Impact of Financial Ratios on Financial Performance: Evidence from Listed Manufacturing Companies in Colombo Stock Exchange

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A B S T R A C T

Financial ratios can be considered a regularly used measure of assessing the financial performance of entities. In a volatile business environment, financial ratios play a vital role in assessing the financial performance of several industries. Therefore, it is important to analyze the effect, it will have on the financial performance of manufacturing sector companies which are listed on the Colombo Stock Exchange. The main purpose of this study is to investigate how the financial ratios will impact the financial performance by considering listed manufacturing companies in CSE by taking various ratios. In order to carry out this quantitative research, the data is collected from published annual reports of 30 manufacturing companies for a period of 6 years (2015-2020) which comprises both time series and cross- sectional data together. The data is analyzed using E views software. Current ratio, Debt to Equity ratio, Earnings per share ratio and Total Assets Turnover ratio are the independent variables while the Firm size is the control variable. The dependent variable is the Net profit margin. According to the results of this study, only Debt to equity ratio, Earnings per share ratio, and Total assets turnover ratio had a significant impact on financial performance. Debt to equity ratio and Total assets turnover ratio negatively impacted the net profit margin, while Earnings per share impacted positively. With these major findings, this research consists of some limitations such as depending only on manufacturing companies, and those are solely dependent on annual report data. As recommendations for future studies, this study will provide an insight for future investors to make informed decisions and the findings of this study will enable future researchers to get an idea for further improvements.

***Keywords**:* Colombo Stock Exchange, Financial performance, Financial ratios, Manufacturing companies

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1. Introduction

1.1. Background of the study

The way of conducting analyzing, measuring, evaluating, and controlling financial data and information has become a crucial challenge all over the world, in order to ensure the financial soundness and well-being of companies. Therefore, a strengthening tool for analyzing financial data for the betterment position of the entities has become imperative. Financial ratios can be taken in determining the financial position of the company, making judgment by seeing the financial position, how well the company is efficient in the operation process and how efficiently the company utilize the financial resources to earn profits. (Sadiq et al., 2015).

There are main financial ratios which are used in assessing and evaluating the financial performance of companies. Those are liquidity ratio, leverage ratio, market ratio and efficiency ratios (Bhebhe, 2018). Kariyawasam, (2019), has done research regarding this area by considering the listed companies. In his study of analyzing the impact of financial ratios on financial performance, he reviewed the identified relationship that will help the managers and the decision makers to predict the future performance of the company through the financial ratios of the organizations. Financial ratios play a vital role in evaluating the financial performance as an integrated model, with a volatile business environment as well as with the differences in these ratios in a particular period. Due to that reason, the results may be varied in some contexts. Analyzing financial performance through financial ratios has become a more trended technique in the modern business context, as well as the results gained through this impact provide suggestions and areas which have to be improved in a company internally. Therefore, it is obvious that financial ratios mainly act as a signalling tool. This research study basically searches to bridge the gap by undertaking financial ratios as an analytical model. Since the various ratios provide typically different results with each study. There are a few studies done in the Sri Lankan context regarding this area, therefore a study related to this area is important. Therefore, the need for this study area of assessing financial performance using financial ratios has been raised.

1.2. Research problem of the study

In some contexts, some companies inappropriately apply financial ratios. The same has been proven by researcher Akkoc (2019). He stated that some companies use the right method but give wrong interpretations and most firms do not apply it at all. Further, as per the identification of theoretical background, each specific financial ratio provides an inherent bond with the profitability of the company. But, due to variations in different ratios and some factors in particular companies internally when carrying out the business operations, the results may be varied with the aspect which is all known. Due to the reasons which provide different results in calculations and interpretations of financial ratios, the theoretical base and the practical scenarios will be varied. Kariyawasam (2019) & Durrah et al., (2016) have found contradictory findings on the liquidity ratios. It is the same as for the efficiency ratios.

The research done by Innocent et al., (2013) & Nurlaela et al., (2019) found two different findings for the same. Therefore, it is obvious that there is a variation of the theoretical base and the practical scenarios in operations from manufacturing companies' perspectives. Therefore, the main problem of this research is to analyze "The Impact of financial ratios on the financial performance of listed manufacturing companies in CSE" since it is yet questionable.

1.3. Research questions

This study will concentrate on answering the following research question. What is the impact of financial ratios on the financial performance of listed manufacturing companies on the Colombo Stock Exchange?

1.4. The objective of the study

The main objective of this study is to identify the impact of financial ratios on financial performance: Evidence from listed manufacturing companies in CSE.

2. Literature review

2.1. Theoretical framework

An overview of the business system and the dynamic interrelationship are activated by the stakeholder decisions (Al-nasser, 2014). As above, stakeholders expect three main decision areas which underlie the business activities such as investments, operations and financing. This demonstrates how decisions are affected by these key financial ratios and how consistency optimizes firms' ultimate goals. There are various objectives of analysis in order to highlight the need for building the gap between accounting ratios and financial analysis of firms' ultimate objectives with judging performance. According to Thomas et al., (2006), from a management perspective, the rationale for using financial ratios is that the financial information can be revealed when expressing several figures from financial statements as ratios. As stated by him, the theory that managers can use is to improve the efficiency and profitability of their operations. While associated with this theory, it is the implicit assumption that information from financial ratios enables management to foresee and avoid business failures.

According to Al-nasser (2014), main financial ratios are identified as a firms relative strengths and weaknesses and suggested actions the firm might establish to take advantage of the firm's strengths and correct weaknesses in the future. This study was done based on Jordanian industrial companies. Hossan & Habib (2010) has done a study on performance evaluation and ratio analysis of pharmaceutical companies in Bangladesh, and he reviewed measuring financial performance with financial ratios as a signalling tool to stakeholders about the overall firm. As stated in Durrah et al., (2016), ideally, the financial ratios analyzed should be selected on some theoretical basis, associated with authenticated empirical evidence of their usefulness. Therefore, it is obvious that researchers seek these financial ratios in varieties of ways.

3. Methodology

The panel data analysis and quantitative research design were suitable for ascertaining the relationship between variables and the period covered is 2015-2020. The reason for selecting this period is, that there were no variations in the economic factors in the particular period. The source for the secondary data collection method is used from published annual reports, to collect data for the study. The population of the study is all manufacturing companies which are listed on the Colombo Stock Exchange and due to the unavailability of annual report data and irrelevance period, 30 manufacturing companies were selected as the sample.

The variables were selected by reviewing the previous literature. The independent variables of Current ratio, Debt to equity ratio, Earnings per share ratio, and Total assets turnover ratio were selected as indicators for liquidity, leverage, market and efficiency ratios respectively. The log of total assets was selected as the indicator of firm size which was taken as the control variable. The control variable was selected by the firm size, since it affects the companies' other assets and liabilities simultaneously with their ability of economies of scale, therefore it affects the other variables in several ways Kariyawasam, (2019). The dependent variable was net profit margin.

The results gained through the regression analysis were used in order to find the impact of each financial ratio on financial performance and to find the relationship of each variable, correlation analysis was used. Hypotheses were developed in order to ascertain the significance of each variable on financial performance.

Table 1: Operationalization of Variables

Indicator	Variable	Calculation
Financial performance	Net profit margin	Net profit / Sales
Ratio analysis	Current ratio	Current assets / Current liabilities
	Debt to equity ratio	Debt / Equity
	Earnings per share ratio	(Earnings – Preferred share dividend) / No. of shares
	Total assets turnover ratio	Total assets / Turnover
	Firm size (Log of total assets)	Natural log of total assets

Source: Author constructed

3.1. Conceptual framework

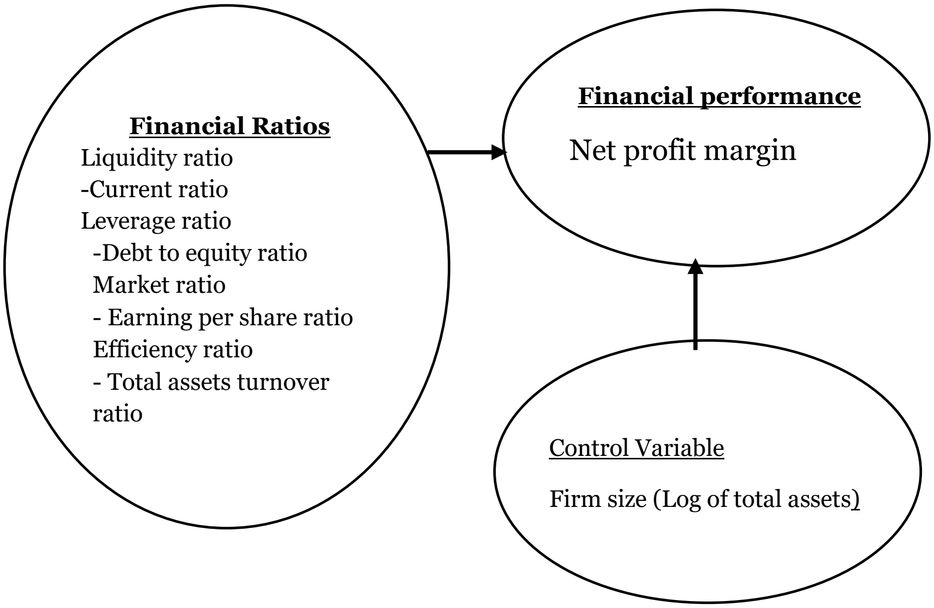

Figure 01: Conceptual Framework

3.2. Hypotheses development

As mentioned in the study of Kariyawasam, (2019), the following hypotheses were developed.

H_1: There is a significant impact between the Current ratio and financial performance of manufacturing companies listed in the CSE

H_2: There is a significant impact between the Debt-to-equity ratio and the Net profit margin of manufacturing companies listed in the CSE

H_3: There is a significant impact between the Earnings per share ratio and the Net profit margin of manufacturing companies listed in the CSE

H_4: There is a significant impact between the Total assets turnover ratio and the Net profit margin of manufacturing companies listed in the CSE

H_5: There is a significant impact between the log of total assets and the Net profit margin of manufacturing companies listed in the CSE

4. Data analysis & results of the study

Table 2: Descriptive Statistics

Variables	NPM	CR	DE	EPS	TATR	LNTA
Mean	0.775555	1.507869	0.767738	7.915249	1.391239	21.68673
Std. Dev.	0.53416	0.514189	0.359674	5.290058	0.587781	1.154533
Median	0.834727	1.429118	0.732748	7.482729	1.337909	21.57278
Minimum	-0.052181	0.49774	0.021181	-0.216325	0.420905	19.15331
Maximum	1.947896	2.56999	1.632516	19.2034	2.532078	24.89989
Jarque-Bera	5.242173	5.160384	5.887023	6.363452	11.50763	3.920088
Probability	0.072724	0.075759	0.05268	0.041514	0.003171	0.140852

Source: Survey data

Table 2 provides the mean median values of the independent variables. The average net profit margin of these companies was 0.775555. The large standard deviation is provided by the earnings per share ratio.

Table 3: Correlation Analysis

	NPM	CR	DE	EPS	TATR	LNTA
NPM	1					
CR	0.239304	1				
DE	-0.114262	-0.270718	1			
EPS	0.449317	0.215801	-0.13846	1		
TATR	-0.330656	-0.246803	-0.347144	-0.233952	1	
LNTA	0.080247	-0.182944	0.103227	0.222079	0.023717	1

Source: Survey data

In examining the relationship between independent and dependent variables, Karl Pearson correlation coefficient was used to measure the level of the alliance under consideration. The results show a positive correlation between liquidity ratios which is measured through current ratio in this research study and financial performance which are measured through the Net Profit Margin. The results of this study suggest a negative correlation between leverage ratios which is measured through the debt to equity ratio in this study. The debt to equity ratio allows paying the attention to the level of debt of a company and how the assets are financed for a continuous operation since the continuous operation would affect the profit in a negative way. As per the results of this study, the correlation between the earnings per share ratio and the net profit margin is also weak and positive. The correlation between the Total assets turnover ratio and net profit margin is also shown as a weak negative. The firm size which is measured through the natural log of total assets and net profit margin ratio also depicts a correlation which indicates a positive sign. Therefore, it is obvious only the Current ratio, Earnings per share ratio and the natural log of total assets give a positive correlation with the net profit margin which shows the financial performance of the company while others give a negative sign of relationship.

Table 4: Regression Analysis

Dependent Variable: NPM

Method: Panel Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.569657	0.714932	0.796799	0.4267
CR	0.061095	0.076254	0.801199	0.4241
DE	-0.23349	0.113277	-2.061219	0.0408
EPS	0.034098	0.007197	4.738058	0
TATR	-0.265949	0.069685	-3.816439	0.0002
LNTA	0.018128	0.031594	0.573783	0.5669

R-squared	0.283677	Mean dependent var	0.775555
Adjusted R-squared	0.263093	S.D. dependent var	0.53416
S.E. of regression	0.458541	Akaike info criterion	1.31123
Sum squared resid	36.58518	Schwarz criterion	1.417662
Log likelihood	-112.0107	Hannan-Quinn criter.	1.354384
F-statistic	13.78147	Durbin-Watson stat	0.195662
Prob(F-statistic)	0.0000		

$$NPM_{it} = \beta_0 + \beta_1 CR_{it} + \beta_2 DE_{it} + \beta_3 EPS_{it} + \beta_4 TATR_{it} + \beta_5 LNTA_{it} + \epsilon_{it} \qquad (1)$$

$$NPM = 0.569657 + 0.061095CR - 0.233490DE + 0.034098EPS - 0.265949TATR + 0.018128LNTA + \epsilon \qquad (2)$$

In this research, regression analysis is used to examine the impact of explanatory variables, on their dependent variables.

As the results of the regression analysis, it would be observed that R^2 of the model is 0.283677 (28%). It means the explanatory power of variables. Here, only a 28% proportion of variation in the dependent variable can be predicted by independent variables which comprise a less portion. The rest of the portion (72%) is determined by other variables which have not been taken to this model. However, the probability (F- statistics) (0.0000) which explains the overall significance of the model interprets this model as a good model since the value of the probability is less than 0.05. The coefficient value **(β_0)** of the model reflects 0.569697. There are only three variables which are significantly impacted financial performance.

Debt to equity ratio has a significant negative impact on net profit margin and it is significant at 0.04 of 5% significant level. This table revealed that the debt to equity ratio has an impact on the net profit margin of listed manufacturing companies in CSE. The earnings per share ratio show a probability value of 0.0000, which is less than 0.05 and can be considered as Earnings per share has a significant positive impact on net profit margin. The total assets turnover ratio also indicates a probability value of 0.0002 which is significant at a 5% significant level. It also indicates there is a strong negative impact between the total assets turnover ratio and net profit margin. The current ratio has a positive insignificant impact on financial performance since the probability value of the current ratio failed at even 5% significance. It is the same as the log of total assets. It also depicts a positive insignificant impact on financial performance. This means there is no much significance of these two variables to the financial performance of listed manufacturing companies on the CSE.

4.1. Testing hypotheses

In order to determine the impact of financial ratios on the financial performance of listed manufacturing companies, the following hypotheses were tested.

The impact between the current ratio and the net profit margin is positive but insignificant. Therefore, according to the results of this study, the H_1 mentioned in the previous chapter is rejected since the impact of the current ratio and financial performance is not significant. Same as mentioned above, debt to equity ratio and net profit margin indicates a weak negative impact on net profit margin. Therefore, the developed hypothesis H_2 can be accepted, there is a negative impact between debt to equity ratio and financial performance. The earnings per share ratio and Total assets turnover ratio also indicate a significant positive impact and significant negative impact respectively. Therefore, developed hypotheses of H_3 and H_4 also can be accepted. The earnings per share have a positive impact between financial performance and total assets turnover ratios has a negative impact on the financial performance. Finally, the log of total assets provides an insignificant but positive impact on the net profit margin. Therefore, the developed hypothesis H_5 is rejected, the impact of total assets and financial performance is positive since, the probability value is less than 0.05, which does not reflect a significant value.

5. Discussion of findings

According to the results of the previous section, debt to equity ratio, earnings per share ratio and total assets turnover ratio have a significant relationship to net profit margin while the current ratio and firm size which is measured through the log of total assets have an insignificant relationship on net profit margin. A study done by Innocent, Mary & Matthew, (2013) considering the Nigerian Pharmaceutical industry, found a negative impact on total assets turnover ratio and return on equity. The current ratio, earnings per share ratio and firm size have a positive impact on net profit margin. Kariyawasam, (2019), & Oshoke and Sumaina, (2015) supported this finding with the same result. They also found a positive impact between the current ratio and net profit margin. A study done by the same researcher, found a contradictory finding to our study. As stated by him, the earnings per share ratio is considered an investor ratio and it will not be much affected by determining the net profit margin. Meanwhile, debt to equity ratio and total assets turnover ratio negatively impact net profit margin.

As the answer to the research question, the research objective can be achieved from the developed conceptual framework in the previous section. The selected framework provided the financial ratios which are mostly used practically in assessing financial performance. The findings of the research study will give an insight into the main objective.

6. Conclusion and recommendations

The results gained from the study will enable the stakeholders to decision-making in their investing decisions. Each variable will give a signal for the betterment of the company. Since there is a negative impact between the debt to equity ratio and the net profit margin, the organizations should be aware of the debt level of the company because a higher debt level will results in higher interest, therefore it will reduce the earnings. By considering these things, business organizations can change their assets and debts level to a certain capacity which provides an optimal point.

A positive impact between earnings per share and the net profit margin reveals investors should pay attention to the earnings per share ratio in making decisions.

Since there is a negative impact on the total assets turnover ratio and the net profit margin, business organizations should be aware of the utilization of their available assets and available scarce resources. It is the same as the liquidity ratios, adequacy of current assets to settle the current liabilities would impact the higher profit indirectly. The effect of firm size is due to the impact of economies of scale, therefore, in conclusion, the firm size also affects the performance of companies due to the reason of economies of scale.

As an important conclusion, these financial ratios provide an insight into how these ratios behave with performance. It is necessary to analyze the past data in taking decisions on future investment decisions because past data will give an alert on how this particular company will perform in future.

There are some other financial ratios in practice which can be used to assess financial performance. For future studies, it is recommended to analyze the impact raised from those ratios by considering another sector as well. Moreover, considering the pre and post periods of the pandemic situation is also recommended in analysing the impact of these ratio analyses and financial performance. There can be some variables which are affected more by the net profit margin of a company; therefore, it is also recommended to select more variables which are affected more by the financial performance.

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