Factors Influencing on Return on Assets of The Material Sector in Colombo Stock Exchange

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Abstract: Financial performance has an impact on an organization's well-being and ultimately its survival, it has also been the main focus of business professionals in all types of businesses This study is designed to examine the the factors influencing on the return on assets of the Material companies listed in the Colombo Stock Exchange. The study focuses on four key variables; leverage, liquidity, firm size, and firm age are used as the independent variables for the study while the dependent variables constituted a characteristic indicator that can affect the Material sector such a, return on assets (ROA). The study adopts quantitative research approach and data is collected from annual reports of 19 Material companies listed in the Colombo Stock Exchange for five years from 2018 to 2022. Descriptive statistics, regression analysis, and correlation analysis will be used to attain the objectives of the study. Multiple linear regression model used for hypothesis testing. The finding of this study indicates that debt to equity has significant and negative impact on return on assets (ROA), current ratio has a significant and negative impact on return on assets (ROA), firm size has an insignificant impact on return on assets (ROA), and firm age has an insignificant and negative impact on return on assets (ROA) of material companies in Sri Lanka from regression analysis. Overall, the results confirm that financial leverage (DE), and liquidity management (CR) are the major factors influencing the financial performance of material companies listed on the CSE. To improve their financial performance, businesses must maintain an ideal debt-to-equity ratio and effectively manage their working capital, according to the findings, which provide empirical evidence from an emerging-market perspective. Additionally, by applying these insights, regulators, investors, and corporate managers can develop more effective plans to enhance operational efficiency, reduce financial risk, and ensure long-term growth in Sri Lanka's material industry.

Keywords: Debt to Equity, Firm Size, Firm Age, Liquidity, Return on Assets

01. INTRODUCTION

Financial performance is a measure of an organization's earnings, profits, and appreciations in value as evidenced by the rise in the entity's share price. Performance is normally expressed in net premium earned, profitability from underwriting activities, annual turnover, return on investment, and return on equity (Murigu, 2014). Scholars in the many fields of business and strategic management have given the topic of financial performance a lot of consideration. Since financial performance has an impact on an organization's well-being and ultimately its survival, it has also been the main focus of business professionals in all types of businesses.

Financial performance is a critical aspect of evaluating the success and effectiveness of a firm's operations. It encompasses various measures and indicators that assess the company's profitability, efficiency, liquidity, solvency, and overall financial health. Understanding and analyzing financial performance is essential for businesses, investors, and stakeholders as it provides insights into the company's ability to generate profits, manage resources, meet financial obligations, and create value for stakeholders (Thuy, 2023). The financial performance of the Material sector in the CSE can be influenced by a variety of factors. The research will give some introduction to the factors influencing on return on assets.

Burca and Batrinca (2014) concluded that financial leverage, company size, and solvency have a positive link with ROA. In contrast, Xu and Banchuenvijit (2014) conclude that negative and significant relationship between leverage and ROA. This is Supported by, Almenifi (2019) concluded that liquidity and leverage have a negative and significant on ROA while firm size has a positive and significant effect. A study on the financial performance of the Materials sector in the CSE would involve analyzing these factors to understand how they impact the sector's companies and their stock performance. Researchers would typically use financial data, economic indicators, and market trends to assess the relationships between the factors and the sectors' performance over time. This analysis can help investors, policymakers, and industry participants make informed decisions and develop strategies for navigating the challenges and opportunities within the Materials sector.

Several Empirical studies regarding variables affecting financial performance have not yet reached a consistent conclusion. There are some researches concludes that significant positive, in contrast, some other experts have a significant negative relationship, even though some others have concluded there is an inconsistent therefore there is lack in conclusive decision related to the financial performance. This study fills the gap by examining whether Liquidity, leverage, firm size, and firm age influence on the return on assets of selected companies in the material sector listed on the Colombo Stock Exchange. These kinds of studies are lacking in Sri Lankan context; therefore, this study attempts to fill the gap by providing empirical data on how leverage, liquidity, firm size and firm age affect return on assets in Sri Lankan context. The aim of this study is to identify "the factors and their impact on the return on assets of the Material sector in the Colombo Stock Exchange Sri Lankan context during period of 2018- 2022.

Hence this study will provide the answer for:
"What is the impact of leverage, liquidity, firm size and firm age on return on assets (ROA) listed on the CSE?"

RQ1: What is the impact of leverage on return on assets (ROA) of the Material sector in CSE?
RQ2: What is the impact of liquidity on return on assets (ROA) of the Material sector in CSE?
RQ3: What is the impact of firm size on return on assets (ROA) of the Material sector in CSE?
RQ4: What is the impact of firm age on return on assets (ROA) of the Material sector in CSE?

Identifying the most successful companies has always been a challenging task for many. Because a company can be highly profitable yet have terrible liquidity conditions. This study of the factors influencing the financial performance of the Material sector in the CSE holds critical significance for Sri Lanka's economic development, investor decision-making, policy formulation, risk management, and the overall competitiveness and sustainability of the Materials sector. It provides a comprehensive understanding of the various dynamics that affect financial performance and offers valuable guidance for stakeholders in making informed decisions regarding the Material sector.

02. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The benchmark for business success is measured by financial performance. In measuring the level of success of company performance, several measurement tools can be used (Erica & Lukman, 2023). There are various measures of financial performance. For instance, return on sales reveals how much a company earns from its sales, return on assets explains a firm's ability to make use of its assets, and return on equity reveals what return investors take for their investments (Almajali et al., 2012; Omondi & Muturi, 2013; Mungai, 2014).

Almajali et al. (2012) examined research on Factors affecting the financial performance of Jordanian insurance companies listed on the Amman Stock Exchange. The results showed that Leverage, liquidity, Size, and Management competence index variables have a positive statistical effect on the financial performance (ROA). The research finding says that a high consideration of increasing the company assets will lead to a good financial performance and there is a significant need to have highly qualified employees in the top managerial staff. Murigu (2014) investigated a study, aimed to establish the factors determining the profitability of non-life insurers operating in Kenya taking a return on asset as a dependent variable. This study proved that the return on assets of general insurers in Kenya is positively and significantly influenced by leverage, equity capital, and management competence index. The size of the firm and ownership structure have a negative and significant effect on the return on assets. Further, liquidity has a negative and marginally significant effect on return on assets. The study does not find evidence for the effect of the age of the firm. The researcher suggested that for general insurers in Kenya to perform better in terms of their return on assets, they should improve on their leverages, equity capital, and quality of staff.

The study done by Mungai (2014) on the Factors that influence the financial performance of private solid waste management companies in Nairobi County. The study revealed that leverage has a significant and negative influence on financial performance (ROA). The study concluded that the financial performance is influenced by leverage, liquidity, age, and size. The research finding says that reducing debt financing, increasing liquid asset bases, and using investment funds as liquid assets to meet financial obligations. Larger and mature companies have better and more predictable financial performance, as they can handle unexpected contingencies and cope with low earnings periods. Alomari and Azzam (2017) examined the effects of a firm's micro and macroeconomic factors on the performance of Jordanian insurance companies measured by return on assets (ROA) which is considered as a proxy of profitability. The study covered 24 listed insurance companies from 2008 to 2014. The study Findings showed that liquidity, leverage, and underwriting risks have a negative and a significant effect however, the size of the company, market share, and GDP have statically a positive and a significant effect on the profitability (ROA) of the Jordanian insurance industry. Findings also included that inflation has no significant effect on the profitability (ROA) of the insurance industry in Jordan.

Ismail et al. (2018) investigated a study to identify the factors that affect the financial performance of Takaful operators in Malaysia. Study findings showed that firm size has a significantly positive effect on financial performance (ROA). In contrast, leverage and liquidity have significantly negative effects related to financial performance. This research recommends that Takaful operators should improve their sales to enhance the consistency of profit growth. Besides that, Takaful operators need to disclose the financial report from the beginning because it could make an easier for researchers to collect data. The study also suggested that the Islamic insurance that applies Shariah compliance, Takaful operators should sustain the customer trust to achieve well financial performance. Hoang et al. (2019) Examined the Determinants influencing the financial performance of listed firms. This research assessed the factors influencing the financial performance of listed firms on the Vietnam Stock Exchange. The data are collected from audited financial statements of 269 large listed firms for the period from 2010 to 2016. Quantile regression and Ordinary Least Square regression (OLS) are used for processing the multi-year dataset. The study results showed that firm size has a positive relationship with financial performance (ROA, ROS, ROE). Conversely, capital structure, short-term liquidity, and fixed asset investment have a negative relationship with financial performance. Meanwhile, growth rate and receivable management have no impact on financial performance at the low level but have different effects at different quantiles.

Almenifi (2019) examined the factors affecting the financial performance of the Kuwait Banking Sector in the period from 2012 to 2018. The study findings showed that management efficiency, operational efficiency, and inflation are the main factors influencing financial performance (ROA). Management efficiency had a significant positive relationship with financial performance (ROA). however, Operational efficiency and Inflation showed a significant negative relationship with financial performance (ROA). The study done by Estiasih and Putra (2021) on the Factors Affecting the Financial Performance of Pharmaceutical Companies Listed in Indonesia. Study findings showed that leverage had a significant negative effect on financial performance (ROA), while liquidity, Company size and Company age had a significant positive effect on financial performance. The results show that firms need to develop sound financial management techniques to ensure that neither insufficient nor unnecessary funds are invested in current assets. The study also suggests that firms should expand in a controlled way to achieve an optimum size to enjoy economies of scale.

Pagaddut (2021) investigated the financial factors influencing the financial performance of Philippine MSMEs. This study aimed to identify the financial factors affecting Philippine MSMEs' financial performance and identify cohesive clusters to extract necessary ratios from audited financial statements. The data is extracted from 80 audited financial statements of 40 MSMEs for the years 2018 and 2019. The study findings showed that debt ratio, asset turnover, and gross profit margin significantly affect return on assets. The study recommended that stakeholders should support MSMEs through creativity and collaboration, ensuring they can sustainably finance their businesses. Sasidharan et al. (2023) aimed to examine the firm-specific variables that impact the financial performance of general insurance firms in India. The sample of the research considered 21 insurance firms in India. The panel data techniques are employed in the analysis to study the impact of eleven micro factors on the monetary performance of general insurers in India. The research results according to the fixed-effect model revealed that a firm's age, loss ratio, size, premium growth, and retention ratio are vital in affecting the return on assets (ROA) of Indian general insurance firms. while liquidity and financial leverage are insignificant in determining the return on assets of general insurance firms in India.

Therefore, with the discussion and analysis given above, researcher hypothesizes are formulated as follows:

> H1: There is a significant impact of Leverage on return on assets.

> H2: There is a significant impact of Liquidity on return on assets.

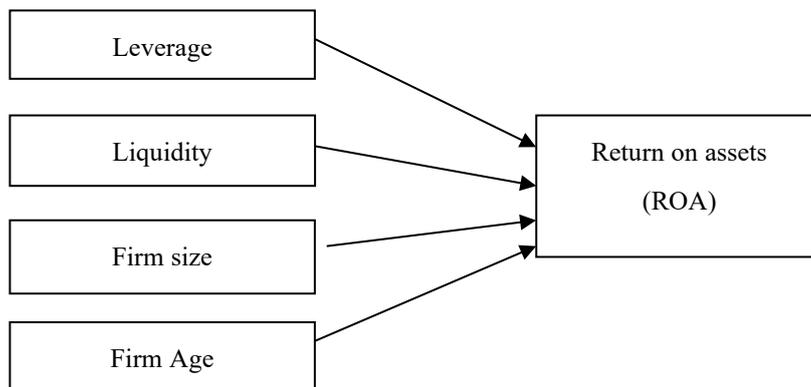> H3: There is a significant impact of Firm size on return on assets.

> H4: There is a significant impact of Firm age on return on assets.

03. METHODOLOGY

3.1 Conceptual framework

The purpose of this research is to identify the factors and their influence on return on assest of selected companies listed on CSE

F*igure 1: Conceptual framework*

Source: Researcher developed

3.1.1 Independent variable

The study identifies for independent variable: leverage, liquidity, firm size and firm age. The empirical literature review examines how financial factors, such as leverage, liquidity, size, and age influence the firms' financial performance and growth.

Leverage

Leverage is measured using debt-to-equity ratio and it is measured by the amount of debt a company has relative to its equity. It is used to evaluate a company's level of debt relative to shareholders' funds.

$$\text{Total Debt to Equity Ratio} = \frac{\text{Long term debt}}{\text{Total Equity}}$$

Liquidity

The current ratio is used to measure the liquidity of the firm; the current ratio establishes the relationship between current assets and current liabilities. It attempts to measure the ability of a firm to meet its current obligations (payable within one year) out of current assets.

$$\text{Curren Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

Firm size

Firm size evaluated using Total assets (FS). It can be represented by market capitalization and book values of the firm's total assets that measured by logarithm of the total asset.

Firm Age

Firm age refers to the number of years from the registration of the company.

3.1.2 Dependent variable

A dependent variable is dependent on other variables, as the name suggests. Study considers return on assets as a dependent variable.

Return on Assets (ROA)

ROA is a financial ratio that measures the profitability of the company to its total assets. This ratio indicates how well a company is performing by comparing the profit (net income).

$$ROA = \frac{\text{Net profit}}{\text{Average Total Assets}}$$

Table 1: *Definition of Variables*

Variables	Definition
Return on Asset (ROA)	The Ratio of the profitability of the company to its total assets.
Leverage (DE)	The ratio of debt to equity
Liquidity (CR)	The ratio of current asset to current labilities
Firm size	Natural logarithm of the total assets
Firm Age	Number of years since the establishment

3.2 Sample selection and Data Collection

The population of this study consisted of all companies (290) listed on the Colombo Stock Exchange (CSE). The sample of this study covers all Material companies (19) listed on the CSE for the period from 2018 to 2022. This study is carried out based on secondary data. The Companies' financial data and information for the past five years period from 2018-2022 are taken into deep consideration to carry out the study. Financial data is collected from the secondary source which is annual reports of selected companies from the CSE website.

3.3 Model Specification

The research attempts to identify the factors and their influences on selected companies listed on CSE. Based on the reviewing of both empirical and theoretical reviews, the following mathematical models were confirmed to predict the effect of independent variables on dependent variables.

The regression model is as follows;

$ROA = \beta o + \beta 1$ Debt-to-equity $+ \beta 2$ Current ratio $+ \beta 3$ Firm's size $+ \beta 3$ Firm age $+ \varepsilon$

Where,

ROA_{it} is the return on assets $'i'$ for the period of $'t'$

ROE_{it} is the return on equity $'i'$ for the period of $'t'$

DE_{it} is the debt-to-equity ratio $'i'$ for the period of $'t'$

CR_{it} is the current ratio $'i'$ for the period of $'t'$

FS_{it} is the firm's size $'i'$ for the period of $'t'$

FA_{it} is the firm age $'i'$ for the period of $'t'$

βo is the coefficient of regression

ε_{it} is the error term,

04. DATA PRESENTATION AND ANALYSIS

4.1 Descriptive Statistics Analysis

Various Descriptive statistics are calculated for the variables through SPSS 26.0 to describe the basic characteristics of these variables. Table 2 presents descriptive statistics of the variables which have been used in the study. With a view to describe the basic characteristics of these variables and to get a clear idea about all the variables this table provides the minimum and maximum value, mean, and standard deviation.

ROA is calculated by dividing net income by the total asset. Debt to equity ratio is calculated by dividing total debt by total equity. Current ratio calculated by dividing current asset by current liabilities. Firm size is the natural logarithm of total assets. Firm age is the number of years from the registration of the company.

Table 2: *Results of Descriptive Statistics*

	N	Minimum	Maximum	Mean	Std. Deviation
Debt to Equity	95	.03	2.80	.8487	.63340
Current Ratio	95	.31	17.88	2.8563	3.24683
Firm Size	95	8.82	10.65	9.5780	.47031
Firm Age	95	16	175	48.47	32.521
Return on Assets	95	-.13	1.00	.4363	.44537

The above table in which descriptive values of all the variables have been calculated shows that all variables are based on the 95 observations. ROA represents Return on Assets which is one of the dependent variables of the research. The minimum and maximum values of ROA are -0.13 and 1.00 respectively. The mean value is 0.4363 and standard deviation value is 0.44537.

The study consists four independent variables; Debt to Equity (DE) represents Leverage. The minimum and maximum values of DE are 0.03 and 2.80 respectively. The mean value of DE is 0.8487 and the standard deviation is 0.63340. The current Ratio represents Liquidity. The minimum and maximum values of the CR are .31 and 17.88 respectively. The mean value of CR is 2.8563 and the standard deviation is 3.24683. Firm size is measured by a log of total assets. The minimum and maximum values of Firm Size are 8.82 and 10.65 respectively. The mean value is 9.5780 and standard deviation value is 0.47031. The minimum and maximum values of Firm Age are 16 and 175 respectively. The mean value is 48.47 and standard deviation value is 32.521.

4.2 Correlation Analysis

Correlation analysis deals with the association between two or more variables. Correlation is a statistical tool that helps to measure and analyze the degree of relationship between two variables. The bivariate analysis is a statistical technique used to determine the degree to which two variables are related. Correlation (often measured as a correlation coefficient, p) indicates the strength and direction of a linear relationship between two random variables.

Table 3: *Results of Correlation Analysis*

		Debt to Equity	Current Ratio	Firm Size	Firm Age	Return on Equity	Return on Assets
Debt to Equity	Pearson Correlation	1	-.556**	.404**	-.097	-.249*	-.124
	Sig. (2-tailed)		.000	.000	.352	.015	.231
	N	95	95	95	95	95	95
Current Ratio	Pearson Correlation	-.556**	1	-.314**	.061	.012	-.175
	Sig. (2-tailed)	.000		.002	.560	.908	.089
	N	95	95	95	95	95	95
Firm Size	Pearson Correlation	.404**	-.314**	1	-.285**	.132	-.062
	Sig. (2-tailed)	.000	.002		.005	.202	.547
	N	95	95	95	95	95	95
Firm Age	Pearson Correlation	-.097	.061	-.285**	1	.006	-.125
	Sig. (2-tailed)	.352	.560	.005		.957	.226
	N	95	95	95	95	95	95
Return on Equity	Pearson Correlation	-.249*	.012	.132	.006	1	.161
	Sig. (2-tailed)	.015	.908	.202	.957		.120
	N	95	95	95	95	95	95
Return on Assets	Pearson Correlation	-.124	-.175	-.062	-.125	.161	1
	Sig. (2-tailed)	.231	.089	.547	.226	.120	
	N	95	95	95	95	95	95

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

The above table 3 indicates the relationship between dependent variables (ROA) and independent variables (DE, CR, FS, FA) of the listed Material company in terms of the correlation coefficient. The correlation between Debt to Equity and ROA is -0.124, which indicates a negative relationship. The correlation between current Ratio and ROA is -0.175, which indicates a negative relationship. The correlation between firm size and ROA is -0.062, which indicates a negative relationship. The correlation between firm Age and ROA is -0.125, which indicates a negative relationship.

4.3 Multiple Regression Analysis

Model summary

Table 4: *Results Model Summary*

R	R Square	Adjusted R Square	Std. Error of the Estimate
.358[a]	.128	.089	.42506

As Table 4 reports the R-value is 0.358, which means that there is a positive linear relationship between Return on assets (ROA) and independent variables.   Here the R square value is 0.128, its statically conclude that 12.8% of the variation of ROA can be explained by debt to equity, current ratio, firm size, and firm age. The remaining 87.2% is influenced by other factors which are not considered in this study.

Results of coefficient

The hypotheses can be tested through regression analysis. The results can be presented as follows.

Table 5: *Standardized Coefficients of ROA*

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-.780	.433		-1.800	.075		
Debt to Equity	-.131	.037	-.439	-3.579	.001	.632	1.581
Current Ratio	-.009	.007	-.148	-1.252	.214	.681	1.468
Firm Size	.111	.045	.278	2.490	.015	.765	1.308
Firm Age	.000	.001	.051	.503	.616	.918	1.089

based on the above table, the regression equation can be developed as follows.

ROA= 1.781+ (-0.212 * DE) + (-0.050 * CR) + (-0.096 * FS) + (-0.002 * FA).

The decision rule is, if the P value is greater than 0.05, accept the null hypothesis and if the P value is less than 0.05, reject the null hypothesis. According to the results indicated in table 4, the Beta coefficient of debt to equity (DE) is -0.302. P value takes 0.017, which is less than 0.05: thus, providing strong evidence, it is statistically concluded that, debt to equity has significant negative impact on ROA. Therefore, hypothesis H1 stated that There is a significant impact of Leverage on return on assets is supported.

The beta coefficient of the current ratio is -0.365. P value takes 0.003, it is statistically concluded that the current ratio has significant negative impact on ROA. Thus, hypothesis H2 there is a significant impact of Liquidity on return on assets is supported. The beta coefficient of Firm Size is -0.101. P value takes 0.373, it is statistically concluded that firm size has insignificant but negative impact on ROA. Therefore, hypothesis H3 there is a significant impact of firm size on return on assets is not supported. The beta coefficient of Firm Age is -0.161. P value takes 0.121, it is statistically concluded that firm age has insignificant but negative impact on ROA. Therefore, hypothesis H4 there is a significant impact of firm age on return on assets is not supported. Here VIF value of all independent variables is less than 5 so, there is no multicollinearity problem, and there is no strong relationship between independent variables.

Hypothesis Testing

The developed hypotheses for the study tested using the regression analysis.

Table 6: *Hypothesis and results*

	Hypothesis	Results
H1	There is a significant impact of Leverage on return on assets	Supported
H2	There is a significant impact of Liquidity on return on assets	Supported
H3	There is a significant impact of Firm size on return on assets	Not Supported
H4	There is a significant impact of Firm Age on return on assets	Not Supported

05. FINDING AND CONCLUSION

Key finding

The purpose of this research is to investigate, the factors influencing on financial performance of the material companies in the Sri Lankan context. For this research debt to equity, current ratio, firm size, and firm age are independent variables, and return on assets (ROA) is the dependent variable. The sample of this study covers all material companies listed on the Colombo Stock Exchange.

Regression analysis is mainly used for hypothesis testing in this study. The findings of this study are, Leverage (DE) and liquidity (CR) have significant negative impact on ROA, Firm Size and Firm Age have insignificant but negative impact on the ROA of the material companies in Sri Lanka. 12.8% of the variability of return on assets (ROA) is explained by debt to equity (DE), Current Ratio (CR), firm size (FS), and firm age (FA). The remaining 87.2% is explained by non-selected variables in this study. There is no multicollinearity among selected independent variables in this study. VIF value of all independent variables is less than 5 so, there is no multicollinearity problem, and there is no strong relationship between independent variables.

Conclusion

This study investigated the factors influencing on return on assets of the material companies listed on the Colombo Stock Exchange (CSE) using five years of data from 2018 to 2022. The result of this study indicates that the debt-equity ratio has a significant and negative impact on return on assets, the current ratio has a significant and negative impact, firm size has an insignificant, and firm age has an insignificant and negative impact on return on assets. Further this study supports companies within the material sector to identify the Sri Lankan context they can improve financial performance. Understanding and analyzing financial performance is essential for business, investors, stakeholder to know the company ability to generate profits, mange resource and meet financial obligation. This study has helped to understand the impact of factors influencing the financial performance of the material companies listed on the Colombo Stock Exchange (CSE). It will also add to the body of knowledge which will be useful for future studies. The researcher hopes that the findings from the study will be useful to the business community since it will throw more light on the role that these factors have in influencing financial performance. The study will also enlighten scholars on the importance of the factors influencing the financial performance of any business and will highlight areas for further research

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