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The Impact of Liquidity Management on Financial Performance: A Study of Listed Manufacturing Companies on Colombo Stock Exchange

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A B S T R A C T

This study assesses the relationship between liquidity management and financial performance in a sample of manufacturing firms listed in the Colombo Stock Exchange, in Sri Lanka, between the years 2016 to 2020. This research aims to analyse and investigate the impact of liquidity management on financial performance, by considering the listed manufacturing companies on Colombo Stock Exchange in Sri Lanka and gain an insight on the impact of firm's liquidity position on its financial ratios. It further assesses whether there is any existence of trade-off between the two aspects. The study utilized the financial data published in the firms' Annual Reports to assess the relationship between the variables of the two financial aspects, by conducting descriptive and regression analysis. It was observed that when measured with Return on Capital Employed and, financial performance had a significant positive relationship with liquidity, supporting the Hirigoyen Anti Trade-Off Hypothesis. Whereas it was observed that when measured with Price Earnings Ratio and, financial performance had a significant negative relationship with liquidity, supporting the trade-off theory. Also observed that when measured with Return on Investment and, financial performance had an insignificant negative relationship with liquidity. This deduces that there is a higher possibility of a negative relationship liquidity management and financial performance in the listed manufacturing firms on CSE, indicating that a minimum level of liquidity enable firms to increase its financial performance. The study demonstrates an exploratory nature and its deductions are limited to the Sri Lankan manufacturing industry and to the years observed.

Key words: *Liquidity management, financial performance, Return on Capital Employed, Return on Investment, price Earnings, Colombo Stock Exchange*

1. INTRODUCTION

In modern organizations, the fundamental of sustainable business growth and survival is the effectiveness of its financial management (Eljielly, 2004). The two financial aspects, which usually affect the effectiveness of the organizational performance, are liquidity and profitability.

Liquidity plays a pivotal role in the financial performance of an organization (Kimondo et al., 2016). It demonstrates a firm's capability to meet their short-term financial obligations by transforming their short-term assets into cash, without experiencing a significant financial lost. As indicated by Akenga (2017) and Ehiedu (2014), an entity that is able to fulfill their immediate liabilities is stated liquid, which enables it to construct a positive image in front of their creditors and other stakeholders.

A firm faces various day-to-day obligations, including unpredictable emergencies, accidents and everyday operational costs. Hence, it needs to be liquid enough to efficiently and effectively meet such expenses (Akenga, 2017). Liquidity also ensures that excessive resources are not invested in the firm's assets (Priya & Nimalathasan, 2013). To elaborate it further, maintaining proper liquidity would enable listed manufacturing firms to meet unexpected expenses and regulate their long-term financial investments.

The trade-off between financial performance and liquidity management have been given considerable importance in the previous literatures, specifically in the banking and agricultural sectors (Ferrouhi, 2014; Ariffin, 2012; Demirgunes, 2016; Maaka, 2013; Jha and Hui, 2012; Waswa and et al, 2018; Odala and Achoki, 2016). Nonetheless, very limited research has been conducted in manufacturing sector (Ben-Caleb, Olubukunola and Uwuigbe, 2013; Anser, and Malik, 2013).

However, in Sri Lanka, manufacturing sector takes up majority of the industry sector and has the largest amount of establishments (Department of Census and Statistics, 2021). Sri Lanka's manufacturing sector in fact contributes over 30% of the country's GDP, with apparel, leather, textiles, beverages, food, tobacco, rubber, plastic, chemicals, sugar and cement being some of the major industries (Siddiquie, 2021).

It has further experienced a constant GDP growth and significantly contributed to the Sri Lankan economy throughout the years (Department of Census and Statistics, 2021), as demonstrated below.

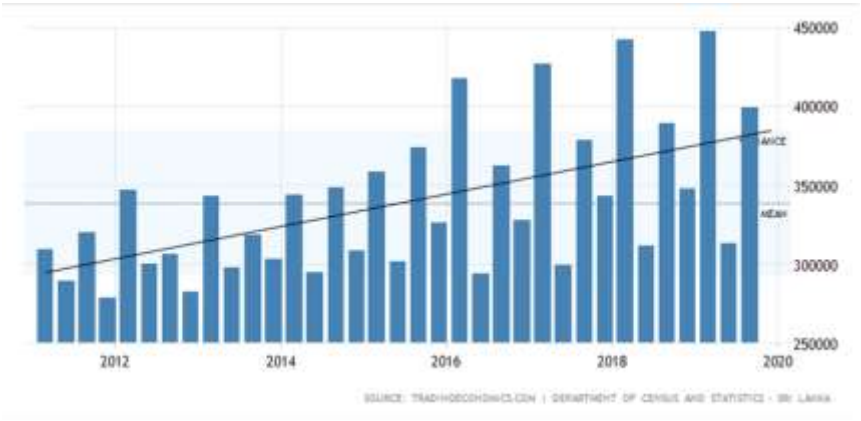

Figure 1: GDP Growth of the Manufacturing Sector

Source- Trading Economics (2021)

In the past years, many plans have been embarked to improve Sri Lanka's industrialization; from adapting policies to establish undeveloped industrial manufacturing facilities to growing and spreading the prevailing manufacturing capacities with emphasis on export-oriented products (Siddiquie, 2021). This demonstrates the importance of manufacturing sector to the Sri Lankan economy.

The immense contribution of manufacturing sector to the economy makes it a necessity to study the determinants of its profitability. Many scholars have studied the determinants of profitability in manufacturing sector and identified variances like firm size (Ozcan, Unal, and Yener, 2017; John, and Adebayo, 2013; Pratheepan, 2014) inventory management (Prempeh, 2015), working capital management (Jakpar et al, 2017; Ali, 2011; Ikpefan et al, 2014) and liquidity management (Ben-Caleb, Olubukunola and Uwuigbe, 2013; Anser, and Malik, 2013). Yet, there is limited research addressing the manufacturing sector of Sri Lanka.

Nonetheless, there are many factual evidences stating that attractive liquidity position in listed Sri Lankan manufacturing firms enhance their financial performance. Abans PLC was rated one notch above Sierra Cables PLC, due to it having a comparatively better liquidity position and operating scale (Fitch Rating, 2021). In addition, the three other manufacturing firms who overruled Abans PLC in the Fitch Ratings (i.e. DSI Samson Group (Private) Limited, Singer (Sri Lanka) PLC and Sunshine Holdings PLC), reached this position due to their comparatively strong leverage and healthy financial risk profile (Fitch Rating, 2021). Another company performing exceptionally well financially, together with an attractive liquidity ratio is Hemas Holdings PLC (Fitch Rating, 2021).

The present study would provide an insight on the relationship between profitability and liquidity and analyze the impact of liquidity management on financial performance in Sri Lankan listed manufacturing firms.

2. PROBLEM STATEMENT

When considering the financial aspects of a business, the main consideration goes to the level of cash that is invested as the firm's current assets. Current assets should have adequate amount of investment, just enough to satisfy the short-term requirements of the firm. Excessive amount tied up as current assets, would be considered idle and restrict profitable long-term investments. Nonetheless, a lack of liquid assets would create risks of insolvency, as the firm would be unable to meet its short-term financial obligations. This arises the need for proper liquidity management.

The initial consideration with liquidity management is that a firm's liquid assets would keep on fluctuating with the varying business operations. This makes it a requirement for the management, to not only arrange adequate investment to fund the current assets but also invest their time in managing the amount of assets to ensure it does not lead to lower profitability.

Hence, the key problems faced by the firms is to judge the optimal amounts of liquefiable assets (i.e. cash, inventories and accounts receivable) it should maintain and the most feasible way to finance them. In addition to this, it becomes a necessity to recognize the level of impact the liquidity ratios of a firm has on its financial measures.

Research Objectives

The fulfil the research aim, the following objectives are constructed-

- This study will explore the relationship between the financial concepts of liquidity management and financial performance.
- This study will explore the liquidity position of the sampled manufacturing firms, in the Colombo Stock Exchange.
- This study will identify the impact of firms' liquidity position on its' financial performance considering Return on Investment, Return on Capital Employed and Price Earnings financial ratios.

Research Questions

The following questions would be answered in this research, to gain an insight on the impact of liquidity management on the financial performance of listed manufacturing firms-

- Is there significant relationship between liquidity management and financial performance?
- Is there trade-off between liquidity management and financial performance?
- To what extent does the liquidity position of listed manufacturing companies affect its financial ratios?

3. LITERATURE REVIEW

Over the years, various scholars have conducted studies based on the relationship between the concepts of liquidity management and financial performance. Some of these studies, provide a conflicting view over the subject. Shin and Seonen (1998) analyzed 58,985 listed American Companies and established that shareholder value can be improved significantly by minimizing the liquidity (measured by cash conversion cycle (CCC)). Similar results were displayed in the research of Deloof (2003), who applied the same variable to a sample of 1009 large-scale non-financial firms in Belgium. Nonetheless, these studies also stated that longer credit policies might generate more sales; hence, ascertaining that longer CCC might ultimately increase the firms' profitability. Confirming to this theory, the studies of Lyroudi and Lazaridis (2000) demonstrated strong positive relationship between CCC and profitability (measured by Return on Investment and NPM), in a sample of Greek Food Industry. These studies provide a glimpse on the conflicting gaps in the research concerning with the CCC and the need to evaluate the subject further.

There are nonetheless many other studies, which have confirmed the trade-off theory between the liquidity management and financial performance. Eljelly (2004) demonstrated a negative relationship between liquidity and profitability, utilizing the measures of current ratio and CCC on a sample of Saudi Arabia's joint stock companies. His research further elaborated that CCC has bigger influence on a firm's profitability than current ratio and the liquidity levels have a high variation, industry to industry.

Sur,Maji and Banerjee(2013) made a comparative analysis of liquidity management of four major companies in Indian power sector, covering a period from1987-88to 1996-97. The techniques of radio analysis, Motaal's comprehensive rank test, and simple statistical techniques like measures of central tendency and spearman's rank correlation analysis have been used for the analysis. The liquidity ratios such as current ratio, quick ratio, current assets to total assets ratio, inventory turnover ratio and debtors' turnover ratio have been used for comparison and suitable interpretations have been made Motaal's comprehensive test is used to analysis the liquidity more precisely. To measure the closeness of association between liquidity and financial performance of the companies, Spearman's rank correlation co- efficient has been applied. The study has revealed that the inventory turnover ratio has a positive impact on firm's financial performance whereas the liquidity ratio, working capital turnover ratio and working capital to asset have negatively influenced the profitability

Margolis and Walsh (2001) found that, in 95 studies, financial performance was measured in 70 different ways. They found that there were 49 accounting performance measures (such asRoE and Roa) and 12 market performance measures such as earning per share (EPS) and price- earnings ratio (P/E) used in those studies. Five studies tended to use a mix of accounting and market measures, and four other measures entailed outcome performance. Most of accounting measures and marketing measures have focused on measuring return, rather than risk.

Bentzen *et al.* (2012) reported that new firms are anticipated to earn less profit than older ones because they are less experienced in the market and because they are trying to establish their own presence; in addition, they are usually trying to cover their cost structure.

Similar findings were shown in the research of Sadlovska, and Viswanathan, (2007), which stated that the best performing firms have cash conversion cycle (liquidity) approximately 5-6 times smaller than average performing ones. Likewise, Dash and Hanuman (2008)'s research utilized goal programming model to explore profitability-liquidity trade-off and concluded that inventory and working capital specifically should be streamlined to increase firms' profitability.

Furthermore, the study of Raheman and Nasr (2007) on the relationship of Working Capital Management and Profitability, on a sample of 94 listed companies in Karachi Stock Exchange, Pakistan, too exhibit a significant negative relationship among liquidity and profitability. Studies of Bunia and Khan (2011) too, revealed petite relationship between liquidity and Return on Capital Employed (profitability), while exploring the efficiency of liquidity management in 230 Indian Steel Companies.

On the other hand, there is also evidence available that provide a foundation that adequate liquidity management indeed helps a firm to enhance its profitability. According to the studies of Singh and Pandy (2008), constant monitoring and forecasting liquidity positions and financing on short-term goals would enhance profitability. While quantitatively evaluating sample-listed firms during the financial crisis, using regression analysis, the authors found no significant negative relationship between adapting liquidity strategies and ROA.

Khan et al, (2011) further investigated the Risk-Return Trade-Off hypothesis in the Pakistan's textile sector and identified positive but moderate relationship between liquidity and profitability. Saleem and Rehman (2011) too highlighted similar positive but less significant effect of quick ratios, current ratios and liquid ratios on ROE, in India's gas and oil sector.

Rehman (2013) investigation on relationship between financial leverage and financial performance: empirical evidence of listed companies of Pakistan. The study sample size was 35 food companies listed on Karachi stock Exchange. Financial performance was the dependent variable measured using five indicators of ROA(%)ROE(%),EPS after tax(%),NPM(%) and sale growth. The researcher identified gaps that would require further studies in following areas: by extension period and take all food companies on the Karachi stock exchange, consider comparative studies by taking data from different sectors to check the relationship between the variables studied.

Amalendu(2007) in his study on liquidity management of Sponge Iron India: A case Study an attempt was made to examine and evaluate the liquidity management of public enterprise as a factor responsible for poor performance in the iron and steel industry in indie, covering a period from 1991-92 and 2002-03, he compared the various liquidity ratios and concluded that the liquidity management of sample companies were important for the firm's financial performance

Studies of Aloy Niresh (2013) highlighted weak relationship between profitability (using indicators of ROA and Net Profit) and liquidity in Sri Lankan manufacturing firms. Nonetheless, providing more specific outlook, Bencaleb, Olubukunola and Uwauigbe (2013) found that liquid ratio and current ratio have positive relationship with profitability while CCC has negative relationship, in the studies of Nigerian manufacturing companies.

Thus, it is understood that even though adequate liquidity is stated to be beneficial to the firm's financial performance in the literary sources and Hirigoyen's (1985) hypothesis, there is comparatively more empirical evidence stating a weak and in some cases, inverse relationship, between the two financial aspects.

4. RESEARCH HYPOTHESIS

Based on the objectives of the study, the researcher developed the following statement of hypothesis.

H1- There is a significant impact of Liquidity Management on Financial Performance of Listed Manufacturing firms in Sri Lankan.

H2- Liquidity Management significantly influences the financial performance of Return on Capital Employed in listed manufacturing firms in Sri Lankan.

H3 - Liquidity Management significantly influences the financial performance of Price Earnings Ratio in Listed Manufacturing firms in Sri Lankan.

H4 - Liquidity Management significantly influences the financial performance of Return on Investment in Listed Manufacturing firms in Sri Lankan.

5. METHODOLOGY

5.1 Sample and Data Collection

From all the sectors in the Colombo Stock Exchange, the present study focuses on the manufacturing industry, due to its importance in the Sri Lankan economy and the limited research conducted in it in the past. There are thirty-nine manufacturing firms listed in the Colombo Stock Exchange, Sri Lanka, as at 2021, which seems quite large number to conduct conclusive analysis. Therefore, due to the restrictions of time and resources, this study only targets twenty one companies, 54% of the total. These firms are sampled using a random sample technique. Each listed manufacturing firm was given an ascending number in the alphabetical order. Then, with the aid of an online random number generator, 21 random numbers were produced within the range of 0 to 39, with no duplication allowed.

Initially, the study piloted the preliminary literature review by investigating trade reports, academic journals, prior research findings, books and reliable websites, learning the variables of liquidity management and financial performance and their association, to gain knowledge on the essential information and create a hypothesis to test in the secondary research.

All secondary data required in this research was obtained by personally analyzing individual Annual Financial Reports from 2016-2020 of each of the sampled firm, gaining an insight on their overall financial performance, identifying the relevant ratios from each of their Financial Statements and constructing the numerical data strategically. Together with the annual reports of the firms, the author collected secondary data from journals, research studies, newspapers and books. The data was then analyzed and processed into financial perimeters to make the study useful to the peers.

5.2 Research Models

$ROCE_{it} = \beta 0 + \beta 1\ LM_{it} + u_{it} + \varepsilon_{it}$

$PE\ Ratio_{it} = \beta 0 + \beta 1\ LM_{it} + u_{it} + \varepsilon_{it}$

$ROI_{it} = \beta 0 + \beta 1\ LM_{it} + u_{it} + \varepsilon_{it}$

Where,

$_{it}$ is company i at time t.

$ROCE_{it}$ is the Return on capital employed of Company i for the period t.

PE Ratio $_{it}$ is the price earnings ratio of Company i for the period t.

ROI $_{it}$ is the Return on investment of Company i for the period t.

β0 is the Constant term.

β1 LM_{it} is the liquidity management of company i for the period t.

u_{it} is between entity error.

ε_{it} is Composite error term.

5.3 Definitions of Key Terms

5.3.1 Return on Capital Employed (ROCE)

Return on capital employed (ROCE) is a financial ratio that can be used in assessing a company's profitability and capital efficiency. In other words, this ratio can help to understand how well a company is generating profits from its capital as it is put to use.

The formula for ROCE is as follows:

ROCE=EBIT/CapitalEmployed
where: EBIT=Earnings before interest and tax

Capital Employed=Total assets − Current liabilities

5.3.2 Price Earnings Ratio (P/E ratio)

The price-earnings ratio (P/E ratio) relates a company's share price to its earnings per share. A high P/E ratio could mean that a company's stock is over-valued, or else that investors are expecting high growth rates in the future.

P/E Ratio=Market value per share/Earnings per share.
To determine the P/E value, one simply must divide the current stock price by the earnings per share (EPS).

5.3. 3Return on Investment

Return on investment (ROI) is a performance measure used to evaluate the efficiency or profitability of an investment or compare the efficiency of a number of different investments. ROI tries to directly measure the amount of return on a particular investment, relative to the investment's cost.

ROI= Current Value of Investment−Cost of Investment/ Cost of Investment

5.3.4 Liquidity Ratio

Liquidity ratios measure a company's ability to pay debt obligations and its margin of safety through the calculation of metrics. The current ratio measures a company's ability to pay off its current liabilities (payable within one year) with its total current assets such as cash, accounts receivable, and inventories. The higher the ratio, the better the company's liquidity position:

Current Ratio= Current Asset/ Current Liabilities

5.4 Theoretical Framework

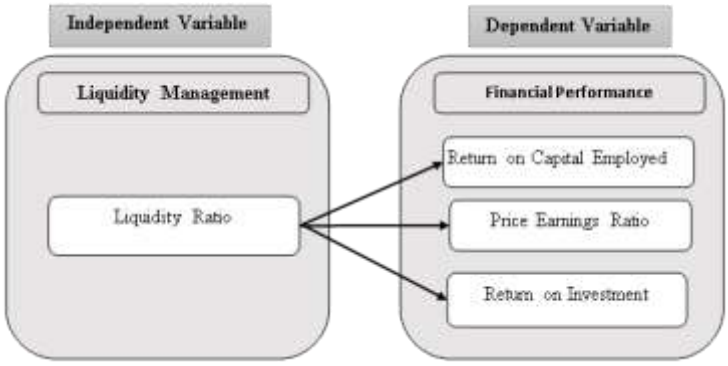

Figure 2: Conceptual Framework

6. RESULTS AND DISCUSSION

6.1 Descriptive Analysis

The present study utilized descriptive statistics to get an insight into the movement of liquidity and financial performance among the selected listed manufacturing firms. Furthermore, once the relationship between the two variables is determined with the correlation and regression analysis, descriptive analysis acts as the foundation to build further recommendations on it.

The descriptive statistics demonstrate the mean and standard deviation of all the variables utilized in the study. In addition, it illustrates the minimum and maximum values of the different variables to set a benchmark on the values each variable can attain. This analysis helps the author to estimate the liquidity position and the financial performance of the overall manufacturing sector listed in the CSE. It also enables the researcher to get a partial answer to the research objectives regarding the association between both the financial variables and the liquidity position of the overall industry.

The following table presents a summary of the descriptive analysis among 21 listed manufacturing firms of Colombo Stock Exchange, Sri Lanka, for the five-year period of 2016-2020 –

Table 1: Descriptive Analysis

Variable	Observation	Mean	Std. Dev.	Min	Max
CR	105	1.91	1.21	.47	6.67
ROCE	105	0.34	0.47	-.06	2.5
ROI	105	1.96	6.80	-30.62	40.94
PE	105	6.49	9.55	-13.33	16.98

The descriptive statistics for components of liquidity management and financial performance are presented in the above table. The variable used to measure the efficiency of liquidity management is Current Ratio and similarly the variables of Return on Capital Employed (ROCE), Return on Investments (ROI) and Price to Earnings (PE) are used to measure the competency of the firms' financial performance.

As demonstrated, the mean current ratio of the industry is 1.91 with a possible deviation of 1.21 in both directions. A 1.5-3 current ratio is generally considered a healthy for firms and the hence, it could be stated that the overall manufacturing industry is quite liquid. As mentioned by Morrel (2007), a liquidity ratio higher than 1.00 is desirable by firms, as it allows them to pay their financial obligations by liquidizing their current assets. On the other hand, ratios below 1.00 might indicate that the firm is not making enough cash to fulfil its current liabilities. The minimum possible rate of 0.47 and 6.67 depicted as the maximum possibility is quite alarming, the minimum rate below one demonstrates liquidity issues in the firms whereas the maximum rate way beyond three demonstrates the firms inability to utilize its current assets effectively.

The mean value of the firms' Return on Capital Employed is 0.34 with a deviation of 0.47, indicating that the average profitability of the firms can deviate by 0.47 on either side. The minimum value it has dropped to is -0.06 and highest value attained is 2.5. The proxy set as the mean for the industry's Return on Investment is 1.96, with a possibility of deviation by 6.80 on either side, which demonstrate a highly varying profitability among the firms. The minimum value it has dropped to be -30.62 and highest value attained is 40.94, which too is a sign of a fluctuating profitability between the observations. The mean value of the firms' Price to Earnings is 6.49 times with a deviation of 9.55 times, indicating that the industry is potential of paying back to its investors can deviate by 9.55 times on either side. The minimum value it has dropped to be -13.33 and highest value attained is 16.98, which too is a moderate level of variance among the firms. These statistics demonstrate that overall manufacturing industry has a moderate to high level of profitability.

Overall, the above analysis helps author conclude that the overall manufacturing industry of Sri Lanka is adequately liquid and moderately profitable, which is the one of the core objectives of the study.

6.2 Correlation Analysis

Correlation is performed using the correlate command. Correlations measure the strength and direction of the linear relationship between the two variables. The correlation coefficient can range from-1to +1, with-1 indicating perfect negative correlation, +1 indicating a perfect positive correlation, and 0indicating no correlation at all. A variable correlated with itself will always have a correlation coefficient of 1. The following table presents a summary of the correlation analysis.

Table 2: Correlation Analysis

.Correlate CR ROCE ROI PE

(obs =105)

	CR	ROCE	ROI	PE
CR	1.0000			
ROCE	0.3567	1.0000		

ROI	-0.2262	-0.0137	1.0000	
PE	-0.3411	-0.3305	0.1080	1.0000

The correlation analysis of liquidity management and financial performance are presented in the above table. Here 105 number of observations were used in the correlation. The table have no missing values, so all correlations are based on all 105 observations. The correlation value 1.0000 is the correlation between any variable and itself is 1.the correlation between CR and ROCE is 0.3567.it is positive, indicating that as one score increases, so does the other. The correlation value between CR and PE is -0.2262.and also the value between CR and ROI is -0.3411.those are negative, indicating that as one score decreases, the other increases.

6.3 Regression Analysis

This section presents the association between the variable of liquidity management and financial performance in order to analyze the extent to which and how the liquidity position have an impact on the financial performance of the listed manufacturing firms, using the regression analysis.

The component of Liquidity Management (Current Ratio) is considered the Interdependent variables and the measures of Financial Performance (Return on Capital Employed, Return on Investments and Price to Earnings) are set as the Dependent variables.

The main reason for not utilizing other analytical models like the Pearson Correlations is due to their drawback of not recognizing the causes from the presented results.

From the various models of regression and sample constructing analytics, fixed effect OLS model is utilized to review the sensitivity of the results and test the hypothesis of the study. If the statistical measures are insensitive to the initial hypothesis of the model, the findings are contemplated as robust and valid.

6.3.1 Regression Analysis of CR on Return on Capital Employed

The following table presents the regression analysis between the Current Ratio and Return on Capital Employed of the 105 observations-

Table 3: Regression Analysis on ROCE

regress ROCE	**CR**				
Source	**SS**	**df MS**	**Number of obs**	**= 105**	
			F(1, 68)	**= 9.92**	
Model	**1.97611556**	**1 1.97611556**	**Prob > F**	**= 0.0024**	
Residual	**13.5513191**	**68 .199284104**	**R-squared**	**= 0.1273**	
			Adj R-squared	**= 0.1144**	
Total	**15.5274346**	**69 .225035285**	**Root MSE**	**= .44641**	
ROCE	**Coef.**	**Std. Err. T**	**P>t**	**[95% Conf.**	**Interval]**
CR	**.1406648**	**.04467 3.15**	**0.002**	**.0515273**	**.2298023**
_cons	**.0677767**	**.1005865 0.67**	**0.503**	**-.1329405**	**.268494**

As the above table demonstrates, that the number of observations used in the model was 105 and the independent variable is CR as it is dependent on ROCE.

Here the Prob >F=0.0024 (it is less than 0.05), F (1, 68) =9.92.This indicates that, overall, the model applied can statistically significantly predict the dependent variable. Therefore this model is fit and the CR reliably predict the ROCE. The Adjusted R-square attempts to yield a more honest value to estimate the R-squared for the population. The value R-square was 0.1273, while the value of Adjusted R-square was 0.1144.Nonetheless, it can be noted from the adjusted R square value that 11.44% of the movements in Return on Capital Employed is dependent on the CR. The Current Ratio has a positive effect on the Return on Capital Employed of the manufacturing firms listed in Colombo Stock Exchange. To elaborate it, when the CR increases by 1MKD, Return on Capital Employed would increase by 0.14 MKD (Coef.0.1406648). Hence, indicating that any increase in the liquidity of the firms would cause a very slight growth in the firms' profitability, in terms of Return on Capital Employed. Also, the p-value for the coefficient (0.002) is less than the usual significance level of 0.05, indicating that the relationships are statistically significant.

This analysis provides a view that liquidity ratios have a positive impact on the ROCE, answering one of the initial objectives of the study.

The regression equation was: Y=0.67+0.14x

6.3.2 Regression Analysis of CR on PE

The following table presents the regression analysis between the Current Ratio and Price Earnings Ratio of the 105 observations-

Table 4: Regression Analysis on PE

regress PE	**CR**				
Source	**SS**	**df MS**	**Number of obs**	**= 105**	
			F(1, 68)	**= 8.95**	
Model	**732.25655**	**1 732.25655**	**Prob > F**	**= 0.0039**	
Residual	**5560.72352**	**68 81.7753459**	**R-squared**	**= 0.1164**	
			Adj R-squared	**= 0.1034**	
Total	**6292.98007**	**69 91.2026097**	**Root MSE**	**= 9.043**	
PE	**Coef.**	**Std. Err. T**	**P>t**	**[95% Conf.**	**Interval]**
CR	**-2.707764**	**.9048788 -2.99**	**0.004**	**-4.513422**	**-.9021067**
_cons	**11.66645**	**2.037579 5.73**	**0.000**	**7.600523**	**15.73238**

As table above exhibits, that the number of observation used in the model was 105 and the independent variable is CR as it is dependent on PE. In this table, the regression model is statistically significant, F (1, 68) =8.95, Prob>F=0.0039(less than 0.05). This indicates that, overall, the model applied can statistically significantly predict the dependent variable, PE. In this table R-squared=0.1164, Adjusted R-squared=0.1034 which means that the independent variable explains 10.34% of the variability of the dependent variable. Which means only 10.34% of the movements in Price Earnings Ratio is dependent on the CR. The Current Ratio has a significant but negative effect on the Price Earnings Price Earnings Ratio of the manufacturing firms listed in Colombo Stock Exchange. To further explain it, when the CR increases by 1MKD, Price Earnings Ratio would decrease and turn in the opposite direction by -2.07 MKD. Therefore, signifying that any rise in the liquidity position of the firms would cause a very slight decrease in the firms' profitability, in terms of Price Earnings Ratio. Also the p-value for the coefficient (0.004) is less than the usual significance level of 0.05, indicating that the relationships are statistically significant. This analysis provides a view that liquidity position of the firms have a negative but significant impact on the PE, answering one of the initial objectives of the study.

The regression equation was: Y= 11.66-2.70x

6.3.3 Regression Analysis of CR on Return on Investment

The following table presents the regression analysis between the Current Ratio and Return on Investment of the 105 observations-

Table 5: Regression Analysis on ROI

regress ROI	CR				
Source	SS	df MS	**Number of obs**	= 105	
			F(1, 68)	= 3.92	
Model	174.371636	1 174.371636	**Prob > F**	=0.0517	
Residual	3024.30463	68 44.4750681	**R-squared**	= 0.0545	
			Adj R-squared	0.0406	
Total	3198.67627	69 46.3576271	**Root MSE**	= 6.669	
ROI	**Coef.**	**Std. Err. T**	**P>t**	**[95% Conf.**	**Interval]**
CR	-1.321348	.6673252 -1.98	0.052	-2.652974	.0102789
_cons	4.434835	1.502663 2.95	0.004	1.436318	7.433353

As indicated in the aforementioned table, that the number of observation used in the model was 105 and the independent variable is CR as it is dependent on ROI. In this table, the regression model is statistically insignificant, F (1, 68) =3.92, Prob>F=0.0517(more than 0.05). Indicating that the regression model is statistically insignificant, and the Current Ratio (CR) does not reliably predict the Return on Investment (ROI). Which means there is no significant relationship between Current Ratio (CR) and Return on Investment (ROI) of the manufacturing firms listed in Colombo Stock Exchange.

This analysis provides a view that liquidity position of the firms have no significant impact on the ROI, answering one of the initial objectives of the study.

7. TESTING OF HYPOTHESIS

Based on the results derived from the findings, the initial hypothesis is being tested.

Table 6: Testing Hypothesis

	Hypotheses	**Results**	**Tools**
H1	There is a significant impact of Liquidity Management on Financial Performance of Listed Manufacturing firms in Sri Lankan.	Partially Accepted	Regression
H2	Liquidity Management significantly influences the financial performance of Return on Capital Employed in listed manufacturing firms in Sri Lankan.	Accepted	Regression
H3	Liquidity Management significantly influences the financial performance of Price Earnings Ratio in Listed Manufacturing firms in Sri Lankan.	Accepted	Regression
H4	Liquidity Management significantly influences the financial performance of Return on Investment in Listed Manufacturing firms in Sri Lankan.	Rejected	Regression

8. CONCLUSIONS AND RECOMMENDATIONS

8.1 Key Findings

Prior studies have too often demonstrated liquidity management as one of the core functions of an organization's financial health. The purpose of this study was to examine the impact of liquidity management on the financial performance of the manufacturing firms listed in the Colombo Stock Exchange, Sri Lanka, based on the assumption that there is a significant relationship between the two financial concepts. It further aimed to analyze the liquidity position of these firms and understand whether a trade-off exists between its liquidity and profitability.

To fulfill the aim of the study, the author observed five-year period of financial data of twenty one randomly sampled manufacturing firms of Colombo Stock Exchange, through their Annual Financial Reports. This data comprised of the firms' Current Ratio- as a measure of its liquidity position, and the ratios of Return on Capital Employed, Return on Investments and Price to Earnings- as a measure of its financial performance.

The descriptive statistics of the variables illustrates that both liquidity and financial performance of the firms in the manufacturing firms' are quite attractive over a period of time, considering the standards of the industry. The successful coexistence of both these financial aspects paves the author to slightly agree to Hirigoyen's (1985) hypothesis that higher liquidity paves the way to a higher profitability and both if it can create a flexible financial environment.

Nonetheless, when each of the financial variables is assessed against the current ratio with a regression analysis of 95% significance level, a few deteriorations are found in the initial assumption of the study. With a coefficient rate of -2.7, CR is proven to have a negative effect on the Price Earnings Ratio. These leads the author back to the trade-off theory (Neto, 2003; Pimentel et al, 2005; Perobeli, Pereira and David, 2007; Bhunia and Brahma, 2011) that insinuates that liquidity has an inverse relationship with a firm's profitability. Furthermore, it agrees to the studies conducted by Shin and Seonen (1998), Deloof (2003), Eljelly (2004), Sadlovska, and Viswanathan, (2007), Raheman and Nasr (2007). Furthermore, similar results are found in the analysis of CR against Return on Investment, with a coefficient rate of -1.32 CR possess an insignificant but negative impact on the Return on Investments of the firms.

However, with a significant positive coefficient rate of 0.141, the analysis clearly establishes that CR positively influences the Return on Capital Employed of the listed manufacturing firms. Furthermore, it agrees with the findings of Bunia and Khan (2011), which illustrated that liquidity and Return on Capital Employed have a petite yet positive relationship among each other.

These findings agree to the hypothesis of Hirigoyen (1985) that establishes adequate liquidity management as a determinant of a strong financial performance. It also confirms to the studies of Lyroudi and Lazaridis (2000), which demonstrated strong positive relationship between liquidity and profitability (measured by Return on Investment and NPM), in the Greek Food Industry. Other scholars which concluded similar findings were Singh and Pandy (2008), Khan et al, (2011), Saleem and Rehman (2011), Bencaleb, Olubukunola and Uwauigbe (2013).

8.2 Limitations of the Research Findings

Due to the large population size and restrictions of time and resources, the research is able to target only limited respondents, which is a very small proportion of the entire manufacturing industry of Sri Lanka. This may influence the accuracy of the research interpretation. It is viewed in the literature review that most of the previous studies are conducted addressing a larger sample size.

Research considers only one liquidity management ratio, which may affect the overall conclusion.

The study is based in Sri Lanka; hence, the results might not be suitable to other countries and their different environments, as each country has a different operating environment influenced by its macro and microenvironments.

The study is conducted on the data of previous five years, providing only limited term historical data. Data for a longer period might provide more certain results.

On the other hand, the research undertakes three strong financial ratios, which have not been used much in the previous studies. It also undertakes paneled pool data analysis to provide findings that are more accurate. Furthermore, even though the study utilizes only one liquidity ratio, current ratio is proven very reliable in the prior literature.

5.2 Conclusion

The purpose of this study was to assess the impact of liquidity management on the financial performance of the manufacturing firms listed in the Colombo Stock Exchange, Sri Lanka. This study demonstrated a significant relationship between liquidity management and financial performance of listed manufacturing firms and accepted the idea trade-off among them. It further illustrated a negative relationship between CR and PE and ROI, and a positive relationship between CR and ROCE

The theoretical review and the empirical studies reveal that majority of the studies conducted between the financial aspects of liquidity management and financial performance demonstrate a negative relationship between the two components. This displays that a high liquidity deteriorates the potential of profitability in the firms. The findings in this study also accept both the theory and practice to a certain extent, limited to the PE and ROI ratios of the firm.

However, if it does not have adequate liquid assets, they may face the risk of insolvency and loose the trust of investors. This is mainly due to positive relationship between liquidity and ROCE. Hence, the management of the firms should not neglect liquidity management in the process of wealth maximization. Firms with proper liquidity strategies would not only sustain financially, but would also be able to improve its financial performance in terms of providing value to the shareholders.

In this study, the author used financial ratio to quantify the aspects of liquidity management and financial performance in the sample of listed manufacturing firms. Current Ratio (CR) was used as a measure to liquidity, while Return on Capital Employed (ROCE), Return on Investments (ROI), and Price to Earnings (PE) was used to express the financial performance of the firms. In order to test the relationship between these two financial concepts, the author utilized regression analysis to study the effect of Current Ratio on each of the profitability variables. The observations of this study were comprised from twenty one randomly sampled manufacturing firms listed in the Colombo Stock Exchange. The regression analysis demonstrated a weak to moderate relationship between the liquidity and profitability in the manufacturing companies in the Colombo Stock Exchange with a significance level of 4-11% in the adjusted R square. The results in this research do not display a very significant relationship between liquidity and profitability in the manufacturing companies in the Colombo Stock Exchange. The findings showed a significantly inverse relationship between Current Ratio and Price Earnings ratio and an insignificantly negative relationship between CR and Return on Investment, indicating that a growth in liquidity will cause a slight to moderate reduction in the profitability. On the other hand, it showed a significantly positive relationship between Current Ratio and Return on Capital Employed, indicating that a growth in liquidity will cause a growth in the profitability.

The main learnings undertaken from this study is that firms (i.e. listed manufacturing firms of CSE) can acquire the benefits of both proper liquidity and good financial performance if balances its liquidity to a minimum position. In other words, it is required that the firms reach a minimum level of liquidity to avoid liquidation issues and increase its profitability at the same time.

8.3 Recommendations

The benefits of adequate liquidity management on a firm's financial performance have been studied in various occasions on various sectors. Nonetheless, very few research has been conducted in Sri Lankan manufacturing firms, and even those have failed to demonstrate the importance of proper liquidity on the overall financial performance of firms.

This research studied the association between liquidity management and financial performance and assessed whether there is any existence of trade-off between the two aspects, in twenty one listed manufacturing firms over the period of 2016-2020. Understanding this might lead to an enhancement of financial performance in the manufacturing sector.

8.4 Recommendations for Further Research

This study would create foundation for further study on the same subject but on other Sri Lankan industries, providing that proper liquidity management might equally enhance their financial performance. It might specifically aid Construction, Textiles and Tea / Coffee /Rubber processing industry, which have similar functionality and where limited studies have been conducted on the aforementioned aspects.

In addition, the future studies in the same area could analyze data from a longer period of time, maybe ten years, specifically to witness long-term behavior of the industry in the two-dimensional analysis for financial performance and liquidity management.

In addition, as this data was based on the secondary research, it would be interesting to see an approach towards primary research, conducting a qualitative research to observe how the management of the firms perceive liquidity management and financial performance as.

Furthermore, the findings showed a disparity among the financial variables, with two financial ratios demonstrating a negative relationship with liquidity, while one demonstrating a positive relationship. Further studies could utilize more components to measure the liquidity positions of the firms (such as quick-test ratio or cash conversion cycle) and assess it with other profitability measures (such as ROE, ROA and Net Profit).

Lastly, more statistical analytics (such as time series analysis) could be utilized to further study the subject, as it might provide a deeper insight on the relationship between liquidity management and financial performance.

8.5 Research Implications

The findings of the study deduced that an optimal liquidity position would enhance the financial performance of the listed manufacturing firms in CSE, Sri Lanka. This necessitates firms to focus on maintaining adequate liquidity at all times. The following recommendations are made to enable to firm to realistic maintain proper liquidity-

1. Assess overhead expenses such as utilities, rent, indirect labor and advertising and cut down any unnecessary costs. This has a direct impact on the profitability. It would ensure less short-term obligation arise, making cash available for emergencies and instantaneous investment opportunities.
2. Proper maintenance of accounts receivable would ensure customers pay their payments promptly which mean the sold inventory is liquidized into cash faster.
3. Extending credit period with the suppliers too is an appropriate way for the firms to keep cash in hand longer.
4. Pay off debt and liabilities using long-term financing plans to ensure liquid cash is not drained and stored for better and profitable utilization.

All these recommendations are actionable, as it requires just a proper financial planning, assessment and negotiation. It would require zero additional resources and can be undertaken by the financial team in less than three weeks period.

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