily stem from the research conducted by Spathis (2002) for detecting false financial statements using published data. Since high debt structure shifts risk from equity owners to debt owners there is a probability of falsifying financial statements. Hence managers may attempt to manipulate financial statement figures those depict the firm's financial performance and position better in meeting debt covenants as a violation of debt covenants is a cost for the managers. This suggests higher debt structures may raise the motive for falsifying financial statements, and this impact is measured via LDEQ and TDTA ratios (Spathis, 2002).

Because of the subjective nature of judgments involved in identifying certain values for inventories and determining the values of uncollected amounts of account receivables accounts, the management may use these accounts as tools for manipulating financial statements and therefore, InvSal and RecSal are calculated. Besides, sales are falsified in recording sales before they are earned while showing an additional account receivable in books of accounts. Therefore, some researchers tested this using the RecSal ratio (Daroca and Holder, 1985; Fanning and Cogger, 1998; Green, 1991 as cited in Spathis, 2002). Some companies may account for their inventories lower than cost or market value, and some companies may not match sales with the consistent cost of goods sold in order to increase their gross margins and strengthening their financial position. Therefore, the InvSal ratio is considerably essential in assessing the value relevance of financial reporting (Spathis, 2002).

Firms with low levels of working capital are considered as firms with poor liquidity as

well. Accordingly, an eagerness to engage in earnings management by low liquidity firms is high (Spathis, 2002). In this notion, the WCTA ratio is considered as one of the red flag ratios in the study. Some of the previous studies signify that profitability is an important factor, in assessing value relevance. Primarily, the net profit figure is the main valuing figure of business performance, which was proved to be significant predictors and, therefore, NPSal and NPTA ratios are considered (Spathis, 2002). The second measure of examining earnings relevance is the decomposition of accruals based on the MJM, which is proven to be effective than other accrual-based models. Total accrual (ACC) is the difference between accounting income and cash flows from operations. ACC is assumed to be a function of change in cash revenue (change in the difference between revenue and accounts receivables) and the level of PPE in this model by estimating the following OLS model.

$$ACC_{it}/TA_{t-1} =$$
$$a/TA_{t-1} + \beta_1 (\Delta REV_{it} - \Delta REC_{it})/TA_{t-1} + \beta_2 PPE_{it}/TA_{t-1} + \varepsilon_{it}$$
.... (1)

Where ACC_{it} is total accrual which is mainly the difference of net income and the operating cash flow generated by the firm? ΔREV_{it} it is the change in net revenue and ΔREC_{it} is the change in accounts receivables which stands for calculating cash revenue growth, PPE_{it} is the level of property, plant and equipment for each financial year and ε_{it} is the error term while TA_{t-1} represents the financial position component of the prior total assets of the firm. Accruals fit this model are normal accruals or NDACs that are explained by normal business

activities. Hence, NDAC are derived by using fitted values obtained after the estimation of the aforementioned accruals equation as follows,

$$NDAC_{it}/TA_{t-1} =$$
$$\hat{a}/TA_{t-1} + \widehat{\beta_1} (\Delta REV_{it} - \Delta REC_{it})/TA_{t-1} + \widehat{\beta_2} PPE_{it}/TA_{t-1} \dots (2)$$

And the DACs are defined as the residual from the accruals equation,

$$DAC_{it}$$
$$= ACC_{it}/TA_{t-1}$$
$$- \hat{a}/TA_{t-1} + \widehat{\beta_1} (\Delta REV_{it} - \Delta REC_{it})/TA_{t-1} + \widehat{\beta_2} PPE_{it}/TA_{t-1}$$
.... (3)

Based on the previous scholars' (Dimitropoulos & Asteriou, 2009; Kumari, 2015) arguments, the red flag ratios and the decomposed accruals as discretionary and non-discretionary are proved to be the distinct factors when studying the earnings return relation by assessing the value relevance of financial statements. Consequently, the conceptual framework (Figure 1) is designed based on the literature as a lead to carry out the present research. Concerning the conceptual framework, the present study aims to identify the effect of three models in explaining the stock prices. First, Model 01, the analysis undertakes with specific seven (07) ratios in order to identify the association of those ratios with the stock price. Next, the second model has enhanced by multiplying each ratio by EPS and trying to identify the association of newly developed ratios with the stock price, which ultimately measures the earnings relevance. Finally, the researchers incorporate the accrual component (DAC and NDAC) into Model 02 and test the impact of the new model in explaining stock prices and that model is referred to as Model 03.
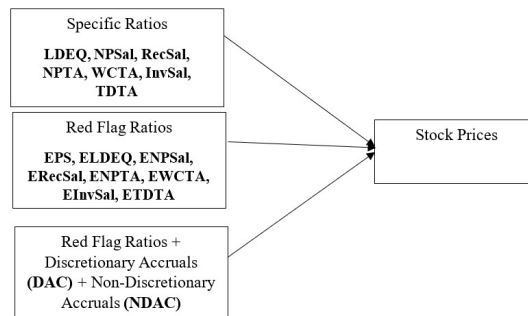

Figure 1. Conceptual Framework

The study is explanatory type research, which focuses on testing an existing theory via financial statement analysis. Further, it involves the deductive approach by using quantitative measures, and the secondary data from the financial statements of respective companies were extracted for the study. All listed companies in the Sri Lankan capital market were considered as the population of the study. However, the sample consists of the non-financial firms, firms those who prepare financial statements for the year ended as of 31st March, and firms that adjust for depreciation method and inventory valuation policy, with full annual data relevant to the selected variables. Hence, the unit of analysis of this study is an individual listed company. Companies in the bank, finance, and insurance sector are excluded as their structure and, accounting practices are substantially different from the rest of the sectors. Further, based on the financial reporting period, the population filtered by considering companies prepare financial statements for the year ended as at 31st March as most of the companies prepare their financial statements for that period. As per the availability of the financial reports, the researchers set the concerning period of the study as five years ranging from financial year 2013/14 to 2017/18. The sample selection procedure is summarized in Table 1.

Table 1. Sample Selection Procedure

Companies listed at CSE	293
Less: Companies in bank finance and insurance sector	(63)
Non-Financial Companies	230
Less: 31st December financial year firms	(29)
31st March financial year firms	201
Less: Companies without five annual reports	(32)
Companies with full five annual reports	169
Less: Companies adopted depreciation methods other than straight-line method	(3)
Companies adopting the straight-line method for depreciation	166
Less: Companies without data relevant to selected variables	(75)
Companies included in the sample	91

Note 1: *All the companies in the sample are valued their inventories lower of cost and net realizable value as required by LKAS 02 (Inventory).*

Note 2: *Companies without data relevant to selected variables comprises, companies without reported inventory values, depreciable PPE and companies that comprise both voting and non-voting share prices.*

Source: Researchers Constructed

Operationalization of Variables

Table 2 shows seven specific ratios and two accrual components of DACs and NDACs with the respective equation of measurement and source of extracting those equations.

Table 2. Operationalization of Variables

Variables	Measurement	Reference
Debt to Equity	$\dfrac{\text{Long term debt}}{\text{Total equity}}$	Spathis (2002)
Net Profit to Sales	$\dfrac{\text{Net profit}}{\text{Sales}}$	Kumari (2015); Panagiotis and Dimitrios (2009); Spathis (2002)
Accounts Receivable to Sales	$\dfrac{\text{Total accounts receivables}}{\text{Sales}}$	Spathis (2002)
Net Profit to Total Assets	$\dfrac{\text{Net profit}}{\text{total assets}}$	Kumari (2015); Panagiotis and Dimitrios (2009); Spathis (2002)
Working Capital to Total Assets	$\dfrac{(\text{Current assets} - \text{Current liabilities})}{\text{Total assets}}$	Kumari (2015); Panagiotis and Dimitrios (2009); Spathis (2002)
Inventory to Sales	$\dfrac{\text{Total Inventories}}{\text{Sales}}$	Kumari (2015); Panagiotis and Dimitrios (2009); Spathis (2002)
Total Debt to Total Assets	$\dfrac{\text{Total liabilities}}{\text{Total assets}}$	Kumari (2015); Panagiotis and Dimitrios (2009); Spathis (2002)
Non-Discretionary Accruals	Equation (2)	Dechow et al. (2012)
Discretionary Accruals	Equation (3)	Dechow et al. (2012)

IV. Findings and Discussion

Descriptive Statistics and Correlation Analysis

Before performing the analysis relevant to all three models, the data set was "winsorized" at a fraction of 0.05 (5%), to identify missing values, and remove outliers in the data set. Descriptive statistics is the first phase of the statistical procedure that the study used to identify the central tendencies, and the spread of the data set which moves for further analysis to achieve the main objectives of the research. Table 3 depicts some descriptive statistics of seven specific ratios that are intended to be the main variables, which are the measures of value relevance of financial statements.

Table 3. Descriptive Statistics of Specific Ratios

Variable	LDEQ	NPSal	RecSal	NPTA	WCTA	InvSal	TDTA
Mean	0.259	0.105	0.204	0.055	0.124	0.139	0.373
Std. Dev.	0.338	0.119	0.160	0.052	0.179	0.111	0.196
Min	0.008	-0.103	0.039	-0.041	-0.162	0.014	0.068
Max	1.297	0.367	0.711	0.154	0.497	0.404	0.737
Skewness	0.958	0.557	0.669	0.095	0.478	0.873	0.187

Source: Researchers Constructed

As per Table 3, the ratio of TDTA is quite high (37 percent) among the rest of the mean values of specific ratios, which means that 37 percent of the total assets are owned by the debtors. The same proves the ratio of LDEQ as well, by indicating that one fourth (25 percent) of long term debtors stand against shareholders' equity by signifying their proportion of long term debt to equity. This draws the analysts' attention towards the causal effect of high debt structure for earnings management practices that affects the value relevance of the financial statements as previous scholars specified (Dimitropoulos & Asteriou, 2009; Kumari, 2015; Spathis, 2002). But the case is with the InvSal and RecSal, as they result in moderate mean values, which can be concluded that the inventory turnover and receivables turnover is quite high due to frequent inventory renewals and frequent cash collections that are somewhat inconsistent with the literature. Additionally, the ratios of NPSal, NPTA, and

WCTA are low (10, 5, and 12 percent respectively), demonstrating inefficient management in terms of profitability (including assets profitability) and liquidity. As a result, it can argue that the majority of the sample ratios indicate poor financial performance, which might lead managers to

manipulate financial statements to deal with these conflicting outcomes. Hence, the researchers aimed to examine the impact of these performance ratios on stock prices, to assess the possibility of manipulations considered by the market.

Table 4. Pearson Correlation for Specific Ratios

VARIABLE	PRICE	LDEQ	NPSAL	RECSAL	NPTA	WCTA	INVSAL	TDTA
PRICE	1							
LDEQ	-0.101*	1						
NPSAL	0.025	-0.244**	1					
RECSAL	-0.151**	-0.233**	0.178**	1				
NPTA	0.135**	-0.334**	0.616**	-0.001	1			
WCTA	0.110*	-0.420**	0.017	0.155**	0.416**	1		
INVSAL	0.076	-0.129**	-0.226**	0.123**	-0.047	0.182**	1	
TDTA	0.022	0.649**	-0.391**	0.073	-0.352**	-0.392**	0.163**	1

NOTE: N = 455, *, ** SIGNIFICANT AT THE 0.05 AND 0.01 LEVEL (2-TAILED) RESPECTIVELY.

The distribution of all variables is tested for normality based on the skewness and deriving the histogram with a normal density plot of the distribution. As all the ratios considered in the analysis are rest within the positive one (+1) and the negative one (-1), by observing the behavior of the distributions using a graphical representation of histograms with normal density plots. Accordingly, the data set used for specific ratio calculations can be assumed to be symmetrical.

Then the data set is tested by Pearson correlation to identify the extent to which the considering variables are linearly related. The majority of sample ratios correlate significantly with each other. Moreover, the extent of correlation of sample ratios with the

dependent variable of the study (price), is also significant except NPSal, InvSal, and TDTA. The coefficients of correlation of all independent variables with the dependent variable are less than 0.7. It proves that the data set is not subjected to the multicollinearity issue (Table 4). Further, it was tested using the variation inflation factor (VIF) as presented in Table 5. Based on the VIF results, the data (independent variables) is not appeared to be multi-collinear as the values of all sample variables are lower than 10. Hence, the researchers adopted an OLS regression as one of the objectives of the study is to assess the effect of specific ratios on stock price since the data set satisfies the pre-requisites of the regression models.

Table 5. Variation Inflation Factor for Specific Ratios

VARIABLE	VIF	1/VIF
TDTA	2.73	0.367
NPSAL	2.59	0.386
NPTA	2.52	0.397
LDEQ	2.32	0.432
WCTA	1.91	0.523
RECSAL	1.45	0.689
INVSAL	1.22	0.818
MEAN VIF	2.11	

The primary empirical analysis (Model 01) comprises the estimation of the following OLS model using pooled annual data for the period of 2014 to 2018 of the investigation;

$$P_{it} = a_0 + \beta_1 LDEQ_{it} + \beta_2 NPSal_{it} + \beta_3 RecSal_{it}$$
$$+ \beta_4 NPTA_{it} + \beta_5 WCTA_{it}$$
$$+ \beta_6 InvSal_{it} + \beta_7 TDTA_{it} + \varepsilon_{it}$$

.... (4)

Where;

P_{it} is the firm's i year-end stock price of each financial year t, $LDEQ_{it}$ is the ratio of long term debt to shareholders' equity, $NPSal_{it}$ is the ratio of net profit to sales, $RecSal_{it}$ is the ratio of receivables to sales, $NPTA_{it}$ is the ratio of net profit to total assets, $WCTA_{it}$ is the working capital to total assets (where WC equals the difference between current assets and current liabilities), $InvSal_{it}$ is the inventory to sales, $TDTA_{it}$ is the total debts to total assets and ε_{it} is the error term.

Table 6. Descriptive Statistics for Red Flag Ratios

VARIABLE	PRICE	EPS	ELDEQ	ENPSAL	ERECSAL	ENPTA	EWCTA	EINVSAL	ETDTA
MEAN	143	10.5	1.465	1.671	2.016	1.091	2.551	1.506	3.372
STD. DEV.	257	17.5	2.802	2.961	3.427	2.002	5.623	2.637	5.885
MIN	3.1	-2.7	-1.487	-1.487	-.536	.002	-.529	-.3797	-1.136
MAX	1049	66.8	11.055	11.737	13.180	7.944	22.544	10.011	23.109
SKEWNESS	2.69	2.22	2.29	2.47	2.15	2.49	2.74	2.11	2.32

Source: Researchers Constructed

Table 7. Pearson Correlation for Red Flag Ratios

VARIABLE	PRICE	EPS	ELDEQ	ENPSAL	ERECSAL	ENPTA	EWCTA	EINVSAL	ETDTA
PRICE	1								
EPS	0.841**	1							
ELDEQ	0.608**	0.701**	1						
ENPSAL	0.559**	0.587**	0.428**	1					
ERECSAL	0.638**	0.795**	0.456**	0.632**	1				
ENPTA	0.725**	0.839**	0.495**	0.758**	0.729**	1			
EWCTA	0.651**	0.737**	0.297**	0.534**	0.718**	0.795**	1		
EINVSAL	0.746**	0.902**	0.610**	0.454**	0.715**	0.695**	0.640**	1	
ETDTA	0.767**	0.914**	0.796**	0.450**	0.651**	0.697**	0.562**	0.870**	1

NOTE: N = 455, *, ** SIGNIFICANT AT THE 0.05 AND 0.01 LEVEL (2-TAILED) RESPECTIVELY.

Descriptive Statistics and Correlation Analysis for Red-flag ratios

The next step of the study is to examine the influence of the specific ratios on the return earnings relation. For this purpose, each year's EPS was multiplied by each ratio in order to examine how EPS and the ratios interact with each other and how their impact on stock prices.

Table 6 depicts the descriptive statistics of the sample variables developed for the analysis purpose by multiplying with EPS. The mean value of the stock price is 143 while for EPS it

is 10.5. The product of the ratios and the EPS provided means which are above the actual level of ratios that we previously discovered in Table 3. All the variables are indicating that the data are positively skewed with reference to the skewness values as all ratios result in skewness values greater than positive two (+2) which is consistent with the previous scholars' data behaviors.

When concerning about Pearson correlation for red flag ratios in Table 7, all variables are significant at the 1 percent significant level but the case is with the correlation coefficient of

EPS as it correlates strongly positively with both the dependent and independent variables which might ultimately result in multicollinearity effect while a majority of remaining ratios are correlated relatively lower. In order to diagnose whether there is a multi-collinearity effect among variables, the researchers tested for VIF for independent variables and the results are appeared to be favorable as the VIF values are lower than 10, as depicted by Table 8.

Table 8. Variance Inflation Factor for Red Flag Ratios

VARIABLE	VIF	1/VIF
ETDTA	8.81	0.113
ENPTA	6.24	0.160
EINVSAL	5.34	0.187
EWCTA	3.54	0.282
ELDEQ	3.41	0.293
ERECSAL	3.18	0.315
ENPSAL	3.03	0.329
MEAN VIF	4.79	

Source: Researchers Constructed

Based on results derived from different tests mentioned above, the researchers developed the following OLS model for Model 02 estimating whether the red flag ratios impact the stock price.

$$P_{it} = a_0 + \beta_1 EPS_{it} + \beta_2 ELDEQ_{it} + \beta_3 ENPSal_{it} + \beta_4 ERecSal_{it} + \beta_5 ENPTA_{it} + \beta_6 EWCTA_{it} + \beta_7 EInvSal_{it} + \beta_8 ETDTA_{it} + \varepsilon_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(5)$$

Where, P_{it} is the firm's i year-end stock price of each financial year t, EPS_{it} is the firm's i earnings per share on year t, $ELDEQ_{it}$ is the ratio of long term debt to shareholders' equity times EPS, $ENPSal_{it}$ is the product of the ratio of net profit to sales and EPS, $ERecSal_{it}$ is the ratio of receivables to sales times EPS, $ENPTA_{it}$ is the ratio of net profit to total assets times EPS, $EWCTA_{it}$ is the working capital to total assets times EPS, $EInvSal_{it}$ is the inventory to sales times EPS, $ETDTA_{it}$ is the product of total debts to total assets ratio and EPS, and ε_{it} is the error term.

To perform deep analysis to examine the impact of red flag ratios on stock price, researchers used the two main variables of DAC and NDAC, which derive through MJM as described previously. After extracting discretionary component and nondiscretionary component from total accruals, re-estimates the OLS model equations including DAC and NDAC as Model 03 to examine how much of the variability of returns could be generated by the relevance of earnings as defined by the business conditions, or management discretion in the form of following OLS model;

$$P_{it} = a_0 + \beta_1 EPS_{it} + \beta_2 ELDEQ_{it} + \beta_3 ENPSal_{it} + \beta_4 ERecSal_{it} + \beta_5 ENPTA_{it} + \beta_6 EWCTA_{it} + \beta_7 EInvSal_{it} + \beta_8 ETDTA_{it} + \beta_9 DAC_{it} + \beta_{10} NDAC_{it} + \varepsilon_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots.(6)$$

Where;

All the variables are the same as previously defined, except DAC_{it} is discretionary accruals and $NDAC_{it}$ is non-discretionary accruals.

Empirical Findings

The primary analysis includes the estimation of OLS model 1 in assessing the impact of specific ratios on stock price as shown in Table 9. The variable of TDTA is positive and highly significant at a 1 percent significance level and the same thing exists for the WCTA ratio (variable). This means that the firms maintain a relatively high debt structure in proportion to their total assets which might open an avenue for financial statement

manipulations. The significant contribution of the WCTA ratio also shows that the working capital is significant in explaining stock prices while suggesting that the firms with high current assets can have a positive effect on their future prospects.

Table 9. OLS Regression Results of Stock Price with Specific Ratios

	Model1
Intercept	57.93
LDEQ	-218.84**
NPSal	300.98
RecSal	-473.98**
NPTA	46.8
WCTA	231.86**
InvSal	48.83
TDTA	454.28**
R2 Adj.	9.1

Notes: p values in parentheses; significant at *5 percent and **1 percent levels respectively; Equation model 1: $P_{it} = a_0 + \beta_1 LDEQ_{it} + \beta_2 NPSal_{it} + \beta_3 RecSal_{it} + \beta_4 NPTA_{it} + \beta_5 WCTA_{it} + \beta_6 InvSal_{it} + \beta_7 TDTA_{it} + \varepsilon_{it}$

Table 10. Pooled Regression Results of OLS Model 2 and OLS Model 3

	Model 2	Model 3
Intercept	10.1	-5.74
EPS	12.83**	12.72**
ELDEQ	2.22	1.61
ENPSal	15.62**	16.48**
ERecSal	-13.78**	-12.48**
ENPTA	-18.24*	-18.92*
EWCTA	6.97**	6.44**
EInvSal	-2.65	0.57
ETDTA	1.07	0.51
NDAC		-475.28*
DAC		-207.67*
R^2 Adj. Percent	72.26	72.64

Notes: p values in parentheses; significant at *5 percent and **1 percent levels respectively; Equation model 2: $P_{it} = a_0 + \beta_1 EPS_{it} + \beta_2 ELDEQ_{it} + \beta_3 ENPSal_{it} + \beta_4 ERecSal_{it} + \beta_5 ENPTA_{it} + \beta_6 EWCTA_{it} + \beta_7 EInvSal_{it} + \beta_8 ETDTA_{it} + \varepsilon_{it}$,

Equation model 3: $P_{it} = a_0 + \beta_1 EPS_{it} + \beta_2 ELDEQ_{it} + \beta_3 ENPSal_{it} + \beta_4 ERecSal_{it} + \beta_5 ENPTA_{it} + \beta_6 EWCTA_{it} + \beta_7 EInvSal_{it} + \beta_8 ETDTA_{it} + \beta_9 DAC_{it} + \beta_{10} NDAC_{it} + \varepsilon_{it}$

However, both ratios of LDEQ and RecSal negatively affected the stock price movements while they are at a high significance in terms of their influence. The increased long-term debt in proportion to the equity might influence market participants' intentions negatively, which decreases the price by reducing market demand. This might be a motivational factor for management to raise their price by manipulating financial figures.

High receivables to sales decrease the receivables turnover, which might result in a reduction of stock prices as depicted by a negative effect of regression results in Table 9.

The ratios of InvSal, NPSal, and NPTA are insignificant, which is quite unexpected when referring to literature as scholars believe that the use of inventory is a common method for manipulating financial statements.

Simultaneously, sales and profit figures are also considered to be the most comprehensive figures that the managers are likely to practice earning management techniques like inflating sales and net profits to reflect better profitability and productive ability.

The results of this study are not consistent with the previous study conducted by Kumari (2015) in terms of the regression results. Only the NPTA ratio was appeared to be the positively significant variable in the study conducted by Kumari (2015), although four ratios of the present study are significant. Two of them (TDTA and WCTA) are positively significant, while two of them (LDEQ and RecSal) are negatively significant in explaining stock price over the period. Since some of the results are not consistent with previous findings and, expected outcomes, this is further analyzed by adopting OLS Model 2, to examine the effect of red flag ratios on stock price as presented in Table 10.

With the use of red flag ratios (product of EPS and specific ratios), the explanatory power of variables which can be measured by adjusted R^2 is improved from 9 percent, in OLS model 1 to 72 percent in OLS model 2. This reflects the development of new variables is good at explaining the impact rather than just considering specific ratios in OLS model 1.

The results indicate that the EPS has a highly significant contribution in its impact on stock price, and this was also confirmed by previous studies. As well as the results produced at OLS model 1 has quite changed in the new model, as ELDEQ, ETDTA, and EInvSal are being insignificant while the rest of the variables are significant. New results signify the ratios of ENPSal and ENPTA which proves that the sales and net profit figures are comprehensive figures that are subject to manipulation via inflationary actions. Moreover, ERecSals and EWCTA remain significantly as in the OLS model 1.

When comparing the results of the study with previous research findings, insignificant variables match the results of the studies conducted by Dimitropoulos and Asteriou

(2009) and Kumari (2015). But the case is with the significant variables as WCTA and NPSal are positively significant, which is not consistent with the results of the prior researchers' studies. Here the NPTA is negatively significant in explaining stock price movements, which are also not confirmed the previous results as the literature provides NPTA is positively significant.

Beyond the aforementioned analysis, it also tested accruals on return earning relation and thus considered the extension of the above models with the inclusion of DAC and NDAC. In order to assess whether the impact of accruals is generated by business conditions or managerial discretion by decomposing accruals to discretionary and non-discretionary components. For this purpose, tested OLS model 3 which includes accruals components in arriving at a proper conclusion as visualized in Table 10.

By referring to the new model it shows that the explanatory power of the variables is raised by a little bit, resulting 73 percent adjusted R-squired and the results with relevant to the variables tested in OLS model 2, remain the same at the new instance but the coefficients of DAC and NDAC are negative and significant while NDAC appeared to be highly significant than Discretionary component. But when comparing the result of accrual components with previous studies' significance of explaining stock price is confirmed but when it comes into negative significance, it is not matched with the previous research results as the significance was positive in those studies (Dimitropoulos & Asteriou, 2009; Kumari, 2015). Finally, the increase in adjusted R-square suggests that later comprises a more appropriate functional form for examining earnings quality impact on price as their explanatory power is high.

Hypotheses Testing

Under the model 01, the researchers only tested the impact of specific ratios on the stock price. By referring to Table 9, it is clear that the four (04) ratios (LDEQ, RecSal, WCTA,

and TDTA) out of seven (07) specific ratios are significant in explaining stock price movements. However, the explanatory power of the variables associated with Model 01 is very low, which is reflected by the R^2 value of 9.1 percent. Thus, the study was not limited to examining the impact of specific ratios alone but developed the same ratios into red flag ratios by multiplying each ratio by EPS. The given method was supported by previous scholars, and formulated hypotheses base on the red flag ratios as those red flag ratios are significantly impacted on the stock price.

Under Model 02, the researchers tested hypotheses as the model complies with the logic of hypotheses formulation. Table 10 depicts that H4: red flag ratio of NPSal has an impact on stock price, H5: red flag ratio of NPTA has an impact on stock price, H6: red flag ratio of WCTA has an impact on stock price, H7: red flag ratio of RecSal has an impact on stock price are accepted while rest of the hypotheses are rejected as those red flag ratios are not significant at an explanatory power of 72 percent in the new model.

In model 02, the researchers only tested the impact of red flag ratios and did not consider accrual components to distinguish the impact of red flags and accruals separately. Therefore, model 03, incorporated accruals components to model 02 and observed the impact of independent variables on stock price while testing the developed hypotheses. The result for the red flag ratios was similar to model 02. But, newly added variables (DACs and NDACs) also signifies their contribution in explaining stock price movements, while accepting the H8 and H9. When considering the overall result of the analysis undertaken, it evidences that six (06) hypotheses are accepted, while rejecting the first three hypotheses.

V. Conclusion and Recommendations

This research aimed to examine the value relevance of financial statements and its (value relevant measures) impact on the stock price. The study examined the impact of

seven specific ratios by following previous research approaches and then tested for the impact of red flag ratios, which are known to be the possible fraud indicators that were suggested by the previous studies. Finally, the study tested red flag ratios along with accrual components, which were extracted by using the MJM as it proves to be more effective in identifying DAC and NDAC from among other accrual models. The data were extracted from the annual reports over the recent five-year period for 91 companies, which were with full annual data relevant to the study. According to the results of univariate analysis, it can be said that the majority of the sample ratios specify a poor financial performance, a fact that may guide managers to manipulate their financial statements in order to deal with potentially undesirable results.

Model 01 was developed without producing ratios and examined the impact of specific ratios on share prices. As per the results derived through the regression analysis, four ratios significantly impacted the stock price. Out of them, two were (TDTA and WCTA) positively impacted on price, confirming the theories provided by the previous scholars. LDEQ and RecSal ratios negatively impacted in explaining stock prices. When considering the explanatory power of the variables measured by the adjusted R square (R^2), it was very low (9 percent). Therefore, researchers developed and used ratios by multiplying each ratio by EPS, which were known as red flag ratios (which were in Model 02) by previous scholars. Results signify that EPS is highly correlated with all the sample variables, indicating a strong connection between the red flag ratios, and EPS and five out of eight variables (including EPS) were important in explaining stock price movements. Thus, it recommends that a depth analysis is required rather than just considering the specific ratios when making investment decisions. This also confirms by the value of the adjusted R squire (72 percent), which measures the explanatory power of variables.

In Model 3, the researchers integrated accrual components with red flag ratios. According to the results derived from regression analysis, the same results were shown for red flag ratios as in Model 2, while DAC and NDAC also being significant in explaining stock price over the period. It suggests that business conditions and managerial interventions drive earnings variations making the issue of earnings quality an important factor that affects the return earnings relation when making an investment decision.

When considering the overall result of the study, it indicated that the coefficients of EWCTA and ENPSal are positive and significant in both variables. These results can be interpreted by the fact that the firms with a high WCTA ratio show better financial activity as they can cover their current liabilities quicker than those with poor working capital. As a result, this ability is positively depicted by the price according to the results derived through the analysis. The positive impact of ENPSal can be concluded as where a manager wants to manipulate the financial statements the most logical thing is to inflate profit figures since this will have a positive impact on the market participants.

However, the negative effect of ENPTA on stock price has recognized the act that firms with financial difficulties, especially difficulties of low returns, try to manipulate the profit either by increasing revenue or decreasing expenses. Further, the negative impact of ERecSal might confirm its use of testing fraudulent acts of reporting sales before they are earned may show additional account receivables as specified by Spathis (2002).

Although it is believed that the use of inventory as a common method of manipulating financial statements, that is not verified here as InvSal ratio was insignificant in explaining stock price in all three models. Both types of accruals have decrement importance in explaining stock price movements. But the non-discretionary component (business conditions) is appeared to be more impotent than the discretionary component (managerial interventions) as NDAC is more significant than DAC. This suggests that business conditions and managerial interventions determine earnings variability, making the concern of earnings quality a key factor that affects the return earning relation.

The study rests with the limitation of applying only a balance sheet approach for estimating accruals components, which leads to the bias of estimating accruals, and its components without considering alternative accruals models which might result in more significant measures of accruals. Second, the ratio analysis was only restricted for the recent five years which might undermine a reasonable output or a conclusion and if, longer the time frame may result in a more remarkable outcome as it expands the potential behavior. Finally, though the researchers attempted to overcome the limitation of the use of limited ratios, still this study is limited to seven red flag ratios, this will provide potential research opportunities for testing more red flag ratios consistent with the application of the same models applied in the study.

As the study was subjected to few limitations, the researchers suggest that if longer the time frame (than just five (05) years) might provide a more reliable outcome than this study as the time frame is very short. At the same time, if the potential researchers considered a higher number of sample companies along with a lengthy time frame might enable them to generalize more appropriate findings to the existing literature. Besides, as this study mostly relied on the balance sheet (statement of financial position) approach in decomposing accrual components, it seems to be quite biased in identifying DACs and NDACs. So, in a future research attempt that conducts in the same disciplinary area would be able to incorporate some other accrual identification models which comprise both income and balance sheet approaches. Similar to the previous studies, this study is also subjected

to the limitation of applying limited value relevant measures (red flag ratios). Therefore, if a potential researcher considered more ratios in assessing value relevance that might also come up with more reliable results. In a nutshell, the researchers suggest incorporating a lengthy time span along with a high number of sample companies, more value relevant measures, and accruals which comprise both income and balance sheet approaches.

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