

# **IMPACT OF CAPITAL STRUCTURE ON FIRM'S PERFORMANCE: A STUDY ON SRI LANKAN LISTED MANUFACTURING COMPANIES**

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## **Abstract**

Corporate finance literature suggests that, the capital structure decisions will play a critical role in determining the performance of a firm. Therefore, this study has been performed to investigate the relationship between capital structure decisions and firm performance of 33 Manufacturing companies traded in Colombo Stock Exchange (CSE) during the period of 2011-2016. When performing this study, Return on Capital Employed (ROCE), Return on Equity (ROE) and Tobin Q were used as independent variables while Debt to Equity ratio was considered as the dependent variable. Firm size, firm age, and growth were used as control variables. The research hypothesis was formulated and tested to examine whether there is a relationship between capital structure and firm's performance. As the methodology of research, a quantitative research approach has been adopted. Data for the study has been collected from 2011 to 2016 Annual Reports of selected companies and the findings have been interpreted using descriptive analysis, correlation and regression methods. In conclusion, researcher has provided that leverage of a company is negatively related with firm's performance.

**Key Words:** Capital Structure, Financial Performance, Manufacturing Companies, Debt and Equity

## **1. Introduction**

Financing decisions significantly influence on the performance of a company, on which the decisions of the key stakeholders are based on. An organization can be funded through equity and debt sources and the proportionate combination of the equity and debt is known as the capital structure of an organization. A company's capital structure describes the composition of a company's permanent or long-term capital, which consists of a combination of debt and equity. Cash flows available in the organization and its profits are fully attributable to equity holders, when the organization is entirely financed from equity sources. Accordingly, those will be attributed among both equity and debt holders when the organization have been funded from both the sources (Brealey & Myers, 1988).

When the debt level (gearing) of an organization increases, the financial risk of the shareholders will be increased and as a consequence they will expect a higher return for their invested capital from the organization. Therefore, it will result in reduced profitability and eventually will lead to weaker performance. However, gearing can also have a positive impact on firm's weighted average cost of capital due to savings over the tax expense on interest cost.

When assessing the overall organization's performance, it is vital to focus on financial performance indicators along with non-financial performance indicators such as corporate culture, quality of the management and shareholder communication systems. However, researcher has focused only on financial performance indicators when performing the study. Therefore, Debt to Equity ratio has been used to assess the capital structure of the selected companies and financial performance has been analysed by using, ROCE, ROE and Tobin Q.

### **Research Questions and Research Objectives**

Many studies in corporate finance have examined the determinants of capital structure of firms in different industries, but very few are available which investigate the impact of capital structure on firm's performance. However, adequate literature has not been attended by developing countries in Asian context. The changes in capital structure and how it impacts on firm's performance remain as a less explored area in Sri Lankan context. Therefore, this study aims to extensively investigate whether there is a relationship between capital structure and firm

performance based on data of all manufacturing entities (33) traded in CSE during the period of 2011-2016.

The overall objective that the researcher intends to achieve based on the above mentioned research question, “to empirically investigate the impact of capital structure on the financial performance of all manufacturing companies listed in Colombo Stock Exchange”. Following specific aims have also been set to achieve the overall objective of the research.

1. To evaluate the strength of relationship between capital structure and corporate performance.
2. To scrutinize various theories developed on capital structure and firm’s performance by different researchers over the years.
3. To identify whether there is an optimal capital structure which could help a firm to achieve higher performance.

### **Significance of the study**

This study is important for both researchers and business analysts and it adds value to prevailing literatures to verify the facts in traditional theory of capital structure. There are two major views on the effect of capital structure on the firm’s performance, while one aspect specifies that the capital structure is extremely important in determining firm’s performance where the other says capital structure does not have any significant role in determining the firm’s performance.

The way of funding an organization is crucial for both the managers of the firm and capital providers. The performance and survival of the entity will be heavily affected in the absence of a proper mix of finance. Therefore, the management of the entity has to set their capital structure in a way to maximize the value of the firm. However, the entities are having a different level of leverage and managers will try to achieve the best set in optimal capital structure. The decision of internal or external funding is one of the major problem of a firm. Capital structure and its influence on firm’s value and performance is still an unsolved matter in theory and literature. This study attempts to provide answer to the question, “How the capital structure affects the financial performance of firms in manufacturing sector?”

One of the main significance of capital structure is its ability to satisfy the needs of various stakeholders. In addition, authors of prior studies have tried to show the capital structure and its relationship with corporate governance.

Determination of an optimal capital structure for firms which maximize the entity's financial performance and shareholders value is vital. Further, choosing an optimal capital structure will also influenced by company's adherence to agency cost theory. The optimal capital structure will be varied due to industry in which the firm operates, country in which it operates, economic situations, government regulations and lot of other factors. Hence, the capital structure of an entity will differ based on their business requirements. The basic aim of every entity is to set an optimal capital structure which increase its value in terms of performance and increasing the share price while maintaining minimum cost of capital. Accordingly, the optimal capital structure refers to the most appropriate mix of equity and debt capital that can contribute in the overall performance of the entity and its profitability by minimizing the cost of capital (WACC).

The study on this topic will contribute to the literature in Sri Lanka. And also, the findings of the research will be useful for managers and other decision makers for their decisions on the capital structure by enabling them to understand how leverage is associated with firm performance.

## **2. Literature Review**

Main concern of every company is to maximize its performance through its operations. In order to achieve maximum performance, a firm must take some important decisions. One of these critical decisions which a firm should take is how its operations will be funded. Funding can be mainly done through debt financing and equity financing. The foresaid financing methods will ultimately decide the composition of the capital structure of a firm. This composition will depend on various factors; such as industry in which the firm operates, size of the firm, expectations of the main stakeholders including the top management and the directors and etc. However, the optimal capital structure which a firm should maintain to maximize its performance is still a debate. Hence this study has been conducted to research on this topic by referring to theatrical and empirical literature.

## **Theoretical literature**

Over the passage of time, different theories have been introduced by various scholars to answer the question, “How the capital structure will impact the firm’s performance”. In 1958, Modigliani and Miller had introduced the first theory relating to this question, and without considering the tax impact it states that “In a perfect market, the firm’s value is not affected by its capital structure”. Later they introduced a new theory in 1963 by taking the tax effect into consideration. The second theory states that when the company’s debt composition increases the firm’s value will also increase simultaneously. The problem with above two theories is that it does not provide an answer on the optimal capital structure which a firm should use, and instead it states the relationship between the debt capital and the firm’s value.

In addition to Modigliani and Miller theories, agency and pecking order theories also indicate that there is a relationship between financial leverage of a firm and its performance. According to agency cost hypothesis, separation of ownership of the firm (shareholders vs debt holders) and control of the firm create conflict of interest between managers and shareholders. Furthermore, this issue arises when managers attempt to invest in projects which increase their own wealth instead of maximizing the shareholders’ wealth. Similarly, managers are reluctant to give up their control and power even if it is the best possible option for shareholders in process of a liquidation. Consequently the appropriate balance between debt and equity can mitigate the agency costs by constraining or encouraging managers to act upon the best interest of the shareholders. Hence, the increase of indebtedness can reduce agency cost and have a positive impact on firm performance.

Moving forward, pecking order theory describes the cost of financing in relation to asymmetry of information also plays a key role in determining the capital structure of a firm. This theory assumes that there is no target capital structure for a firm and the firms choose funding strategies based on the cost of financing which is changing according to the asymmetry of information. Myers and Majluf (1984) have explained funding preference of a company in the following order; internal finance (reserves), debt finance and equity finance. Further pecking order theory suggests that firms usually prefer internal finance over external finance and choose debt over equity when internal finance is insufficient. Though it stated the order of the selection of funding sources, it stated that there is no an optimum debt/equity ratio for a company. As this theory

emphasises that debt financing is cheaper than equity financing, it is contradictory to the 2<sup>nd</sup> theory of Modigliani and Miller, where they have stated that after a certain point debt financing is costly.

### **Empirical Literature**

Later different researches started researching on the optimal capital structure which will maximize the firm's performance. Al-Kadey et al (vol5, p. 158-181) has conducted a research to identify the relationship between capital structure and firm performance by using 85 Islamic banks over 19 countries. The results of the research have revealed that if the debt to equity ratio is lower than 37%, it will have a negative impact on firm's value but it failed to identify the best or optimal debt to equity ratio. Since, researchers are unable to determine the best capital structure for a firm; the analysis has expanded its horizons to identifying the factors which determine the capital structure of a firm. Similar research was performed by Anush Hondoo and Kapil Sharma (2014, p.170-182) in India. For that, 870 listed Indian firms have been used, which comprise both private sector and government sector companies and test 10 independent and 3 dependent variables using regression analysis. The results of the study has identified that profitability, growth, asset tangibility, size, cost of debt, tax rate and debt serving capacity have a significant impact on capital structure chosen by firms.

However, when analysing the capital structure of banking and finance sector entities, those factors do not play a critical role on capital structure as they have been highly regulated and mainly build through debt financing. Hence, Mahfuzah Salim & Dr. Raj Yadav (2012, p.156 - 166) and Varun Dawar (2014,p. 1190-1206) have not considered the information obtained from banking and financing companies for their researches as it will tend to provide misleading results.

Indicators such as size, growth, profitability and asset tangibility has been tested for the effect on firm capital structure of 412 firms from 12 countries in Sub – Saharan region by Chimwemwe Chipeta, Chera Deressa (2016, p. 649-673) in 2016 and results of the research provides that the size and growth do not have a direct relationship for all the companies where as firm's profitability and asset tangibility appear to be the most common predictors of capital structure. Added to that, financial flexibility, asset structure, liquidity, risk and state ownership

also influences the capital structure as per the research conducted by Mohammad Alipour Mir Farhad Seddigh Mohammadi Hojjatollah Derakhshan. (2015, p. 53 – 83).

Dr.Chunxia Jiang (2013, p. 1024-1039) has performed a research to identify determinants of capital structure using 1481 non-financial firms listed in Chinese Stock Exchange in 2011. In order to perform the research, four leverage measures have been used and it identified that large firms in China have a tendency to finance their operations through debt sources, in spite of swelling intangibility and business risk due to increase in debt financing. Furthermore, it states that companies in China which have a foreign ownership use equity financing as their major source of finance.

In circumstances where companies finance their operations through equity financing methods, funding will be mainly through issuing of shares to general public and institutional investors. Therefore, researchers have focused their studies to determine whether institutional shareholders have impact on capital structure. Pirzada et al (2015, p. 170-176) researcher examined whether there is a significant relationship among institutional stockholdings and firms performance by using ROA, ROE, PE and EPS. The results of the analysis pinpointed that institutional share ownership does not have an impact on capital structure but it has an impact on firm's performance.

When considering the Islamic banks, literature states that it is appropriate to finance through equity sources rather than debt sources. (Lama Terek Al-Kayed, 2014). Islamic banks have been advised to maintain a capital ratio around 37.41% in order to maximize the profitability.

In 2016, Niway Ayalew Admassu states that increase in leverage negatively affects the performance of firms and profitable firms initially rely on less costly equity sources of financing before looking out for debt financing sources, which will decrease the debt capital and ultimately increase the firm's profitability. Likewise, researches performed by Ogebe Ojah Patrick et al, Muhammad Umar et al in Pakistan, demonstrate that there is a negative relationship between the leverage and firm profitability. Furthermore, it states macroeconomic variables such as gross domestic product, inflation and lagged returns on investment have a significant impact on the performance of highly geared firms whereas it is not significant for

low geared firms. Saeed Aslam, Muhammad Sajid, Alewi Kemi, 2013, Muhammad Nassar, Sorana Vataava, and several other researchers also revealed the same result in different countries by proving that there is a negative relationship between capital structure and firm's performance.

However, Albert Amponsah Addae, Michael Nyarko-Baasi, Daniel Hughes, (2013, No.31, ISSN 2222-1905) states that there is a positive relationship between the capital structure and firm's performance of listed companies in Ghana which is in contrary to the findings of the previous researches. This research further states that there is a significant positive relationship between firm's profitability and short-term debt and the results of the study state that Ghanaian listed firms do not depend on long-term debt capital during the period of study. On the other hand, the results of the study ultimately represent a significant negative relationship between total debt and profitability of Ghanaian firms.

Researches performed by Rami Zeituna and Gary Gang Tian (2007, p. 40) have also proved that capital structure of a company is a key determinant of its corporate performance. In order to measure how performance varies with the changes in capital structure, most of the researchers used "Return on Asset and Return on Equity" as key measures for their researches. In addition, Varun Dawar (2014, p. 1190-1206), Abbasali Pouraghajan et al (2012, p. 166181) and Oladeji, Tolulope, Ikpefan, A.O and Olokoya, F.O (2015) have stated that leverage has a negative impact on firm's performance. This is in contradiction with the second theory suggested by Modigliani and Miller. According to Nadeem Ahmed Sheikh and Zongjun Wang (2013, p. 354-368) due to the agency cost, most of the companies maintain a higher debt portion in their capital structure though it reduces the performance of the company.

Other than conducting research on entire economy to find out the relationship between capital structure and firm's performance, some researchers have limited their focus to analyse specific sector in order to achieve better results and to reduce the complexity of the study. Chiang Yat Hung, Chang Ping Chuen Albert and Hui Chi Man Eddie (2002, p. 434-453) have researched on property and construction sector in Hong Kong and concluded that gearing is generally high in construction sector firms. In a cross sector research performed by Mohammad M. Omran and John Pointon (2009,p. 454-474) in Egypt found that the construction sector is significantly



different from other sectors in determining its short-term financing methods, which means higher business risk of Egyptian firms does not result in lower levels of long-term capital structure.

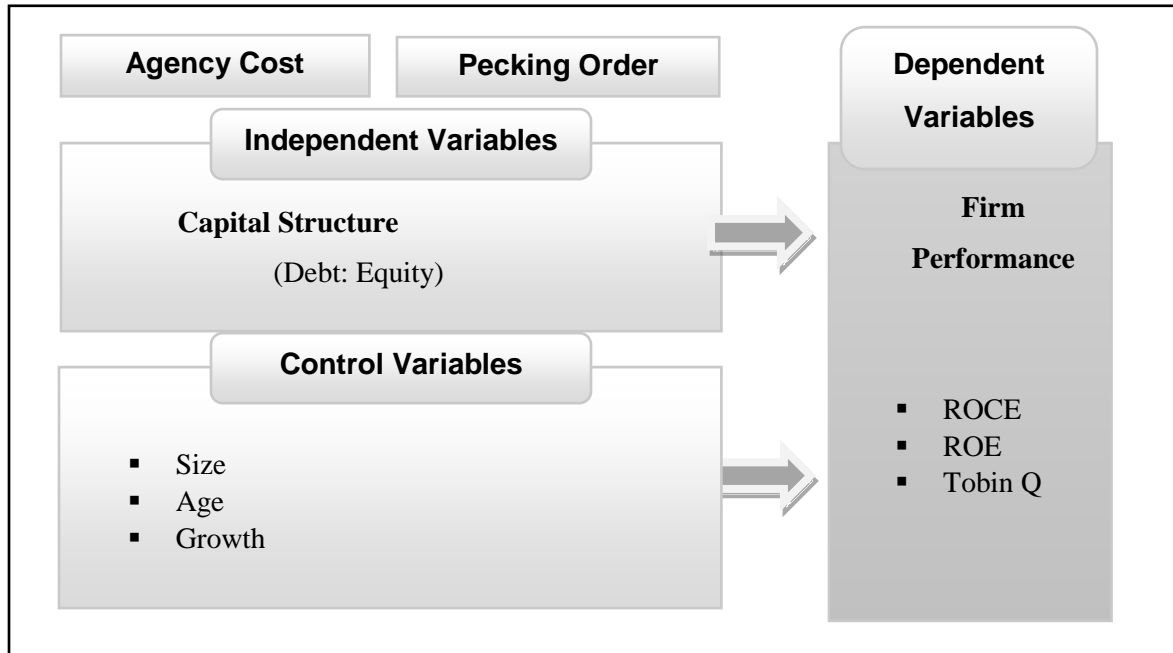
Even though capital structure plays a major role in determining the firm's performance, researchers have found that there are other important factors which will also have an impact on performance of a company. As per the findings of Dr. D K Y Abeywardhana (2009) when firm expands its size firm performance will also get increase simultaneously. In addition, growth is also considered as a major determinant of a firm's performance. According to Mahfuzah Salim & Dr. Raj Yadav (2012, p. 156-166) and Boroujeni et al (2013, p. 4265-4270), the ownership structure also impact positively on firm performance. Marietta Mutheu Stephen (2012, p.26) has also found that, the structure of debt maturity will have an impact on firm's performance as the firm's debt level effects on debt maturity structure. Moving forward, Oladeji, Tolulope, Ikpefan, A.O and Olokoya, F.O (2015) concluded that there is a positive relationship between firm performance and firm size, tax and lagged return of assets which proves capital structure is not the only determinant factor in determining firm's performance.

So far, the discussion on the impact on firm's performance by its capital structure has been pinpointed the researches performed in international context. Suffice to say, the researches which are conducted in Sri Lankan context is crucial for the above stated research problem. According to a research conducted by R. Kajanathan, "Capital structure and its impact on firm performance: A study on Sri Lankan listed manufacturing companies", have measured how gross profit, net profit, return on equity and assets influence on firm performance. For this study, 25 manufacturing companies have been chosen from 37 listed manufacturing companies in CSE during the period 2008 to 2012. The researcher found that gross profit, net profit, return on equity and assets is not significantly correlated with debt equity ratio. However, the study has been identified that gross profit margin and return on equity are significantly correlated with debt assets ratio.

## Conceptual Diagram

Based on the literature survey conducted through this study, researcher tries to evaluate the relationship between capital structure and firm performance by controlling the factors such as firm size, age, and growth.

*Figure 1: Relationship between Capital Structure & Firm Performance*



Source: Author Constructed

## Hypotheses

Following hypothesis have been formulated based on the conceptual diagram discussed above.

**H<sub>1</sub>:** There is a negative relationship between capital structure (Total Debt: Total Equity) and financial performance (Return on Capital Employed).

**H<sub>2</sub>:** There is a negative relationship between capital structure (Total Debt: Total Equity) and financial performance (Return on Equity).

**H<sub>3</sub>:** There is a negative relationship between capital structure (Total Debt: Total Equity) and financial performance (Tobin Q).

### **3. Methodology**

#### **Research Approach and Research Design**

The relationship between firm's capital structure and performance has been evaluated using a quantitative research approach and researcher has applied the cross sectional design method to examine the impact of capital structure on firm's performance.

#### **Population and Sample**

All the manufacturing companies which have published their financial statements for the period from 2011 to 2016 have been selected as the population of the study. This period of data collection has been selected to nullify the economic and social changes occurred during the civil war in Sri Lanka.

When arriving the population, the researcher excluded 05 companies (Pelawatte Sugar Industries, Lanka Cement PLC, Orient Garment PLC, Alumex PLC, and B.P.P.L. Holdings Limited) out of 38 manufacturing companies listed in CSE as at 31<sup>st</sup> March 2016 which have not published their financial statements for the whole period from 2011-2016. In order to mitigate the sampling error, the researcher has selected the entire population as the sample of the study.

#### **Data Collection**

The primary source of data collection for this study was published financial statements of selected companies. The study has been conducted by using the data relevant to the 5 years period from 2011 to 2016 (i.e. including financial statements which have March 2016 year ends).

#### **Variables**

Detailed evaluation of data has been performed to evaluate each company's performance against their capital structures. Dependent & independent variables and the control variables used in this regard is as follows.

### *Dependent Variables*

The literature on this study suggests that various measures of firm performance to test its relationship with capital structure. These measures incorporate accounting based ratios from income statement and balance sheet, for example, ROA, ROE, Assets turnover, etc. and stock market returns and their volatility measures such as Tobin Q, which blends market values with accounting values.

Hence, in this study researcher has utilized a comparative approach and used Return on Capital Employed, Return on Equity, and Tobin Q as the measurements of performance.

### *Independent Variables*

Even though, existing writing gives many bases to assess the capital structure, researcher has limited the scope of the research by considering only Debt to Equity ratio as the measure of capital structure.

### *Control Variables*

When studying the relationship between capital structure and firm performance, researcher has incorporated a vector of control variables to represent firm-related or industry-related elements and furthermore to limit specification bias in the model. These are firm size, firm age, and growth.

### **Data Analysis Tools**

The researcher has used “Stata”: Data Analysis and Statistical Software, to analyse data in terms of descriptive, correlation and regression analysis. Through descriptive analysis population has been described and interpreted. Regression analysis has been used to determine the type of relationship and correlation has been used to measure the strength of the relationship between the capital structure and firm’s performance.

## 4. Analysis and Discussion

### Descriptive Analysis

As the initial step, researcher has performed a descriptive analysis in order to provide an overall interpretation on the data base. In this regard, researcher has built up a table to represent basic measures namely, mean, minimum, maximum and standard deviation.

*Table 1: Descriptive Analysis*

<b>Variables</b>	<b><i>N</i></b>	<b><i>Min</i></b>	<b><i>Max</i></b>	<b><i>M</i></b>	<b><i>SD</i></b>
ROCE	165	-22.67%	88.39%	13.18%	.1552
ROE	165	-61.17%	65.96%	10.78%	.1582
Tobin Q	165	0%	771.5%	109.33%	1.347
Debt to Equity	165	0%	282.59%	37.59%	.4904
Size	165	0%	38.12%	3.09%	.0547
Growth	165	-63.39%	256.85%	13.96%	.3455
Age	165	10	169	43.45	32.2982

Source: Author Constructed

According to the above Table 1, Return on Capital Employed (ROCE) ranges from – 22.67% to 88.39% with a mean of 13.18%. As the standard deviation of ROCE is .1552, it can be concluded that the deviation of ROCE in manufacturing industry is less significant even though there are few outperforming and underperforming companies in the industry. Moving forward, minimum Return on Equity (ROE) of manufacturing industry is -61.17% and the maximum is 65.96%, while having a mean of 10.78% with a standard deviation of .1582. Similar to ROCE, deviation of ROE is also insignificant. When considering Tobin Q, as several companies in manufacturing industry have insignificant market prices, minimum Tobin Q of the industry is close to zero. In spite of the few loss making companies in the industry, the average Tobin Q of the industry is 109.33%, and it indicates that the market values of the firms listed on the CSE are higher than their book values. Accordingly, market anticipates that these firms will grow in the future as the market price also takes any future earnings into consideration at the current price.

Debt to equity ranges from 0% to 282.59% as there are un-gearred companies as well as highly geared companies within the industry. Average gearing of 37.59%, indicates that the major portion of industry's capital requirement is fulfilled by equity capital, without depending excessively on debt capital. Standard deviation of .4904 indicates the fact that most of the companies within the manufacturing industry have capital structures (debt to equity) which are closer to the industry average.

According to **Error! Reference source not found.**, industry's minimum size is 0% and maximum is 38.12%, and it indicates that one company operates in the industry represent 38.12% of the total market capitalization, while all other 32 companies represent the balance 61.88% of market capitalization.

Manufacturing industry has an average growth of 13.96% which deviates from minimum growth of -63.39% to a maximum of 256.85%. Hence, it indicates that manufacturing industry constitute of growing companies as well as declining companies. However, most of the companies in the industry have a growth rate which is similar to average industry growth rate. Accordingly the standard deviation of 0.3455 further evidenced the above fact. When considering age factor, ages of the firms' falls within the range of 10 years to 169 years while having an industry average of 43.45 years. This indicated that, manufacturing industry comprised with newly formed companies as well as the companies with long history. However, having a standard deviation amounting to 32.2982 gives an indication about the fact that companies within the industry have deviating age from one to another and not closer to the industry average.

### **Correlation Analysis**

The correlation analysis indicates the relationship between the two variables and the significance of the relationship. Hence the researcher has performed a correlation analysis to identify the relationship between the performance measures and debt to equity ratio.

*Table 2 : Correlation Analysis when ROCE is considered as the independent variable*

	Return on Capital Employed	Debt to equity	Growth	Size	Age
Return on Capital Employed	1				
Debt to equity	-0.2755	1			
Growth	0.0100	-0.0115	1		
Size	0.6647	-0.1534	-0.0478	1	
Age	-0.2373	0.2988	-0.0176	-0.2219	1

Source: Author Constructed

*Table 3 : Correlation Analysis when ROE is considered as the independent variable*

	Return on Equity	Debt to Equity	Growth	Size	Age
Return on Equity	1				
Debt to Equity	-.3934	1			
Growth	0.0761	-0.0115	1		
Size	0.5614	-0.1546	-0.0669	1	
Age	-0.2563	0.2988	-0.0176	-0.2171	1

Source: Author Constructed

*Table 4 : Correlation between when Tobin Q is considered as the independent variable*

	Tobin Q	Debt to equity	Growth	Size	Age
Tobin Q	1				
Debt to equity	-0.1459	1			
Growth	-0.0323	-0.0115	1		
Size	0.5815	-0.1520	-0.0732	1	
Age	-0.1576	0.2988	-0.0176	-0.2105	1

Source: Author Constructed

According to the above analysis, there is a negative relationship between Debt to Equity and the company performance measures. However, this negative relationship is insignificant as the correlation of ROCE, ROE and Tobin Q with Debt to Equity is -0.2755, -.3934, and -0.1459 respectively.

As the researcher has used the panel data analysis for the study, 03 separate correlation analysis had to be developed to interpret the correlation of 03 independent variables along with the control variables.

According to the above analysis, there is a positive correlation between Growth and ROCE & ROE while the correlation between Growth and Tobin Q is negative. However, in all 03 instances, the relationship is insignificant as the correlation value is below 0.5.

When considering firm size, in all 03 circumstances, there is a moderate positive correlation between firm size and performance measures.

However there is an insignificant negative correlation between firm age and the performance measures which indicates that the impact of firm's age on the company performance is insignificant.

### **Regression Analysis**

Regression analysis is a statistical process, assessing the relationships among independent and dependent variables. The relative relationship between two variables can be demonstrated using the regression equation and it can be used to forecast and predict variables. The following regression equations are formulated to demonstrate the relationship between firm's capital structure and performance using a panel regression model.

$$ROE = \beta_0 + \beta_1 DTE + \beta_2 SIZE + \beta_3 GRW + \beta_4 AGE$$

$$ROCE = \beta_0 + \beta_1 DTE + \beta_2 SIZE + \beta_3 GRW + \beta_4 AGE$$

$$TOBINQ = \beta_0 + \beta_1 DTE + \beta_2 SIZE + \beta_3 GRW + \beta_4 AGE$$



Where;

ROE – Return on Equity (Profit after Tax / Total Equity)

ROCE – Return on Capital Employed (EBITDA / Total Capital Employed)

TOBINQ – Tobin Q Ratio (Market Value of the Share Capital / Total Assets)

DTE – Total debt to total equity ratio

SIZE – Size of the firm. Firm's market capitalization (Market share price\* Number of shares) as a percentage of the total market capitalization of all the manufacturing companies considered for the study

GRW – Growth of the firm is the revenue growth between preceding years to the current year, taken separately for each year

AGE – Age is the number of years from the incorporation of the firm

Results of the regression analysis for the relationship between ROCE and the debt to equity, size, growth and age have been illustrated in the Table 5.

*Table 5: Co-efficient when ROCE consider as dependent variable*

Independent Variables	Dependent Variable : Return on Capital Employed	
	Co - efficient	P - Value
Debt to equity	-0.0519	0.007***
Size	1.8067	0.000***
Growth	0.0168	0.515
Age	-0.0002	0.436
Constant	0.1028	0

Table 5: \*, \*\*, \*\*\* indicates statistically significant at 10%, 5% and 1% respectively.

According to the above findings in Table 5, it can be stated that hypothesis 1 is significant at 1% which indicates a negative relationship between debt to equity and return on capital employed. When debt to equity reduces by 1 unit, ROCE will be increased by 0.0519. The relationship can be illustrated in a regression formula as follows.

$$ROCE = 0.1028 - 0.0519DTE + 1.8067SIZE + 0.0168GRW - 0.0002AGE$$

Further, the above formula illustrates, the ROCE will be 0.1028 when all independent variables held constant (i.e. debt: equity, size, growth and age). The coefficient of size variable depicts that when the size of the firm changes by 1 unit ROCE will be increased by 1.8067, where it exists a significant relationship between those two variables. However, it is very insignificant relationship exists between growth and ROCE, even though it is positive. Similarly, between age and ROCE, there is a very insignificant but negative relationship exists as per the findings.

Results of the regression analysis for the relationship between ROE and the debt to equity, size, growth and age have been illustrated in the Table 6.

*Table 6: Co-efficient when ROE consider as dependent variable*

Independent Variables	Dependent Variable : Return on Equity	
	Co - efficient	P – Value
Debt to equity	-0.09576	0***
Size	1.4754	0***
Growth	0.0484	0.080*
Age	-0.0002	0.392
Constant	0.1031	0

Table 6: \*, \*\*, \*\*\* indicates statistically significant at 10%, 5% and 1% respectively.

As per the above findings in Table 6, it can be stated that hypothesis 2 is significant at 1% and there is a negative relationship between debt to equity and return on equity. When debt to equity reduces by 1 unit, ROE will be increased by 0.09576. The relationship can be illustrated in a formula as follows.

$$ROE = 0.1031 - 0.9576DTE + 1.4754SIZE + 0.0484GRW - 0.0002AGE$$

In addition to the above, when all independent variables are zero (i.e. debt: equity, size, growth and age), ROE will be 0.1031. There is a very significant positive relationship between size and the ROE. When the firm size increases by 1 unit, its ROE will be increased by 1.4754. There is a significant positive relationship at 10% confidence level between growth of the firm and ROE, when the firm growth increase by 1 unit, ROCE will be increased by 0.0484. However, there is a very insignificant negative relationship between age and the firm's ROCE.

Results of the regression analysis for the relationship between TOBINQ and the debt to equity, size, growth and age have been illustrated in the Table 7

*Table 7: Co-efficient when Tobin Q consider as dependent variable*

Independent Variables	Dependent Variable : Tobin Q	
	Co - efficient	P – Value
Debt to equity	-0.1447	0.436
Size	13.5427	0.000***
Growth	0.0327	0.896
Age	-0.0009	0.750
Constant	0.7604	0

Table 7: \*, \*\*, \*\*\* indicates statistically significant at 10%, 5% and 1% respectively.

As per the above findings in Table 7, it can be stated that hypothesis 3 is not significant and there is a very poor negative relationship between debt to equity and Tobin Q. When debt to equity reduces by 1 unit, Tobin Q will be increased by 0.1447. However, it is very insignificant as the P value is very high. The relationship between the above variables can be illustrated in a formula as follows.

$$TOBINQ = 0.7604 - 0.1447DTE + 13.5427SIZE + 0.0327GRW - 0.0009AGE$$

Further, when all other independent variables are zero in value, still Tobin Q will have a value of 0.7604. There is a very significant positive relationship at 1%, between the size of the firm and Tobin Q. Where, 1 unit of increase in size of the firm is resulted in 13.5427 increment in Tobin Q. However, there exists very less significant positive relationship between growth of the firm and Tobin Q. Similarly, there exists a very poor negative relationship between age and Tobin Q.

## 5. Conclusion, Limitations and Future Directions

This study investigated the interaction between capital structure and firm performance by using data with regard to listed manufacturing firms under Colombo Stock Exchange. At the first phase, the researcher assumed that there is a negative relationship between capital structure and firm performance. The researcher examined this relationship using panel data analysis and the findings of the study ascertained the existence of a negative relationship between debt to equity ratio and ROE and ROCE. The coefficient value of these two circumstances are negative and at the same time, P value derived less than 0.05 for both the situations. Also, it can be confirmed by using Adjusted R- square, which yields value of 0.4112 and 0.4631 for ROE & ROCE respectively. As could be seen, the dependent variable is moderately dependent by independent variable and we can conclude that there is a negative relationship with ROE & ROCE for Debt to Equity ratio among manufacturing firms listed in CSE during the period of 2011-16.

However, when analysing the relationship between debt equity ratio and Tobin Q; the P value is above 0.05. Therefore, it can be concluded that though there is a negative relationship between Debt to Equity ratio & Tobin Q their relationship is not so significant, even though coefficient value is negative. Furthermore, the Adjusted R-squared value is also 0.3255. Therefore, the predictability of dependent variable is narrowly described by independent variable.

As a result, the outcome of the present-day research can be defensible with the output of the “Pecking Order Theory”. Pecking Order Theory assumes a negative correlation (relationship) between firm value and the debt level in the capital structure. Going forward, the conclusions of the “Pecking Order Theory” is totally contradictory to the findings of “Agency Theory” and “Trade off Theory”. By developing Pecking order theory, Myers and Majluf (1984) argued that there is a hierarchy in the firm’s preference for financing its assets.

The results of this study is in-line with the empirical studies of Al-Kadey et al (vol5, p. 158-181), Lama Tarek Al-Kayed Sharifah Raihan Syed Mohd Zain Jarita Duasa, 2014, Niway Ayalew Admassu, 2016, Ogebe Ojah Patrick et al, Muhammad Umar et al in Pakistan, Saeed Aslam, Muhammad Sajid, Alewi Kemi, 2013, Muhammad Nassar, Sorana Vatawua, Varun Dawar (2014, p. 1190-1206), Abbasali Pouraghajan et al (2012, p. 166181) and Oladeji, Tolulope, Ikpefan,

A.O and Olokoya, F.O (2015) which resulted in a negative relationship between Capital Structure and Firm Performance.

Since, adjusted R- square value under all three circumstances does not fall in-between 0.5 and 1, future researchers in future can examine the other variables which could impact on performance of the company.

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