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PREFACE

This research paper collection is the edited versions of the supervised theses of the undergraduates of the Department of Accountancy & Finance. Nearly 100 theses are supervised by the academics of the Department annually and we have selected eight papers from each supervisor for the current volume. Therefore, all the papers which are considered in this volume are jointly authored by the final year students and the respective supervisors of the Department. What primarily motivated to begin this edited research series is to inculcate research culture among the academics and the students of the Department. Secondly, to disseminate intellectual knowledge to a wide spectrum of audience in turn it contributes for the advancement of body of knowledge in the respective field. The premise of all papers included in the volume is in the discipline of finance which covers Capital Market, Banking Sector and Insurance Sector.

Moreover, all the papers in this volume address timely important and academically relevant research issues. So that readers will be well equipped with the objectively addressed and scientifically supported conclusions for various issues in the field. As such, I believe that this collection will be immensely useful for the corporate sector and government policy makers to enhance their decisions. Moreover, this will be a useful piece of work for the students, teachers, researchers as well as other public-spirited citizens who are interested in this subject discipline. Also, I personally, witnessed the extent of work done by all the academic authors in bringing the undergraduate theses up to the standard demanded by the academia. I congratulate all the academics for encouraging the students to contribute papers for this publication.

I must also appreciate all the academic members of the Department of Accountancy & Finance for encouraging me to proceed with the current volume. My Co-authors' intellectual and expert contribution is also commendable. Finally, I appreciate the great efforts of the editorial assistants and the copy editor of this edited book.

D.A.I Dayaratne, PhD
Professor in Finance
Editor-in-Chief

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CHAPTER ONE

IMPACT OF MACROECONOMIC VARIABLES ON FOREIGN DIRECT INVESTMENTS IN SRI LANKA

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Abstract

This study investigated the impact of selected macroeconomic variables; Gross Domestic Production (GDP), Inflation, Exchange Rate, and Population on Foreign Direct Investments (FDI). The study employed secondary annual data over 35 years from 1985 to 2016. A dummy variable was introduced to incorporate the impact of war period. The multiple regression models confirmed that only the exchange rate was significant, the inflation and population of the country were found insignificant in determining FDI inflow. A long-run association within all four variables was found through the Johansen Cointegration test. Further, a causal relationship was found between exchange rate and FDI through the Granger Causality test. Only exchange rate was identified to have a significant relationship with FDI, and it showed a high degree of positive correlation. Primary data analysis showed the preference of investors from the most preferred to the least; exchange rate, inflation, GDP, and population, respectively. In conclusion, both Model-A and Model-B concluded that the exchange rate has a significant relationship with FDI.

Keywords: Foreign Direct Investment, Gross Domestic Production, Inflation, Population, Macro-economic Variables.

1. Introduction

It is widely regarded that Foreign Direct Investment (FDI) is a major source of external financing, especially for developing economies. Generally, FDI is recognized as an investment involving acquiring or creation of assets that is undertaken by foreign investors or a joint venture with local governments with the main aim of creating a long-term relationship.

In other words, FDI is the international capital flows from one country to another country in order to get an advantage from investment opportunities and to deliver positive production effect for the host country. Moreover, FDI has become instrumental in economic growth of a country anywhere in the world. One of the main economic problems faced by the developing economies is the lack of national savings to finance their potential investments. Therefore, governments are constantly looking for foreign capital investments at their top priority. In addition to that most governments seek loans from international financial institutions which will further aggravate the debt burden to the economy. As a result, governments prefer a comparatively easier source of financing; which is FDI. The realization of the benefit package that tags along with the capital inflow has made FDIs more attractive for economies. Infrastructural developments, employment opportunities, new technology, and human capital, are few of the positive inflows to the host country from FDI inflows. It is visible that significant changes are being proposed on government policies and regulations to encourage FDI flows across nations.. However, the effectiveness of these amendments is still open to discussion and it requires further objective verification for policy implications. Flow of literature in this premise shows that many researchers have focused the studies to explore the determinants of FDI inflow to a country and there is no common consciences over the factors determining FDI. However, there are several theories which attempt to explain the determinants of FDI. According to Lipsey (2001), macroeconomic theories explain factors motivating investors to invest in foreign countries, explain the phenomena associated with the macro-economy. Macroeconomic factors such as gross domestic production, exchange rate, inflation, population, labor force, economic growth and interest rate affects the host country's FDI flows.

Sri Lanka being a country, full of natural resources with a high growth potentials, should have attracted more foreign investors. However, when making their investment decisions foreign investors practically consider a wide range of other factors, such as demographic variables, macroeconomic policy, credibility, and good governance. Therefore, what attract FDIs to a country is yet to be scientifically explored. This is an important question that should be answered by every government in the effort of attracting more FDIs. Therefore, identification of the determinants and managing them properly may assist in attracting more FDIs to the host countries. There is a paucity of research conducted investigating the

relationship between these variables and the FDIs in the Sri Lankan context. Accordingly, it has been identified as a research gap of this paper.

Thus, the objectives of the study are to examine the impact of selected macro- economic variables on foreign direct investments and to explore the perception of foreign investors who have already invested in Sri Lanka in making investment decisions.

2. Literature Review

FDI has now become one of the most demanded sources of finance for countries. Parvin (2013) stated that the main purpose of FDI inflow to a country is to have access to natural resources, market size, geographic locations, and low labor cost. Moreover, Dunning (2009) and Kosekahyaoglu (2006) pointed out that FDIs induce total demand for domestic goods and foster technology transformation. Also, Aremu (2005) examined the growing interest in FDIs and the perceived opportunities derived from the utilization of foreign capital injection into the economy. Moreover, Arbatili (2011) stated that it provides many development options for the host country and stable FDIs inflow creates a barrier against reversals in portfolio inflows during crisis periods.

Further, empirical evidence suggests that FDI as an important source of capital, complements domestic private investments, , creates new employment opportunities enrich technology transfer and boosts economic growth in host countries (Chowdhury and Mavrotas, 2003). Host countries are using policy incentives such as granting tax allowances and other facilities to attract and retain FDIs into their economies. Bilawal, *et.al.* (2014) proposed that FDI flows help to build strong economic ties between developing and industrialized nations. It is generally believed that gross domestic savings in least developed countries are very low. Therefore, FDI is an alternative mechanism to fill the saving and investment gaps in those countries.

However, there are also counter arguments forwarded by many scholars discussing the negative influence from FDI to the host country. That is FDI might lower or replace domestic assets and investment, transfer low level or unsuitable technologies for the host countries and can even slower the development of local firms, limiting growth their growth opportunities. Certainly, initial investment of foreign firms improves the current and the capital account of the host country. However, in the long run, substantial import of intermediate and capital goods, repatriation of profit, interest, royalties and management

fees may harmfully affect the foreign exchange position of the host country (Organization for Economic Operation Development, 2002).

Nevertheless, the negative consequences of FDI can be controlled with proper trade and labor regulations (Rose and Mwega, 2006; Kinuthia, 2010). FDI can also be classified into market-seeking, export- oriented and government initiated FDI. A market-seeking FDI is highly determined by the growth potential and the size of national market, access to regional & global markets and country-specific consumer preferences. When a foreign firm produces raw materials, intermediate and final goods and sells these products for non-local market, this FDI is referred as export-oriented FDI. An investment is called government initiated FDI, when governments of developing countries invite and give incentives to direct foreign investors to invest in specific sectors and industries with a view to addressing socio-economic problems like unemployment, regional disparities and deficits in the balance of payment (Accolley et al, 1997).

However, Pradhan (2001) stated that Sri Lanka has great potential to become an international business hub with the wealth of human capital and geographical location. Trade liberalization policy adapted in 1977 has created an enabling environment for the foreign investors to invest in Sri Lanka. The intention of this move has been to bring the country as one of the most open economies in South Asia, which has created the significance of FDIs to the country. Athukorala and Rajapathirana, (2000) discussed liberalization and industrial transformation in Sri Lanka, considering the first decade of Sri Lankan market after independence in 1948. However, Athukorala, (2003) forwarded a study to explore the role of FDI in economic growth, in Sri Lanka and stated a robust link between FDI and growth in Sri Lanka. Added to this Balamurali and Bogahawatte, (2004) carried out a study on FDI and economic growth in Sri Lanka. Athukorala & Jayasuriya (2004) discussed complementarity of trade and FDI liberalization in Sri Lanka referring to the trade liberalization in 1975 and then the introduction of market oriented policy reforms in 1977.

Rauf (2016) compared influence of exchange rate on FDI and concluded that there is no any relationship between FDI and exchange rate. It also explored that the government should attract more FDIs, to maintain a stable exchange rate. It further evidences that currencies appreciate and depreciate according to prevailing Market conditions (Kabura 2013). One of the many influences on foreign direct investment activity is the behavior of

exchange rates. This is because the exchange rates can influence equally the total amount of foreign direct investment that takes place as well as the allocation of this investment spending across a range of countries. Oude (2013) highlights that the exchange rate fluctuations are mainly caused by the changes in the demand and supply of the money in the FOREX market.

Inflation Rate acts as a signaling mechanism to both foreign investors and local investors, to make their investment decisions. The relationship however has not yet been clearly stated. According to Sajid et. al (2012) where they have analyzed the role of FDI and trade on the growth in Pakistan, results indicated a positive and not statistically significant relationship between inflation and the FDI. Moreover, Djokoto (2012) investigated the effects of investment promotion on foreign direct investment inflow in Ghana for the period 1970 to 2009 and discovered a negative relationship between inflation and the FDI.

The FDI inflow is significantly related with the economic condition of a country. If the economic condition of a country is healthy, then FDI inflow will be more and with that the retention time period of the investments would be longer. On the other hand, Todaro and Smith (2007) defined it as a steady process by which the productive capacity of an economy is increased overtime to ensure raising levels of national output and income while Jhingan (2003) defines it as a quantitative sustained increase in the country's per-capita income accompanied by the capital, expansion, and volume of trade.

Many researches on the factors that influence FDI have ignored the role of population of a country. According to Abdul and Bilal (2012), such neglect seems to be motivated by the theoretical support for the assumption that large population is likely to be negatively related to the economic growth. Based on a review of the latest research on the role of population in economic growth and the determinants of FDI, it was hypothesized that a country's population would be related to the FDI. Along with the density of the population, other related factors like labor force, market size and labor cost differ. China and India produce five million and three million graduates respectively each year (Gupta and Wang, 2009). Yet the demand for highly trained professionals is still far greater than the supply. The cost of these professionals for a multinational corporation is much lower than employing home country nationals, but scarcity has contributed to a rapid increase in the cost of technical and managerial personnel.

3. Methodology

Since the study comprises a large representative sample, secondary data collection, and analysis methods such as correlation analysis, and regression analysis were used to test specific hypotheses of the study. The authors have identified this requirement of analyzing quantitative data under Model-A. In addition, a qualitative approach has been used in this study to gain a further understanding of underlying reasons, opinions, and motivations of the foreign investors. For this purpose, we introduced Model-B to the study.

3.1 Sources of Data

The study employed both primary and secondary data. Secondary data was obtained from the Central bank of Sri Lanka, the Sri Lanka National Bureau of Statistics, and the World Bank Indicators (WDI). Primary data was collected through face-to-face semi-structured interviews with selected foreign investors to provide insights into the research problem and assist in developing hypotheses for potential quantitative research done.

3.2 Sample and Data Collection

The study employed a mixed approach. Therefore, the research utilizes both secondary and primary data. Secondary data was analyzed under Model-A, and Primary data was analyzed under Model-B. Due to the limitation of access to data, annual data from all the companies who have invested in Sri Lanka from 1985 to 2016 were considered, and this time range consists of both the post-war and pre-war periods. In Model-B, primary data have been collected through several face-to-face semi-structured interviews conducted with selected foreign investors. The study applied the convenient sampling technique.

The preliminary study for the research was conducted using secondary data sources such as previous literature to identify the type of data, sources of data, and the frequency of data required. We identified two models based on the type of data as Model-A and Model-B. Based on that, secondary data were collected from respective data sources, which are annual data (Model-A). Further, primary data were gathered through face-to-face semi-structured interviews carried out across a selected sample of investors (Model-B).

Model-B consists of primary data, which were collected through face-to-face semi-structured interviews with selected foreign investors from 10 different organizations in Sri

Lanka with the aim to enriching the findings of Model-A. The following 10 Companies were selected for this purpose;

Table 1: Selected Companies for the Interview

Company Name	Sector / Industry	Origin Country
AVIC International Corperation Ltd	Service - IT Consulting Services	China
Hotel Riu Sri Lanka	Service - Hotel Industry	Spain
Skyway Seafoods Specialist (Pvt) Ltd	Service - Hotel Industry	China
Dialog Axiata PLC	Service - Telecommunication	Malaysia
Moody's Corporation	Service - Financial Services	USA
Zylan Luxury Villa	Service - Hotel Industry	Thailand
Shangri-La Hotels & Resorts	service - Hotel Industry	Hong-Kong
John Keels Holdings	Service/Manufacturing	Multi national
Taj Samudra Hotel	Service - Hotel Industry	India
Nestle Lanka	Manufacturing - Food & Beverage.	Switzerland

3.3 Analysis Tools

Using the original data series descriptive analysis was derived to get an overview of the entire model. Through this, detailed information about each variable was derived including mean, standard deviation, minimum value, and the maximum value of the data series.

To address the main objective of the study, the impact of selected macroeconomic variables on the FDI to Sri Lanka needs to be analyzed. Therefore Multiple regression analysis was carried out to identify the impact of the independent variables on the dependent variable as suggested by Kwoba & Kibati (2016). To find the long-term association between all the four variables, Johansen cointegration test was used as suggested by Khan and Mitra (2014). Trace test and Maximum Eigen Value statistic have been used for this purpose. Since, four endogenous variables were taken into consideration, there were three cointegration relations. Eviews software was used for this analysis. Subsequently, to identify the causality between macroeconomic determinants and the FDI in Sri Lanka from 1986 to 2016, the Pair-wise two way Granger Causality test was used as suggested by Maku (2015), which is a short run approach.

To establish the degree of relationship within two variables, Karl Pearson's correlation test was used as suggested by Kirthika & Nirmala (2014). Here, the study tested whether there

is a correlation between the two variables. Model-B; feedback from ten foreign investors have been summarized and converted in to the percentage values by converting them into a fraction from the total and multiplying by hundred.

4. Results and Discussion

The Multiple Regression Analysis results are shown in Table 3, the exchange rate was the only significant variable which determine the FDI, have a positive relationship. The exchange rate has a P-value of 0.0011, which is lesser than 0.05, and a t-statistic of 7.7028, which is higher than 2. A lesser P-value than 0.05 and a higher t-statistic than 2 denote that the independent variable significantly influences the dependent variable. Outcomes from the regression model showed a +0.04 coefficient amount for exchange rate, which means a 4% increase in the FDI per every unit of increase in the exchange rate. An increase in the exchange rate refers to a depreciation of the local currency. In other words, the number of rupees paid in exchange for a dollar will be increased. Therefore, Sri Lanka becomes costly for local investors and cheaper for foreign investors. This attracts the FDI since foreign investors may find Sri Lanka as a cheaper location to invest in. This finding is consistent with the findings of Ibrahim *et al*, (2014). GDP, Inflation, and Population, were found insignificant to determine the FDIs; however, this complies with the findings of Kwoba & Kibati (2016). GDP was omitted from the model due to the multicollinearity issue. Inflation and population were found insignificant in determining the FDI inflow. The dummy variable, which represents the war period, was found significant, which means that war showed an impact on the FDI inflow, and it showed a negative impact on the FDI.

The model is significant, and it could explain 68% of the variation in the FDI. Therefore, the exchange rate and the dummy variable explain 68% of the FDI's behavior while the remaining 38% is explained by the other factors, which are not included in the model. The DW statistic was found 1.87, which is closer to two, which means that the model is free from autocorrelation, and the f-statistic of 17.00798, which is higher than one conveyed homoscedasticity. According to the regression output Population and Inflation are not significant and they have been removed from the model and the estimated revised regression equation is as follows.

$$FDI_t = 1.208492 + 0.041962EXCH_t - 1.543216D1_t + e_t$$

Table 3: Multiple Regression

Variable	Coefficient	t-statistics	P-value
Constant	1.2084	2.2324	0.0344*
Population	26.1149	1.5735	0.1277
Inflation	0.0156	0.5296	0.6009
Exchange Rate	0.0419	7.7022	0.0000*
Dummy 1	-1.5432	-3.4459	0.0019*
R-squared	0.7235	F-statistics	17.0079
Adjusted R-Sqr	0.6809	Durbin-Watson stat	1.8747

*Significant at level 0.05
Source: Analysis Results.

Table 4 presents the long-run association among the variables which was identified by utilizing Johansen Cointegration test, and both the trace test and maximum eigenvalue were tested. The trace test resulted in two cointegrating equations, which denoted the rejection of null hypothesis at 0.05 level. This means that there is a long-run association among the variables. In other words, all four variables move together in the long-run. The maximum eigenvalue test indicated one cointegration equation at the 0.05 level, which denoted rejection of the null hypothesis at the 0.05 level. This means that there is a long run association among the variables or in other words all four variables move together in the long run.

Table 4: Trace Test

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.6872	33.7069	33.8769	0.0024
At most 1	0.582	25.2984	27.5843	0.0954
At most 2	0.4427	16.955	21.1316	0.1742
At most 3	0.3495	12.471	14.2646	0.0942
At most 4	0.0036	0.1037	3.8415	0.7475

Significant at level 0.05
Source: Analysis Results.

Table 5: Maximum Eigenvalue Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	Critical Value	Prob.**
None *	0.6872	88.535	69.8189	0.0008
At most 1 *	0.582	54.8281	47.8561	0.0096
At most 2	0.4427	29.5296	29.7971	0.0537
At most 3	0.3495	12.5746	15.4947	0.1314
At most 4	0.0036	0.1037	3.8415	0.7475

Significant at level 0.05.
Source: Analysis Results.

Granger Causality test was run to identify whether one data series impacts the other, or in other words, it is a statistical hypothesis test for determining one time series which is useful in forecasting another. This also shows from which data series to which the impact occurs or simply the direction of impact. Therefore, according to Table 6, the first null hypothesis is exchange rate does not granger cause the FDI. It has an f-statistic of 4.3762 and a P-value of 0.0240. The P-value of 0.0240 is less than 0.05, which means that we must reject the null hypothesis, meaning, we reject the statement; the Exchange rate does not granger cause the FDI. Therefore, we accept the alternative hypothesis, which means exchange rate granger causes the FDI. The rest of the variables were found P-Value higher than 0.05. Therefore, the null hypothesis was accepted. Thus, as per the Granger Causality test results, only the exchange rate data series affects or contributes in forecasting the FDI. Further, since the rest of the null hypotheses were accepted, it denotes that the GDP, Inflation, and Population do not contribute in resulting the dependent variable, FDI.

Table 6: Granger Causality Test

Null Hypothesis:	F-Statistic	Prob.
EXC does not Granger Cause FDI	4.3762	0.0240*
FDI does not Granger Cause EXC	0.6591	0.5264
GDP does not Granger Cause FDI	1.4872	0.2461
FDI does not Granger Cause GDP	1.1613	0.0419
INF does not Granger Cause FDI	2.3704	0.1150
FDI does not Granger Cause INF	0.0479	0.9533
POP does not Granger Cause FDI	0.1169	0.8901
FDI does not Granger Cause POP	2.7360	0.0850

*Significant at level 0.05
Source: Analysis Results.

Pearson Correlation analysis was considered to measure the degree of association among variables. According to Table 7, the Pearson value for the exchange rate is 0.765, which shows a high degree of positive correlation between the exchange rate and the FDI. The P-value for this variable is 0.011, which is less than 0.05. This explains that there is a significant relationship between the exchange rate and the FDI. However, the rest of the variables resulted in a p-value higher than 0.05, proving an insignificant relationship. Therefore, to conclude the results of the Pearson correlation test, GDP, Population, and Inflation do not have a significant relationship with the FDI and only exchange rate has a significant relationship with the FDI.

Table 7: Pearson Correlation

Variables		FDI	GDP	Population	Inflation
GDP	Pearson Correlation	0.095			
	Sig.	0.610			
Population	Pearson Correlation	-0.273	-0.166		
	Sig.	0.137	0.535		
Inflation	Pearson Correlation	0.050	0.887	-0.166	
	Sig.	0.786	0.000*	0.371	
Exchange Rate	Pearson Correlation	0.765	-0.771	0.370	-0.103
	Sig.	0.011*	0.045*	0.141	0.574

Significant at level 0.05
Source: Analysis Results.

Model B resulted in the responses from the interviewed foreign investors (See Table 8). Each investor was interviewed focusing the four selected macroeconomic variables. Importantly, 2 out of 10 interviewees, that is, 20% has considered the GDP of Sri Lanka, and only one out of 10, that is, 10%, has considered population as an influencing factor when making their investment decisions in Sri Lanka. Inflation and exchange rate had a higher percentage, which denotes that most of the investors have found these factors as significant in making their investment decisions. The inflation rate was considered by six investors out of 10, and the exchange rate was considered by seven investors out of 10. One of the main findings from the interviews was that the perception of foreign investors differs from industry to industry as well as it depends on the focused market that they cater. A group of 10 interviewees from diverse industries that operate in Sri Lanka were selected for the study.

Other than these four variables, there were other macro-economic factors which the foreign investors consider when making investment decisions in Sri Lanka. Tax regimes and policies, government stability and predictability, skilled labor force, geographical location, output supply and demand, infrastructure, competitive advantage, and the availability of natural resources. The majority of responses denoted competitive advantage, geographical location, and government stability as factors considered by investors when making the decision to invest in Sri Lanka. Investors also responded to the war situation that prevailed in Sri Lanka, the majority of the respondents did not find a huge impact on their operations or investments. However, there was poor denying of the impact of the war situation, and rather the investors mentioned that the impact was not significant; therefore, it did not affect their investment decisions. 20% of the responses depict that there was an impact from the war situation and the rest of 80% said that there was no major impact.

To conclude the analysis of Model B with regards to the macro-economic variables selected. Most investors perceived exchange rate as the most important factor for the investment (70%) followed by inflation rate (60%), the GDP (20%), and Population (10%). The geographical location, competitive advantage, and infrastructure were the major influential factors that the investors considered highly in making their investment decisions. The impact of war did not have much influence on investment decisions as most of the investors pointed out.

Table 8: Preference of Foreign Investors

Independent Variables	Preference of independent variables by foreign investors (as a % of sample)
GDP	20%
Population	10%
Inflation	60%
Exchange Rate	70%

Therefore, the study suggested that the exchange rate was significant to determine the FDIs in Sri Lanka, and a positive relationship was established. On the other hand, the other macroeconomic variables, GDP, Inflation, and Population, were insignificant in determining the FDIs. Interestingly, the results contend that there is a long-run association between the macroeconomic variables and the FDIs.

It is also found that exchange rate granger cause with the FDIs while the other macroeconomic factors, GDP, Inflation. and Population, does not granger cause with the

FDIs. Very importantly, the results with the secondary data (Model – A) supported the findings of primary data (Model – B.) analysis. The most influential factors for foreign investors were the exchange rate and inflation. This suggests that the inflation and exchange rate determine the FDIs movements in Sri Lanka. Furthermore, additional factors, which investors had considered in their investment decisions were revealed through the interviews such as infrastructure, competitive advantage, skilled labor, geographical location, and so on.

5. Conclusion

In this paper, the researcher had initially identified four macroeconomic variables to determine the FDI inflow to Sri Lanka: GDP, Inflation, Population, and Exchange Rate. Two models used as Model-A and Model-B for the ease of analysis of data. Augmented Dicky-fuller test was run to identify the stationarity of the data set, Multiple regression was run to identify the significance of the model, Johansen cointegration was run to identify the long-run association, causality relationship was tested through Granger Causality test, and finally Pearson correlation was considered to identify the correlation among the variables. The Model-A; aimed at identifying the impact of the above mentioned variables on the FDI. Out of the four variables, only Exchange Rate was significant in determining FDI while GDP, Population, and Inflation were insignificant in determining the FDI inflow in Sri Lanka, which concluded that only the Exchange Rate impacts the FDI. GDP was identified with multicollinearity effect, therefore omitted from the final regression model. The study has also focused on identifying the causal relationship between dependent variables and independent variables. Only Exchange Rate was identified to granger cause the FDI while for the rest of the variables; FDI granger cause GDP, Inflation and Population, which means the direction of impact is from the FDI to above-mentioned variables. Results stated that there was an impact from the war situation to the FDI inflow in Sri Lanka. Moreover, the paper also targeted at identifying the long-run association between macro-economic variables and the FDI. Findings stated that variables are cointegrated, and therefore, there is a long-run association within all four variables and all four variables showed that move together in the long-run. The researcher also aimed to explore the perception of foreign investors as if why they have selected Sri Lanka as an investment destination. Model-B concluded that the majority of foreign investors found the

Exchange Rate and Inflation as important determinants of the FDI, which also had strengthened the findings in Model-A.

The findings will give practical implications for various parties. Foreign investors identified the infrastructure, interest rate, trade openness, foreign exchange reserves, and unemployment as the major influential factors in determining the FDI inflows in Sri Lanka. Therefore, it would be worthwhile to take steps for infrastructural developments and establish better political stability in the country, which lead to attracting more investors. As the investment decision making seems to be in the long run, the study also proposes the inclusion of the exchange rate movements via systematic exchange rate (monetary) policy to promote an attractive long-term FDI for a country in order to achieve sustainable economic development.

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CHAPTER TWO

IMPACT OF DIVIDEND POLICY AND CORPORATE GOVERNANCE ON FIRM PERFORMANCE: EVIDENCE FROM LISTED MANUFACTURING COMPANIES IN COLOMBO STOCK EXCHANGE

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Abstract

The aim of this study is to examine the impact of dividend policy and corporate governance on firm performance of listed manufacturing companies in Colombo Stock Exchange (CSE) for the 5 year period from 2012-2016. This study pays the attention on the impact of three aspects of manufacturing companies which can cause economic decline or success. For this purpose, 33 manufacturing companies listed in the CSE are selected based on data availability for 5 years. The performance measurements are return on equity and return on assets and dividend policy is measured by dividend payout ratio and earning per share while corporate governance is measured by board size, board independence, CEO duality and number of board meetings. Panel data regression model is used as it has cross sections and time series nature of data. The study finds that the dividend policy variables are enough to describe the firm performance. On the other hand, corporate governance practices also had an impact on firm performance in listed manufacturing companies in the CSE in Sri Lanka. The findings will guide decision makers, future and potential investors, econometricians, academics and other stakeholders for making their strategic planning, cost controlling, profit allocation, related academic studies, taking decisions on managerial implications of economy and manufacturing sector.

Keywords: Board independence, corporate governance, CEO duality, dividend policy, panel data.

1. Introduction

A company can do two things when they earn profit. The surplus can be paid back to its investors as dividends and/or firm can retain profits within the business as an addition to shareholders' equity as retained earnings. It may however decide to apportion the surplus to both. Earnings are the free cash flows allocated to the investors after all expenses and taxes have been paid. If the firm decides to redistribute the earnings to the investors, then the investors can decide whether to reinvest it themselves or spend it.

Priya & Nimalathasan (2013) propose that the divided policy is an ordinary tool of wealth distribution to its shareholders than a tool of wealth formation to stakeholders. When a company is defining the value of the firm, the dividend policy is one of the irrelevant aspects (Modgliani & Miller, 1961). The agency cost concept proposes that, dividend policy is governed by the agency costs which arise from the disagreement of ownership and control and ownership. Managers cannot always implement a dividend policy which is value-maximizing for its shareholders. However, a dividend policy which maximizes their private benefits should be selected. Creation of dividend payouts that decreases the free cash flows which is available to the managers, should confirm that managers maximize shareholders' wealth other than consuming the funds for their own personal benefits (De Angelo, De Angelo & Stulz, 2006).

Investors always prefer higher current income and try to find limited capital progress prefer companies with a high dividend payout. However, investors looking for higher capital growth may prefer a lower payout as capital gains are taxed at a lower rate. Barron (2002) defines dividends as one of the most important things to its investors since, it gives the signs that a company is creating profits. Firms policies vary from company to company. Among those policies dividend policy is one of the most significant new items. Cash divided plays a vital role among the shareholders as well as dividend policy affects the firms' valuation. However, implementing a policy of divided is a crucial problem faced by companies. One of the main factors which determine the dividend policy is corporate governance (Mehrani, *et al*,2011).

Over the years, many studies have been investigating whether there is a relationship among firm performance, divided policy and corporate governance. Corporate Governance becomes the widely discussed common topic in modern economy. Simply, Corporate Governance is a method of governing the company. Generally, Corporate Governance includes rules,

procedures, processors for strengthening management functions and accountability. Modern corporate governance started in 1992 with the Cadbury report in UK which was the result of several high profile company collapses. Corporate Governance is defined in the Cadbury (1992) as the system by which companies are directed and controlled. The Cadbury Code deals with the structure and responsibilities of the board of directors, the role of auditors, and the rights and responsibilities of shareholders.

Currently, corporate governance practices of Sri Lankan listed companies are governed by the mandatory corporate governance rules included in the) listing rules. These rules on corporate governance have been incorporated into the CSE listing rules from 2007 and made mandatory for listed companies from April 2008. These mandatory rules have been developed jointly by the Institute of the Chartered Accountants of Sri Lanka (ICASL) and the Securities and Exchange Commission of Sri Lanka (SEC) in consultation with the CSE. The first Sri Lankan corporate governance code was announced in 1997 bythe ICASL. The ICASL jointly with the SEC issued revised (1997, 2003) Code of Best Practice on Corporate Governance October 2008 to be complied voluntarily by the companies in conjunction with the mandatory rules.

Today, the manufacturing sector is playing a vital role in the world economy since the industrial revolution and it has a great ability to achieve a high rate of economic growth specially which has been confirmed by many experienced developed economies in the world. The manufacturing sector has been one of the significant contributors to the nation's Gross National Product (GNP) in Sri Lanka. Good governance concept has given much importance for the past few years to analyze its effects on performance of the firms in academic research.

The dividend policy remains as an unresolved problem in corporate finance and many scholars have carried out studies on this topic by Farsio, Geary & Moser (2004), Arnott & Asness (2003) and Nissim & Ziv (2001). Some theories were tested by some researchers to clarify the relevance and significance of dividend policy and whether it affects firm value, but still there is no any universal agreement (Stulz, 2000, De Angelo et al., 2006, Pandey, 2005). Previous scholars namely Amidu (2007), Zhou & Ruland (2006), Lie (2005), Howatt (2002), came up with different judgements about the relationship between dividend policy and firm performance.

Numerous studies (Arnott et al., 2003; Nissim et al., 2001; Farsio, Geary et al., 2004) have been focused on the dividend policy and firm performance, but specially in developed economies. But these conclusions and findings of those studies directly cannot be replicated in developing countries. It is found that in Sri Lanka, there is lack of such studies to establish the relationship between corporate governance, dividend payout and firm profitability. The extant literature reveals that empirical studies have been conducted in different countries under various economic and social conditions. Sri Lanka is under different economic, social and technological conditions and it is immensely important to carry out this type of study in Sri Lanka. Thus, this study fill the gap by investigating "what is the impact of dividend policy and corporate governance on firm performance of listed manufacturing companies in Sri Lanka?"

Thus, the main objective of the study is to investigate the impact of dividend policy and corporate governance on firm's performance of manufacturing companies listed in the CSE. The paper is organized as follows; Section 2 is devoted to a review of the literature that examines how theories of dividend policy and corporate governance can be applied in the context of different countries and industrial sectors. Section 3 discusses the data and methodology while section 4 presents the results and discussions. The last section concludes the paper.

2. Literature Review

Dividend Policy and firm Performance

As Hafeez & Attiya, (2009) defined the dividend policy behavior as one of the most debatable issues in the corporate finance literature and both in developed and emerging markets it still remains in a prominent place. Dividend policy and the firm performance have been analyzed for many decades, but up to now there is no universally accepted standard justification for companies' observed dividend payout (Samuel & Edward, 2011). Many researchers have given an effort to find issues regarding the dividend dynamics and determining factor of dividend policy. However, still there is no standard justification for the dividend behavior of firms (Brealey & Myers, 2005).

Al-Malkawi (2007) took 15 years data with 1137 observations of Jordanian public listed companies and it is said that companies which have a growth of the profitability motivate to pay more dividends than others. The findings of the study made an argument with the

study of Aivazian, Booth & Clearly (2003) which described the signaling theory and companies with higher profits allure to pay more dividends to the shareholders by sending a message of good financial performance of the companies.

Gupta and Banga (2010) used the sample of seven years data from 150 listed Indian companies on Bombay Stock Exchange. The results of the investigation showed that company performance and dividend policy had a significantly negative relationship. The same relationship is shown in other studies such as Aurangzeb & Dilawer (2012), Bacon & Kania (2005). This implies that the companies with more profits have a preference to pay less dividends to the shareholders. Rozeff (1982) explained that if there are more growth opportunities, companies which generate higher profits, like to reinvest in future projects to develop the business. Therefore, this study shows a positive relationship between company's profitability and its dividend policy.

Corporate Governance and firm Performance

The concept of "corporate governance" has attracted various definitions. Cadbury Committee (1992) defines corporate governance as "the system by which companies are directed and controlled". This corporate governance concept depends on the willingness for transparency, better management should be allowed first and then reconciliation of possibly divergent interests within the firm. Therefore, it is essential, after the recent world economy being recently turmoil, to restore confidence to the different stakeholders (Azhaar & Marjene, 2011). Corporate governance involves a set of relationships between a company's board, management, its shareholders and all other stakeholders (OECD 2004). Corporate governance emerges as a result of separation of ownership and control. Based on that, agency theory was developed by Jensen et al., (1976).

Corporate governance initiatives in Sri Lanka commenced in 1997 with the introduction of a voluntary code of best practices on matters relating to the financial aspects of corporate governance. Voluntary codes of best practices on corporate governance were issued in 2003 and in 2007 corporate governance standards were become mandatory for all listed companies for the financial year commencing on or after 1st April 2008. The new Companies Act No. 07 was enacted in 2007 to keep abreast with prevalent international laws and to safeguard the interest of all stakeholders including directors, major shareholders, minority shareholders and creditors. The act introduced greater protection to minority shareholders, director's duties, and transparency and accountability. The new

Company Act No. 7 was based on Canadian, New Zealand and other modern practices. It became operative for all listed companies from 1st April 2007, and was mandatory from 1st April 2008. The aim of introducing combined code on Corporate Governance in Sri Lanka is to promote and enhance good governance in the listed companies in Sri Lanka and improve the investor confidence and also to promote economic development of the company.

Corporate Governance and Dividend Policy

Norazlan, *et al.* (2012) defined that on board structure, dividend per share and capital structure had a direct effect and it disclosed that increases in debt ratio, larger board size and the presence of duality role have significant negative effects on dividend payment. Meanwhile, the interaction between board structure and capital structure disclose that duality existence has weaken the negative effect of debt ratio on dividend payment while a large number of independent directors has strengthened the negative effect of debt ratio on dividend payment. These findings imply that having the same person as Chairman and the CEO or duality allows a person to have greater understanding and knowledge of firm.

Maniagi, *et al*. (2013) carried out an investigation to find the relationship between corporate governance, dividend policy and performance of the banks listed on Nairobi Security Exchange. The shows that dividend yield for banks as a proxy of dividend policy is significant and positively correlated with business risk and growth opportunities, also positively correlated with the CEO duality but negative and significant to board independence as corporate governance proxy.

The above detailed literature review highlights that the findings are vary as per the country, sample period and methodology used. When dividend policy is considered, some argue that it positively impacts on the firm's financial performance meanwhile some argue that it negatively impacts on the firm's financial performance. When theories of dividend policy are considered, they state many opinions. When it comes to the corporate governance concern, it also came with the same scenario according to the studies of the pervious researches. The gap of literature is identified by going through the past studies arguments and it makes a sense to do this study to investigate the impact among dividend policy, corporate governance and frim's financial performance.

3. Methodology

The population of the study is all manufacturing companies listed in the CSE, in Sri Lanka. In the manufacturing sector, there are 41 companies. The study focuses on the dividend policy, corporate governance and firm performance of manufacturing companies listed in the CSE in Sri Lanka. So that, this study uses the population as the 41 manufacturing companies listed in the CSE to evaluate the impact of the dividend policy, corporate governance and firm performance. Sample companies are selected based on the data availability out of 41 manufacturing companies for the study. This study considers the annual reports during the period of 2012 -2016.

Definition of variables

Concept	Variable	Indicator	Measurement
Corporate Governance	Board Size	Total number of directors on the board	Total number of directors present in the Board of Directors
	Board meetings	Number of board meeting per year	Total number of meetings throughout the year
	Board Independence	Number of non-executive independent directors on the board.	Number of non-executive independent directors on the board
	CEO Duality	Whether CEO & Chairman was same person	"0" if Chairman is the CEO and "1" if chairman is not the CEO
Dividend policy	Dividend Payout	Dividend Payout ratio	$\frac{Total\ dividends}{Total\ Net\ Earnings}$
	Earnings per share	Earnings per share ratio	$\frac{Net\ Income - Dividends\ on\ Preferred\ Stock}{Average\ Outstanding\ Shares}$
Firm Performance	Profitability	Return on assets	$\frac{Net\ income}{Total\ Assets}$
		Return on equity	$\frac{Net\ Income}{Shareholders\ Equity}$

Research hypotheses

H_{1A}: There is a significant impact of dividend payout on the firm performance for manufacturing companies.

H_{1B}: There is a significant impact of earning per share on the firm performance for the manufacturing companies.

H_{1C}: There is a significant impact of board size on the firm performance for manufacturing companies.

H_{1D}: There is a significant impact of the CEO Duality on the firm performance for manufacturing companies.

H_{1E}: There is a significant impact of board meetings on the firm performance for manufacturing companies.

H_{1F}: There is a significant impact of board independence on the firm performance for manufacturing companies.

Statistical model

Panel data regression procedure is used to investigate the dividend policy, corporate governance and firm performance. It examines individual firm effect, time effect, or both and these effects are either fixed or random. The pooled OLS model is run by neglecting the cross sections and time series nature of data assuming that all companies are same at all the time. Heterogeneity or individuality does not exist in pooled OLS model while it allows for fixed effect model. A fixed effects model is one of the statistical models which the parameters of the model are fixed. They have their own intercept values, but intercepts do not vary over the time. Random effect model has a common mean value for the intercept.

Both time effect and group effect are put through dummy variables into the model in the fixed effect model. For example, if only the group effect is entered in the model, then it should be included through the dummy variables d1, d2, …., dn-1 if there are n number of groups. F test is used to check the appropriateness of the fixed effect model. If the p value of F test gives under significant level fixed effect model is appropriate. The model is given below.

$$Y_{it} = \alpha + \mu_i + T_t + \cdots \ldots \ldots + x_{it}^{T}\beta + \epsilon_{it}$$

However, due to time effect, group effect and error, the variability is separated in the random effect model. Thus, it estimates variance components for groups, time or error. Therefore, differences are shown in error variances. Breush Pagan Lagrange Multiplier (LM) test is used to check whether the random effect model is appropriate or not. If the p value of LM test gives under significant level random effect model is appropriate. The model is as follows.

$$Y_{it} = \propto + X_{it}^{T}\beta + u_i + \epsilon_{it}$$

The Durbin–Wu–Hausman test, also called as Hausman test is the specification test which is used to estimate the appropriate model among the random effect model and fixed effect model. If the hausman test rejects null hypothesis it implies that the fitted model is fixed effect model otherwise random effect model.

4. Results and Discussions

This study investigates the effects of dividend policy, corporate governance and firm performance of the listed manufacturing companies in the Colombo Stock Exchange (CSE). The data were analyzed using STATA. This section provides descriptive statistics, correlation analysis, regression analysis and Diagnostic Tests which includes the results of Fisher (F)-test, VIF test, Unit root tests, Lagrange Multiplier (LM)-test and Hausman Specification test.

Table 1: Correlation Analysis

Variable	ROE		ROA	
	Pearson Correlation	**Sig. (2-tailed)**	**Pearson Correlation**	**Sig. (2-tailed)**
Dividend payout	0.700***	0.004	0.608**	0.016
EPS	0.873***	0.000	0.805***	0.000
Board Size	0.333	0.225	0.394	0.146
Board Meetings	0.440*	0.100	0.374	0.170
Board Independence	0.623**	0.013	0.339	0.216
CEO Duality	0.685***	0.005	0.395	0.145

Note: ***, ** and * indicate significance at 1%, 5% and 10% respectively Source: (Surveyed Data, 2017)

As per the correlation analysis of Table 1, the dividend payout, earning per share, board independence, board meetings and the CEO duality show significant positive relationship with the ROE, while correlation between the board independence and the ROE is positive but, not significant. Board meetings and board independence denote significant negative relationships with ROE. However, board size has an insignificant positive relationship with ROE because the significant value is greater than 0.05. As well as dividend payout has a significant positive relationship with ROA at 0.01 significant level. There are insignificant negative relationships between earning per share, board meetings, board independence and ROA, since the significant levels are greater than 0.05. According to Pearson correlation values of board size and CEO duality express insignificant positive relationships with ROA. The dividend payout had a significant positive relationship with ROA while earning per share denotes a significant positive relationship with ROA. The board meetings, board independence, the CEO duality, board size do not show any significant association with ROA.

The study applied three regression techniques such as pooled OLS, fixed effect and random effect. All the variables of dividend policy, corporate governance and firm performance were tested for stationarity. Harris Tzavalis and Breitung unit-root tests results show that the dividend policy, corporate governance and firm performance were stationary at the level. Hence, it can be concluded that the data of the study do not have a unit root hence, they are stationary. Breitung unit-root test also produces enough evidence to reject null hypothesis (H_0) while accepting alternative hypothesis (H_1) as the p-value of the test 0.0646 ($0.0646 < 0.1$) and the data are stationary and the results show that the data are stationary.

Table 2: Unit Root Test

Variable	Harris-Tzavalis - unit root test	Level of significant
ROE	0.0219	0.05
ROA	0.0000	0.01
Dividend Payout	0.0000	0.01
EPS	0.0000	0.01
Board Size	0.0060	0.01
CEO Duality	0.0461	0.05
Board Meetings	0.0038	0.01
Board Independence	0.0021	0.01

Source: (Surveyed Data, 2017)

The multicollinearity issue was tested using the VIF and all the VIF values of independent variables are less than 10 (Table 4) which shows that there does not exist any multicollinearity issue.

The study contains a shorter period of 5 years which is treated as a micro panel. When applying the serial correlation test to a micro panel, it does not perform well as they put on to macro panels with long time series such as 20-30 periods of years (Baltagi, 2012). Robust standard error correcting is the answer to correct this issue in micro panels for the possible presence of Heteroscedasticity proposed by Baltagi (2012). Heteroscedasticity is existing in samples that random variables show differing variabilities than the other subsets of the variables. Therefore, in both regression models, both fixed and random effects are performed by using robust standard errors to do the estimation of the efficient regression coefficients.

The existence of the fixed effects in residuals is tested through *F* statistics (Panel A and B of Table 4). The F- tests of all the two regressions performed rejecting the null hypothesis that all dummy parameters are jointly equal to zero and it may be concluded that the fixed firm effect model is better than the pooled OLS model. Hence, the fixed effect model is the better choice than the pooled OLS regression model. In the one- way fixed time effect models and the two- way models, no significant time impacts were found, and the analysis was conducted only on the one- way fixed firm and random effects models and the results are presented in Table 5.

Table 4: Specification Tests

Model	Panel A-ROE				Panel B-ROA			
Specification Test	**Statistic**	**P-value**	**Tested**	**Selection**	**Statistic**	**P-value**	**Tested**	**Selection**
Hausman	183.550	0.0000***	Random/Fixed	Fixed	11.0300	0.0873*	Fixed/Random	Fixed
Breusch-Pagen	66.3400	0.0000***	OLS/Random	Random	50.6900	0.0000***	OLS/Random	Random
F-test	7.8400	0.0000***	OLS/Fixed	Fixed	4.9800	0.0000***	OLS/Fixed	Fixed

Note: ***, ** and * indicate significance at 1%, 5% and 10% .respectively. Source: (Surveyed Data, 2017)

Table 5 : Results of the One Way: Fixed firm Effect Model for ROE and ROA

Model	**Panel A -ROE**					**Panel B – ROA**				
Variable	**Coefficient**	**Robst Standard Error**	**T-statistic**	**P-value**	**Variance Inflation Factor**	**Coefficient**	**Robst Standard Error**	**T-statistic**	**P-value**	**Variance Inflation Factor**
Constant	-0.1786	0.1080	-1.65	0.108		-0.1075	0.0946	-1.24	0.222	
Payout	0.1006	0.0424	2.37	0.024**	0.9600	0.0634	0.0309	2.05	0.049**	0.9599
EPS	0.0022	0.0008	2.67	0.012**	0.8667	0.0017	0.0012	1.35	0.100*	0.8667
Board size	0.0253	0.0134	1.89	0.068*	0.7293	0.0252	0.0132	1.91	0.066**	0.7293
CEO Duality	0.1889	0.0375	5.04	0.000***	0.9047	0.1076	0.0451	2.31	0.027**	0.9047
Board Meetings	-0.0094	0.0043	-2.19	0.036**	0.8464	-0.0207	0.0160	-1.14	0.264	0.8464
Independence	-0.0133	0.0236	-0.56	0.578	0.6593	0.0112	0.0166	0.64	0.526	0.6593
sigma_u	0.1281					0.1989				
Rho	0.6939					0.5461				
sigma_e	0.0851					0.1813				
R^2	0.3189					0.0490				

Note: ***, ** and * indicate significance at 1%, 5% and 10% respectively. Source: (Surveyed Data, 2017)

5. Results and Discussion

As per Table 5 the dividend payout, earning per share, board size, the CEO duality had a positive significant impact on both ROA and ROE hence, accept H_{1A}, H_{1B}, H_{1C} and H_{1D}. The board meetings in panel A negatively impacts on the ROE and accept H_{1E} where as it does not significantly affect on ROA. The board independence does not significantly affect on firm performance thereby H_{1F} is rejected.

According to the specification, tests the fixed firm effect model is the best model for panel A and panel B. The dividend payout ratio is the most influential variable in determining dividend policy and firm performance which had a strong positive significant impact. The "Bird in Hand" theory defines that the shareholders always prefer higher dividend policy and signaling model proposes that the dividend as a sign of the firm's yearly income, and it affects the management decisions in taking new projects. When dividend payout ratio increases it signals to the shareholders and investors that the company is performing well.

This study proves that earning per share has a significant positive effect on firm's performance which proves that if the firm's financial performance is high, shareholders' earning per share also goes high. Further, it signals to future and potential investors that an increase of profits of the firms will have a tendency of a positive impact on the dividend policy of firms.

Board size is an influential variable when determining the corporate governance on firm's performance which had a positive effect with the firm performance. This reveals that when board size increases firm performance will rise. When board size increases, many new ideas come into the firms, decision making process can be more accurate than earlier and equity holders put their trust over the number of members in the board thereby creating a higher value for the firm.

There is a positive association between the CEO duality and the firm's performance. When the CEO and chairman are two different persons it will lead to better management, decision making and no one can influence the management and the director board. There is a significant negative impact of board meetings on ROE which reveals that the higher the board meetings, higher will be the cost as many arrangements should be made before and after having a board meeting. The board meetings do not show any significant effect on ROA. Velnampy (2013) shows that the board meetings are not significantly correlated with

ROA in Sri Lankan manufacturing companies.The board independence does not reveal any significant effect on the firm performance. However, Bell, Greg, Curt Moore, and Igor Filatotchev (2012) and Rosenstein, Stuart, and Jeffrey Wyatt (1997) disclose that board independence shows a significant impact on ROE. They define that independent directors with a higher ratio can have positive impact on the performance. On the other hand, Rajendran (2012) finds that ROA has a positive correlation with board independence.

6. Conclusion

The aim of the study is to investigate the impact of dividend policy, corporate governance and the firm performance in the listed manufacturing companies in Colombo Stock Exchange (CSE) over the period from 2012 to 2016. Panel data approach was applied, and series of tests were conducted namely, diagnostics test of F test, Breusch-Pagen test, Hausman test and correlation analysis and panel data analysis.

The correlation analysis reveals that the dividend payout ratio, earning per share and the CEO duality have significant positive relationships with ROE. However, board meetings and board independence show significant negative relationships while board size represents insignificant positive relationship with ROE. The dividend payout had a significant positive relationship with ROA whereas earning per share, board meetings and board independence reveal negative relationships with ROA.

The fixed firm effect model shows that the dividend payout ratio, earning per share, board size, board meetings and the CEO duality except board independence have a significant impact on ROE. Among these significant variables, only board meetings find a negative impact on ROE while dividend payout, earning per share, board size and the CEO duality find positive impacts on ROE.

The study finds that dividend payout ratio, earning per share, board size, the CEO duality imply a positive significant impact on ROA. The results are useful for managers, employees, shareholders, potential and existing investors and academics.

The future and potential investors who prefer to invest in the CSE can use this as a governance whether this sector matches with investors' preferences or not regarding dividend policy and corporate governance. Further, it can be a vital study for econometricians, policy makers, academics and other stakeholders for their policy making, decision making, related academic studies and so on. Also, this study is vital for many

parties for strategic planning, to take decisions on managerial implications.

Future researchers can incorporate more variables on risk levels, economic conditions of firms and can consider other measures of firm performance such as both net profit and profit before income tax and interest. Also, further studies should focus on both the quantitative approach and qualitative approach by concerning more qualitative factors, especially the level of real power of relations in the director board, culture of firms, shareholder preference, situation of the company, future investors' preference and so on.

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CHAPTER THREE

DETERMINANTS OF MOBILE BANKING USAGE: EVIDENCE FROM THE PEOPLE'S BANK - AVISSAWELLA BRANCH

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Abstract

Advancements in information technology has created significant and reimbursed growth in the banking industry. With that, mobile banking services have been carried out with the concept of the "bank on your hand." Thus, the main objective of this paper is to investigate the determinants of online mobile usage in people's bank, Avissawella branch.. This study was conducted on a questionnaire based on the Technology Acceptance Model and Theory of Plan Behavior. Questionnaires were distributed to the costomers who have used the bank's mobile banking service using the convenience sampling technique. A total of 155 completed questionnaires were received. The results shows that demographic factors, namely age, education, and occupation, are significantly impacted on Mobile banking usage. Subsequently, the variables, namely attitude, perceived usefulness, behavioral control, perceived ease of use, and subjective norm, are significant in this phenomenon. Finally, the study confirms that the attitude, subjective norms, and perceived behavioral control variables are lined with behavioral plan theory.

Keywords: Technology Acceptance Model, Theory of Plan Behavior, Mobile Banking, Mobile Banking Usage

1. Introduction

Developments in information technology have a massive effect on the banking sector, creating continually ever more flexible payment methods and user-friendly banking services. Since the 1980s, major technology-enhanced products and services, from automated teller machines (ATMs) to mobile banking, have become available everywhere 24/7 (Sangle & Awasthi, 2011). The rapid growth of mobile technology and the ever-growing ubiquity of mobile devices over the years have resulted in mobile banking

evolving from a simple information delivery channel to a comprehensive banking transaction channel (Dandeniya, 2014).

Banking and finance companies now pay attention to mobile banking, especially when maintaining customer relationships (Riivari, 2005). The ability to identify a customer's most pressing need at a given moment is one of the promising propositions of mobile banking, and the challenge nowise to deliver services according to consumers' perception of value and trust (KPMG International, 2009). Today, mobile banking applications are evolving as a new retail channel for banks. Mobile banking is a focal point of growth strategies for the banking and mobile carrier industries (Goswami and Raghavendran, 2009). Banks provide a combination of payments, banking, real-time two-way data transmission, and global access to financial information and services through mobile banking applications (Boyd & Jacob, 2007). It is now taken for granted that the mobile phone as a channel for service consumption offers massive potential in banking (Laukkanen and Lauronen, 2005).

From all of the findings, we can see that mobile banking is also one of the fastest-growing banking practices nowadays. It is vital to extend this new banking feature to clients to maximize both clients and service providers (Qureshi, Zafar & Khan, 2008). In Sri Lankan context, banking services on the mobile channel were launched a few years ago. According to the Mobile Payment report in Sri Lanka: Market Demand Assessment (Lovelock, 2013), mobile services operators served 22.4 million subscribers. On the other hand, bank account ownership in Sri Lanka is 88.2%, and from that, the mobile banking usage of Sri Lanka is only 7.2%. So, the use of such services has not reached the desired level yet. It becomes more important to look for the factors operating on the consumer's side.

People's bank is a state-owned commercial bank in Sri Lanka. The bank has 347 local branches and 387 Service Centers with 450+ own ATMs. The bank offers both Retail and Corporate Banking services, including Online Banking and Mobile Banking. Among those, all branches and networks, People's bank in Avissawella keeps rank at 34th by showing the highest profit margin.

Through a personalized USSD information portal at Dialog, Mobitel, or Etisalat SIM inserted mobile phone, a People's Bank customer can also now access their account-related banking activities free of charge. Despite that, in the People's Bank, Avissawella branch, long queues can be seen in the counters daily for settling just a simple transaction like a

balance inquiry. Most customers still question about their balance from the counters. It motivates to study the factors those impact to the use of mobile banking.

Although the bank has 80326 active saving accounts, only 2003 customers had got registered with the Mobile banking services. Information technology (IT) acceptance has been the subject of much research in the past two decades. Similarly, Mobile banking acceptance has received a particular attention in academic studies. Several research types on Mobile banking were carried out whereby the technology acceptance model has received more attention. Davis (1989) developed the Technology Acceptance Model, according to which "users' adaptation of a computer system" depends on their "behavioral intention to use." TAM has been tested in many global studies by different authors. When considering the Sri Lankan context, enough research has not been carried out. Further, the People's bank has also not been researched yet by using TAM and TPB. Observing such facts motivates to address the following research question; "**What are the factors influencing Mobile banking usage?"**

The present study intends to accomplish the objective of the factors influencing Mobile banking usages such as Attitude, Perceived ease of use, Perceived Usefulness, Behavioral Control, and Subjective Norms on mobile banking usage. By identifying effective factors in using mobile banking, the bank can save costs, reach new segments of the population, achieve efficiency, and enhance the bank's reputation. It can provide a better customer service and satisfaction. Findings are useful to professionals in the banking sector, especially for developers of such information systems and the strategy makers, towards taking the banking services to a level commonly applicable in the developed world today. Banks can benefit with much lower operating costs by offering mobile banking services, which require less staff and fewer physical branches. Subsequently, the study is significant to branch to identify the weak points of the banking environment and improve performance. Further, this study's findings will help the banking sector to assess the impact of information technology and formulate appropriate strategies for building customer loyalty, enabling them to retain customers.

2. Literature Review

Mobile banking or M-banking is the act of performing online financial transactions by using mobile telecommunication devices such as mobile phones or tablets (Forrester : Mobile Banking, n.d.) Users can access non-financial and financial services such as

account management, balance inquiry, transference, bill payment, PIN change, and checkbook requests through mobile banking (Dahlberg *et al.*, 2008; Luarn and Lin, 2005; Shaikh and Karjaluoto, 2015). The emergence and widespread of third-generation mobile communication technologies have laid a solid foundation for mobile commerce's rapid growth (Akturan & Tezcan, 2012). Ubiquity, flexibility, interactivity, and accessibility proved the possibility of mobile banking as a popular medium for consumers to make their banking transactions. Those are useful as a powerful marketing tool for bank retailers to interact with their consumers (Cheah *et al.*, 2011; Schierholz *et al.*, 2007). According to the findings, mobile banking is also one of the fastest-growing banking practices nowadays. It is vital to extend this new banking feature to clients to maximize both clients and service providers (Qureshi, Zafar & Khan, 2008). Mobile banking is seen to become a popular banking channel among consumers and the most typical application in mobile commerce (Liu *et al.*, 2009)

Technology Acceptance Model

In 1989 Davis introduced the technology acceptance model (TAM), and it is used for modeling user acceptance of information systems. TAM's goal is to explain the determinants of computer acceptance (Davis et al., 1989). The TAM has been extensively used as the theoretical basis for many empirical studies of user technology acceptance and has significantly contributed to understanding users' acceptance of information systems /information technology (Taylor & Todd, 1995; Venkatesh & Davis, 2000). Davis and Venkatesh (1996), Gefen and Straub (2000), Al-Gahtani (2001) actual behavior in any system is determined by the perceived usefulness (PU) and the perceived ease of use (PEOU) relating to the attitude toward using that relates to intention and finally to behavior (Pikkarainen *et al*., 2004). According to the TAM, these two beliefs are primarily significant for computer acceptance (Pikkarainen et al., 2004). TAM proposed by Davis (1989) is an extension of the Theory of Reasoned Action (TRA) and the Theory of Planned Behaviour (TPB) (Aderonke & Charles, 2010). (TAM) is a perfect model which shows how users accept and use a technology (Jalal, Marzooq & Nabi, 2011). TAM has become popular among researchers because of its prudence approach and recent empirical support (Lallmahamood, 2007). Numerous empirical studies have found that TAM consistently explains a substantial proportion of the variance (typically about 40%) in usage behaviour and intentions (Venkatesh & Davis, 2000)**.**

TAM was developed based on organizational settings (Davis, 1989; Venkatesh and Davis, 2000). The management bore the cost of mandatory adaptation and adaptation of traditional technology by individual employees studied. According to (Sangle and Awasthi, 2011), mobile banking applications are for technology users and service consumers. The individuals themselves bear the cost of voluntary adaptation and usage (Kim *et al*., 2007). The disregard to assess the barriers to use the information system (in this case, the mobile banking application) and service consumer aspect of the individual take less likelihood of TAM reflecting mobile banking adaptation (Luarn and Lin, 2005).

Theory of Planned Behavior (TPB)

The Theory of Planned Behavior (TPB) was proposed by Ajzen (1985) as an extension of TRA (Fishbein and Ajzen, 1975) for situations where people do not have complete control over their behavior (Hernandez & Mazzon, 2007). The theory of planned behavior (TPB) assumes that behavior is determined by an intention to perform the behavior (Liao, *et al.* 1999). TPB adds a determinant to the behavioral intention and the attitude towards behavior constructs which is the perceived behavioral control. This construct reflects how people perceive their behavior's internal and external limitations (Hernandez & Mazzon, 2006). In more formal terms, it refers to how easy or difficult people believe it would be to perform certain behaviors (Ajzen, 1985) (as cited in Hernandez &Mazzon, 2006). In TPB, behavior itself is a function of both the behavioral intention and the perceived behavioral control. Behavioral intention, in turn, is influenced by the attitude towards behavior, the subjective norm, and the perceived behavioral control. The determinants of intention (attitude, subjective norm, and perceived behavioral control) are established by the structure of the underlying (attitudinal, normative, and control) beliefs (Hernandez & Mazzon, 2006) adaptation of an innovation.

Perceived Ease of Use

Perceived ease of use refers to “the degree to which the prospective user expects the target system to be free of effort” (Davis et al., 1989, p. 985). Ease-of-use becomes a key acceptance driver of mobile applications with technical limitations (Venkatesh, 2000). Perceived ease of use has been used in many types of research to determine the probability of adopting an online system and user perceptions of system use (Alsajjan and Dennis, 2010; Teo *et al*., 1999)

Perceived Usefulness

People tend to use an application to the extent they believe it will aid their performance (Aderonke& Charles, 2010). Davis defined PU as "the degree to which a person believes that using a particular system would enhance person's performance" (as cited in Pakkarainen et al., 2004). The perception of usefulness is formed in interaction with other individuals and a system (Venkatesh and Davis, 2000). Eriksson, Kerem & Nilson (2005) defined perceived usefulness as the subjective probability that using the technology would improve how a user could complete a given task. (Koenig-Lewis et al. (2010) found that compatibility, perceived usefulness, and risk are the significant indicators for adopting mobile banking services.

Attitude

Attitude is defined as an individual's positive and negative feelings (evaluative effect) towards performing a target behavior (Fishbein&Ajzen, 1975). "According to Ajzen and Fishbein (1980) shows people form beliefs about an object by associating it with various characteristics, qualities, and attributes. These beliefs acquire positive or negative attitudes toward that object depending on whether they associate it with positive or negative characteristics. These beliefs may be achieved by direct observation, obtaining information from outside sources, or generated through an inference process. Some can be beliefs persist, and others do not. Many existing studies in the context of e-business have found that an individual's attitude directly and significantly influences behavioral intention to use a particular e-business application (George, 2002; Gribbins *et al*., 2003; Moon and Kim, 2001). Attitude significantly affects intention to the usage of mobile banking (Puschel *et al*. 2010).

Behavioral control

Perceived behavioral control is defined as an individual's confidence that a person can perform the behavior (Ajzen, 2006). Ajzen (1987, 1991) and Ajzen and Madden (1986) developed the TRA further into TPB by adding a new determinant of behavioral intention: behavioral control, which is based on Bandura's concept of self-efficacy. Factors such as skills, abilities, time, and requisite information play a significant role in predicting and performing the behavior. Many studies in the Internet banking domain have supported the significant and positive effect of perceived behavioral control on an individual's behavioral intention (e.g., Al-Majali and Nik Mat, 2010; Jaruwachirathanakul and Fink, 2005; MdNor

and Pearson, 2006). Previous research regarding online technology adaptation suggests perceived behavioral control is an excellent predictor of usage intention (Choi and Geistfeld, 2004; George,2002; Klein and Ford, 2003).

Subjective Norms

Subjective norms are defined as individual's perceptions of whether people who are essential to a person think that they should or should not perform the behavior in question (Ajzen & Fishbein, 1980). Subjective norm is determined by the total set of accessible normative beliefs considering essential referents' expectations (Ajzen, 1991). Subjective norms influence the behavioral choices of the Person (Doll and Ajzen,1992). Empirical research also suggests that subjective norms positively affect e-payment and internet banking adaptation (Gu et al., 2009; Kleijnen *et al*., 2004; Lin *et al.*, 2020; Chan and Lu, 2004; Puschel *et al*., 2010).

3. Methodology

Research methodology defines the systematic and scientific procedures used to arrive at the results and findings for a study against which knowledge claims are evaluated (Nachmias *et al.,* 1996). A methodology is therefore shaped by the perspective of the researcher's chooses to approach the study.

Operationalization of Demographic Variables

In this study, both males and females were used as the group. The gender of the respondent is measured by using a single question of two possible answers, which are naturally segmented as "Male" and "Female." The respondent's age is categorized into four levels; below 18-30, 31-40, 41-50, above 51. Occupation of the respondents was categorized into three categories Student, self-employed, salaried. The respondents' level of education was categorized into five categories; No formal education, Up to Grade Eight, Passed GCE (O/L), Passed GCE (A/L), Completed the first degree, and Completed post-graduate degree and above.

Operationalization of Independent Variable

Dimension	Indicator	Source	Measurement
Attitude	Using mobile banking will save me time Using mobile banking will be secure. Using mobile banking will save me money. Using mobile banking will be good for me.	Wu and Chen (2005), Cheng *et al*. (2006) and Lai and Li (2005	Likert Scale
Perceived Ease of Use	Learning to use mobile banking is easy. It is easy to use mobile banking. Overall, using mobile banking is easy.	Cheng *et al*. (2006) and Curran and Meuter (2005	Likert Scale
Perceived usefulness	Mobile banking improves my work and life efficiency mobile banking allows me to acquire the information I need easily Overall, mobile banking is useful.	Cheng *et al.* (2006) and Curran and Meuter (2005)	Likert Scale

Dimension	Indicator	Source	Measurement
Behavioral control	I am able to use mobile banking without help. Using mobile banking would be entirely within my control. I have the resources, knowledge, and ability to use mobile banking.	Ho and Ko (2008) and Wu and Chen (2005)	Likert Scale
Subjective Norm	My close friends think that I can use mobile banking. My close friends think that I should use mobile banking. My close friends think that I must use mobile banking.	CETSCALE(Sangle & Awasthi, 2011)	Likert Scale

Operationalization Dependent Variable

Dimension	Indicator	Source	Measurement
Mobile banking usage	I will adopt mobile banking as soon as possible. I intend to use mobile banking in the future. I will regularly use mobile banking in the future.	Ho and Ko (2008) and Hsu and Chiu (2004)	Likert Scale

Source: Developed by researchers

Research Design

The research design is a procedural plan which is used to answer the research questions accurately, objectively, economically, and with validity (Kumar, 1999). A descriptive cross-sectional research design was used in the study. The study was cross-sectional because the data was only collected on one occasion and therefore represented a snapshot of the respondents' responses at that specific point in time. The study is also descriptive since it focused on establishing the what, when, where, how, and why of consumer expectation from mobile services. Moreover, this can be classified as a single cross-sectional analysis, as the only a single sample has been used.

Study Setting

The study is conducted in a natural (field) environment with minimum interference by the researcher with the normal flow of procedures related to the researching environment. Here, the researcher collects data through a questionnaire, focus group, and in-depth interview from the respondents to understand what constitutes the primary concern when the customer uses mobile banking services and What factors can be identified as the guiding force for making better mobile CRM services in banking.

Sample Design

According to (Sekaran 2009), the level of aggregation of the data collected during the subsequent data analysis stages can be defined as the study's unit of analysis. Therefore, the analysis unit specifies whether the information is collected about individuals, households, organizations, geographical areas, or subjects. This research unit of analysis is an individual who is buying saving products in the People's bank in Avissawella and from whom have no mobile banking service period of August 2017. The study population can

be defined as the Consumers of the Avissawella people's bank that brought Avissawella people's bank's saving product. From whom did not have mobile banking service in August 2017 belong to all the age categories. Total 2003 customers are included in the population. Non-probability sampling was selected because it will be straightforward to find the relevant sample. It will be easy to access, minimum resources, and so on. Sekaran (2003), as cited in (Haque *et al*. 2015), suggested that the sample size should be more than 30 samples and should be less than 500 samples as the appropriate size of the sample size for most of the research projects. According to this rule, the sample size was fixed to 155 people belonging to all age categories. These people are buying saving products in the People's bank in Avissawella and had no mobile banking service in August 2017. The study collected the data from the people buying saving products in the People's bank in Avissawella. A structured questionnaire has been employed to collect primary data from the respondents. Data were collected from sample elements by distributing the questionnaire through internet questionnaire forms and email and filling the hard copies.

4. Analysis and Discussion

Reliability Estimate

Cronbach's Alpha value (Nunnally & Bernstein, 1994) is calculated to test the instrument's internal consistency reliability. Reliability coefficient as Cronbach's Alpha coefficient shows the average correlation among items that include under a variable. The result of the reliability analysis is shown in Table 2. Since all the values are greater than 0.7, the questionnaire can be considered a reliable one.

Table 1: Test of reliability

Variable	Cronbach's Alpha Value
Attitude	.951
Perceived ease of use	.970
Perceived usefulness	.898
Behavioral control	.846
Subjective norm	.862
Mobile banking adaptation	.864

Validity Estimate

In order to test the external validity of the measures, the KMO test was used. To meet the validity of the scales, the KMO Test value should be greater than 0.5 (Field, 2009)

Table 2: Test of Validity

Variable	No of Item	KMO
Attitude	4	.868
Perceived ease of use	3	.780
Perceived usefulness	3	.710
Behavioral control	3	.681
Subjective norm	3	.661
Mobile banking adaptation	3	.654

The results show that the KMO measure of all variable is grater than 0 .5. It indicates the adequacy of the sample size to generalize the findings to the population.

Interpreting the results from Pearson Chi-Square Tests

The results generated from Pearson Chi-Square Tests are shown in Table 3. It shows a significant association between Mobile banking usage and Age, Occupation, Education, Attitudes, Perceived Ease of Use, Perceived Usefulness, Behavioral Control, and Subjective Norms except for Gender.

Table 3: Pearson Chi-Square Tests

Variable	Value	df	Asymp.Sig.(2-sided)
Gender	12.855	12	.380
Age	1.266E2	36	.000
Occupation	1.266E2	36	.000
Education	1.398E2	48	.000
Attitudes	2.922E2	60	.000
Perceived Ease of Use	2.185E2	48	.000
Perceived Usefulness	2.186E2	48	.000
Behavioral Control	2.073E2	48	.000
Subjective Norms	1.885E2	36	.000

Source; Survey data (2017)

The results indicate that Attitude significantly affects mobile banking usage in the People's Bank Avissawella branch. It is similar to the finding of (Aboelmaged and Gebba, 2013). In consistent with finding of Kazi and Mannan (2013) and Makanyeza (2017), the study finds that Perceived Usefulness' significantly affects the mobile banking usage in the People's Bank Avissawella branch. This study proved that Behavioral control significantly affects on the mobile banking usage in the People's Bank, Avissawella branch. It is similar to the study conducted by (Aboelmaged and Gebba, 2013). This study found that perceived ease of use significantly affects the mobile banking usage in the People's Bank, Avissawella branch. It is against (Kazi and Mannan,2013). Also, this study shows that Subjective norms significantly affects the mobile banking usage in the People's Bank, Avissawella branch. The findings of this study are dissimilar to the study conducted by (Aboelmaged and Gebba, 2013).

5. Conclusion

The primary objective of this study is to investigate the factors that affect usage of mobile banking based on technology acceptance model and theory of planned behavior. The result of the analysis conveys a message that demographic factors, such as Age, Education, and Occupation are significantly influenced on the Mobile banking usage but Gender is not impact on this phenomenon. In addition, it gives a message that Attitudes, Perceived Ease of Use, Perceived Usefulness, Behavioral Control and, Subjective Norms significantly affect on the mobile banking services in this bank. The study results imply that the existing system of the People's Bank-Avissawella should be developed in several steps. The bank can promote mobile banking applications through the Above the Line (ATL) and Below the Line (BTL), to change people's attitudes. The bank staff of Avissawella are not actively engaged in promoting mobile banking services to their customers.. Staff is mostly busy with the day-to-day schedules. So, the customers should be informed about mobile banking, specially the customers of the young age category. Mobile banking applications should be recommended to be attached to the new saving account with an open mandate. Attractive leaflets should be prepared including the benefits of mobile banking specially showing "cost free" and how it enhances their life performances should be known by the customer. Some customers do not like to change their mobile service provider. They consider it the most useful one. Therefore, not only limited mobile banking application of

the Mobitel, Dialog and Etisalat service providers but also the bank should capture all other mobile service providers.

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CHAPTER FOUR

DETERMINANTS OF FINANCIAL PERFORMANCE OF THE POLYTHENE AND PLASTIC INDUSTRY; SPECIAL REFERENCE TO PRIMEX LANKA PLASTIC (PVT) LIMITED

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Abstract

The plastic and polythene industry in Sri Lanka is running with many challenges due to the negative natural environmental impact. Under the prevailing direct and indirect influences towards the industry, it has to gain financial returns by adjusting towards a sustainable existence. This study investigates the determinants of the financial performance of Primex Lanka Plastic (Pvt.) Limited, which is a leading polythene manufacturing company in Sri Lanka. The study focused on three specific objectives; (i) explore the behaviour of the firm-specific variables, (ii) identify the association between variables and (iii) rank the significant variables in each good model. The study employed the deductive approach using the secondary data from May 2012 to May 2017 monthly. Multiple regression model explored the best model out of the result of three tested models. Out of two dependent variables, Return on Assets (ROA) and Return on Equity (ROE), ROA have given significant results on three models. However, the selected model defines the results of the study. Results indicate that liquidity, leverage, management efficiency and interest expense are significant on ROA. Among the selected determinants, firm-specific factors highly influence the company's financial performance rather than the macro-economic factors. Empirical findings of this study may be helpful for policymakers and senior management of the Primex Lanka Plastic (Pvt.) Limited to craft their strategic decisions highlighting the firm-specific determinists for the best performance.

Keywords: Plastic Industry, Financial Performance, Firm-Specific Variables, Macro-economic Variables.

1. Introduction

Manufacturing sector companies play a vital role in contributing to the economic growth. In the Sri Lankan context, private manufacturing firms dominate the market over the public sector among different manufacturing sectors. To achieve a higher level of business performance sustainably, they have to carry out their operations smoothly with continuous solid financial performance. Since track on the firms' performances indicates how the business runs healthy and manages the resources to gain competitive advantages (Iswatia & Anshoria, 2007).

Financial performance has been widely used as an indicator for business performance (Ezzemel, 1992; Ezzemel & Hart, 1989; Rappaport, 1986). Proper performance measurement derives valuable information to efficiently utilize the funds and other assets efficiently and effectively towards the company's best decisions. When good financial performance rewards and motives, their stakeholders ultimately maximize the nation's wealth; on the other hand, weak financial performance can lead to firm failure and inside a crisis, which negatively affects economic growth.

However, the financial performance of a firm is influenced by external and internal factors. Macro-economic and firm-specifics are the two different influences that affect a firm's financial performance externally and internally. Most studies found that when firm-specific factors influence the management and director board (Hansen and Wernerfelt, 1989), such studies rarely have focused on the macro-economic impact.

Polythene Industry and Primex Lanka (Pvt.) Limited

Among the manufacturing sector, polythene and plastic-based manufacturing sector based on rubber and plastics, a vital production segment in Sri Lanka. Central Bank of Sri Lanka (2016) highlights the significant contribution identifying among the top ten income generation areas in Sri Lanka. In recent years, the polythene and plastic industry is influenced by the diverse challenges due to mainly the evidence of environmental pollution. Jayasekara (2017) highlighted that according to the National Environmental Act No. 47 of 1980, the production of polythene or any polythene product of 20 microns or below in thickness for in-country use and the sale is prohibited in Sri Lanka from 01 February 2016. Though producing polythene and plastic has become a criticized industry

in recent times, polythene and plastic manufacturing companies are performing their businesses with a considerable number of small-scale enterprises in Sri Lanka.

Primex Lanka Plastic is a Private Limited company that has undertaken a range of polythene products among the polythene and plastic industry in Sri Lanka. The company mainly focuses on the international market supplying 65% of the production and raw materials imported from the oil-producing countries. Since the local and international scenarios influence the company's financial performances, however, today, they have become the second runners of their market. However, the company's financial performances have shown a downward trend with huge unstable fluctuations in recent years, as shown in Table 1 below.

Table 1: Behavior of Return on Asset ratio and Return on Equity Ratio of the Primex Lanka Plastic (Pvt.) Limited

Year	2012/2013	2013/2014	2014/2015	2015/2016	2016/2017
ROA	80.12%	25.45%	24.48%	20.79%	13.66%
ROE	93.29%	60.15%	52.99%	48.38%	33.72%

Source: Audited Accounts of Primex Lanka (Pvt.) Limited (2012-2017)

Though the firm performs in a market gaining higher market share, the symptoms of unpredicted financial performance behaviour have shown unexplored scenarios and relationships of internal and external sources influences. However, few studies investigating the relationship considering both macro and firm-specific factors on financial performance are very scarce in the manufacturing sector since the evidence and reasons for the company issue are also limited. Especially, the impact of different constraints devised on the polythene and plastic industry in Sri Lanka is also an unexplored area among researchers. Since the researcher aims to find the solutions on the behaviour of the firm-specific factors, the impact of both macro and internal environment on financial performance in the Primex Lanka Plastic (Pvt.) Limited. This would bring an idea of what would be the financial gain from the polythene productions even among these market conditions in Sri Lanka. Because producing polythene is still a criticized arena among the general society, it will also generate additional risk to the company that other manufacturing sector companies do not face.

2. Literature Review

The literature review, theoretical review and empirical review present different theories and concepts which give the light for this study to build up the flow on the determinants and influencing variables.

2.1 Theoretical Review

Performance can simply be defined as a result of an activity or action or process of performing a task or function. Company performance is essential to manage resources to gain a competitive advantage (Iswatia & Anshoria, 2007). Moreover, Walker (2001) investigated the three main dimensions to measure the performance: the company's productivity, profitability, and earning with its costs and market premium. However, most of the studies described the firm performance based on the financial performance, and it has been widely used as an indicator for business performance (Ezzemel, 1992; Ezzemel & Hart, 1989; Rappaport, 1986).

According to Havnes and Senneseth (2001), financial performance can express growth of sales, turnover, employment, or stock prices. Financial performance is measured through financial statements. There are various financial measures calculated based on financial statements data and return on asset, return on sales and equity, etc. Though there are different methods and criteria available to measure the performance, it should include multiple criteria analysis. This multi-dimensional view of performance suggests that additional models or patterns of relationship between business performance and its determinants will emerge to establish various relationships between variables in the established models (Ostroff and Schmidt, 1993).

Managing the association between firm's short-term assets and short-term liabilities can be identified as working capital management (Guthmann & Dougall, 1948). Further, balancing liquidity and profitability in an optimal way for trading and manufacturing organizations is critical if current assets are significant compared to the total assets. Though the firm is profitable, if trade receivable amounts are tied up, the firm has to borrow credit to finance inventory and then it will cause to increase the interest expense. Profitability and liquidity should be carefully managed to confirm the firm's going concern (Thuvarakan, 2013). Scholars found that because of high inventory days, high cash receivable days, and long cash operating cycles, most businesses fail due to inefficient management of working capital items (Rafuse, 1996).

Management can be defined as planning, organizing, leading, and controlling organizational resources efficiently and effectively to achieve the organizational goals. The lifestyle model explains that management efficiency and learning are the key factors for firm performance and growth (Jovanovic, 1982). Representing the management efficiency through the financial ratios is somewhat a complex scenario. The performance of management is often expressed qualitatively, including evaluation of management systems, control systems, quality of the staff and others; some of the financial ratios act as proxies for management efficiency (Ongore & Kusa, 2013).

The theory related to the optimal capital structure is known as the "irrelevance theorem". It suggested that, in perfect capital markets, capital structure choice does not affect a firm's market value. Absence of the corporate taxes, brokerage and symmetrical information imply that the investors and managers have the same information (Modigliani & Miller, 1958). Due perfect capital market is not a reality; a new idea brought by Modigliani and Miller (1963) as a tax benefit of the debt elaborating use of debt capital causes a minimizing of the firm's cost of capital and maximizing its profitability. It assumed that a firm's value is maximized when it employs more of debt in its capital structure than equity. Then the other three capital structure theories have been developed, such as the trade-off theory (Bradley, Jarrell & Kim 1984), agency cost theory (Jensen and Meckling, 1976) and pecking order theory (Myers and Majluf, 1984).

2.2 Legal Background of the Polythene and Plastic Industry in Sri Lanka

According to the Extraordinary Gazette Notification No. 1466/5 issued under section 23W of the National Environmental Act No. 47 of 1980, the manufacture of polythene or any polythene product of 20 microns or below in thickness for in-country use and the sale is prohibited in Sri Lanka from 01 February 2016 (Daily Mirror, 2016). Due to this act, polythene and plastic manufacturers might limit their production, which is a political influence on the industry.

2.3 Empirical Review

There are plenty of studies in which there are many internal determinants of firm performance, out of which this capital structure, working capital management, managerial efficiency, and interest expense are vital. Gill, Biger, & Mathur (2011) seek to extend Abor's (2005) findings that positive relationship between short-term debt to total assets

and ROA, long-term debt to total assets and ROA, and between total debt to total assets and ROA in the manufacturing industry in the study of American manufacturing and service firms during 2005 to 2007. Further, Roden and Lewellen (1995) discovered a positive relationship between profitability and capital structure in the study of US firms during 1981-1990. However, Salim and Yadav (2012) found that ROA, ROE and earning per share (EPS) have a negative relationship with short-term debt, long-term debt and total debt in the study done for Malaysia during 1995-2011. Further, Obert and Olawale (2010) suggested that debt had a negative impact on the profitability of small manufacturing firms in the study of manufacturing firms in Zimbabwe.

Similarly, Thuvarakant (2013) found that working capital components by receivable days, payable days, inventory days, cash conversion cycle, and profitability showed no significant relationship between the manufacturing industries in the United States from 2007 to 2011. There was a significant positive relationship between firm profitability and the current ratio in Ukrainian firms (Ankintoye, 2000). Further, there was a significant relationship between the company's working capital management and profitability criteria in Iran (Pouraghajan & Emamgholipourarchi, 2012).

Quality of management is necessary for the success of every company. However, Almajali, Alamro and Soub (2012) found that leverage, liquidity, size, and management efficiency positively affected the financial performance in Jordanian companies during 2002-2007. Agiomirgianakis, Voulgaris and Papadogonas (2006) explored that size, age, exports, debt structure, investment in fixed assets, assets' profitability, and sales contribute significantly to firm profitability and employment growth in Greek manufacturing firms from 1995 to 1999. Further, Ongore and Kusa (2013) found that capital adequacy and management efficiency positively affect the performance while asset quality negatively affected the performance in Kenya commercial banks from 2001 to 2010.

Then, Odalo (2015) found a significant positive relationship between interest coverage ratio and financial performance, while size, sales growth, operating cost efficiency, liquidity and interest rate positively impacts on the financial performance. But, ownership structure negatively impacts the financial performance in the Nairobi securities exchange. Further, Bhunia and Khan (2011) found a significant positive relationship between interest coverage ratio with return on assets in Indian private sector steel companies.

Concerning macro-economic variables, Baggs, Beaulieu, and Fung (2007) found that the firm's probability of survival, sales and entry are negatively associated with appreciations in the Canadian dollar study for plastic producing companies during 1986 to 1997. However, in the Turkey context, Demir (2009) suggested that the real exchange rate uncertainty had a statistically insignificant positive coefficient with the profitability in the real sector.

Demir (2007) found that the real interest rates and capital flow volatility significantly affected the manufacturing firm profitability in Turkey manufacturing firms from 1993 to 2003. Moreover, Bekeris (2012) found that most of the selected macro-economic indicators such as inflation, average wages, oil price, the number of enterprises, and the monetary bases were not statistically significant with the corporate profitability in Lithuania and the European Union SME from 2000 to 2010. Further, Odalo (2015) found that interest rate significantly positively impacts the firm performance in the Kenyan context.

However, Gunaya, *et al*. (2005) explored that the profit margins positively impacted price inflation and real wage costs in Turkish manufacturing firms from 1980 to 1986. Then, Kose, Prasad, and Terrones (2003) found that the increase of consumption volatility and uncertainty of vital macro prices and capital flows in developing countries in the post financial liberalization era directly impacted the firm profitability. Further, Demir (2009) found that increasing macro-economic uncertainty and volatility significantly negatively affected Turkey's firms' profitability from 1993 to 2003. However, Bekeris (2012) explained that inflation does not impact corporate profitability.

Shah (1992) suggested significant positive relationships with public infrastructure and profitability and industrial production and profitability among Mexican manufacturing industries from 1970 to 1987. Further, Sayilgan and Yildirim (2009) found that the consumer price index and first difference of ratio of off-balance-sheet transactions to total assets negatively affect the profitability. The first differences of industrial production index, the ratio of budget balance to industrial production index and the ratio of equity to total assets affect profitability indicators positively in Turkey from 2002 to 2007.

According to Sri Lankan evidence, Sivathaasan et al. (2013) suggested that capital structure and non-debt tax shield significantly impact profitability. The remaining working capital, growth rate, and firm size have no significant effects on manufacturing companies' profitability from 2008 to 2012. Then, Niresh (2012) found no significant relationship

between liquidity and profitability among the listed manufacturing firms' period from 2007 to 2011. However, Samarakoon (1999) examined the determinants of leverage in a cross-section of quoted companies and the result found that profitability is reliably negatively correlated to leverage. Further, Pratheepan (2014) found that size shows a positive relationship with the profitability, whereas tangibility shows a negative relationship with the profitability for selected listed manufacturing companies from 2003 to 2012.

3. Methodology

As this study focuses on the financial performance of Primex Lanka Limited, the sample consists only of the firm. The data has been gathered on the firm's profitability, macro-economic and firm's specific variables, which are considered from the literature on production firms. However, data are included for 61 months over the years from May 2012 to May 2017 of the company's financial performances. However, data are sourced from the Annual reports of the Central Bank of Sri Lanka, Sri Lankan Economic and Census Department's monthly reports, and the company's management accounts. In addition to that, to identify the political influence, data are obtained from Sri Lankan public newspapers reports and the previous articles regarding polythene and plastic, which the Sri Lankan Parliament passed. Then, data on relevant variables representing return on assets (ROA), return on equity (ROE) for firm's profitability, current ratio (CR), cash conversion cycle (CCC), debt ratio (DA), debt to equity ratio (DE), long term debt to equity ratio (LDE), Operating profit to income ratio (ME), Interest Coverage Ratio (IC) for firm's specific variables and exchange rate (EX), oil price (OI), interest rate (IR), inflation (IN), factor industrial production index (FIPI), political influences (PI) are for the macro-economic variables.

The study explores the impact of firm-specific and macro-economic variables on financial performances with two models for ROA and ROE. Since the data are a time series pattern for 61 months for each variable relating to one entity, a multiple linear regression procedure is applied. Using the SPSS computer software, multicollinearity among the variables was tested using the Variance Inflation Factor (VIF).

The study examines the impact of the firm-specific and macro-economic variables on the financial performance of Primex Lanka Limited, highlighting the polythene and plastic industry. In addition to the primary analysis, descriptive statistics and correlation

coefficient were utilized to identify the behaviour of the variables and its association among the variables based on previous studies. The following two models were developed to explore the expected financial performance results on return on assets (ROA) and return on equity (ROE).

Model - I

$$ROA = \beta_0 + \beta_1 CCC + \beta_2 CR + \beta_3 DA + \beta_4 DE + \beta_5 LDE + \beta_6 ME + \beta_7 IC + \beta_8 EX + \beta_9 lnOI + \beta_{10} IN + \beta_{11} CCPI + \beta_{12} FIPI + \beta_{13} PI + \varepsilon \quad (3.1)$$

Model - II

$$ROE = \beta_0 + \beta_1 CCC + \beta_2 CR + \beta_3 DA + \beta_4 DE + \beta_5 LDE + \beta_6 ME + \beta_7 IC + \beta_8 EX + \beta_9 lnOI + \beta_{10} IN + \beta_{11} CCPI + \beta_{12} FIPI + \beta_{13} PI + \varepsilon \quad (3.2)$$

Where,

ROA is the return on assets, ROE is the return on equity

CCC is the Cash conversion cycle

CR is the Current ratio

DA is the Debt ratio

DE is the Debt to equity ratio

LDE is the Long-term Debt to equity ratio

ME is the Operating profit to total income ratio

IC is the Interest coverage ratio

EX is the Nominal dollar exchange rate

lnOI is the Natural log value of oil price

IN is the Three months treasury bills' interest rate

CCPI is the Colombo Consumer Price Index

FIPI is the Factory industrial production Index

PI is the Dummy variable/political influence

β_0 is the intercept of the regression, $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8, \beta_9, \beta_{10}, \beta_{11}, \beta_{12}, \beta_{13}$ are the coefficients of CCC, CR, DA, DE, LDE, ME, IC, EX, lnOI, IN, CCPI, FIPI, PI and ε is the error term.

4. Results and Discussion

The descriptive statistics of the 16 variables, including macro-economic and firms-specific factors, are given below in Table 2 for 61 observations. However, descriptive statistics provide a detailed understanding of the features of macro-economic and firm-specific variables that have influenced the firm's financial performance.

Table 2: Descriptive Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
ROA	2.760	1.360	-0.720	6.220
ROE	6.530	3.890	-1.800	19.900
CCC	12.382	16.557	-20.325	58.056
CR	1.176	0.207	0.770	1.619
DA	58.090	4.480	52.600	78.760
DE	142.360	37.910	110.970	370.880
LDE	16.690	18.690	0.410	58.390
ME	8.590	5.830	-15.200	17.480
IC	9.365	8.656	-1.724	52.056
EX	135.988	7.891	126.030	152.334
OI	10,076.910	3,365.737	4,306.680	14,410.320
IR	8.101	1.695	5.740	11.967
CCPI	179.928	8.262	162.100	195.200
FIPI	129.770	14.358	94.300	152.400

Source: Audited Financial Statements of Primex Lanka Limited (2012-2017) and Central Bank of Sri Lanka (2017)

ROA indicates that the firm has generated an average return of 2.76% on existing assets while ROE recorded its averages return from existing investments by equity at 6.53% during the last 61 months. However, the return has deviated by 1.36% and 3.89% for ROA and ROE, respectively. It showed a minimum return of -0.72% and a maximum return of 6.22% for ROA. Further, a maximum return of 19.90% and minimum return of -1.80% is indicated for ROE. Then results of CCC suggests the firm’s liquidity based on pay for and generate cash from sales of its inventory. It shows that an average of 12 days has taken on

CCC while it has varied by 16 days. However, the payment and receivable on inventory recorded a maximum of 58 days. Then the company's average current ratio (CR) stood at 1.17 which meant that the ability to pay short-term obligations. Two or more current ratios are recommended for a manufacturing company by professionals. However, it can be reduced due to lower buffer stock towards lower working capital. However, the times of current assets on current liabilities has varied by 0.20 times while it has taken a minimum of 0.77 times to a maximum of 1.61 times. Then, DA, DE, and LDE represent the nature of the company's average capital structure stood at 58%, 142%, and 16%, respectively. The total debt ratio indicates the portion of total assets financed by firm creditors. The debt used to generate the profit has varied by 4.48% while recording its minimum and maximum at 52.60% and 78.76%. DE meant that the portion of debt relating to the equity of a firm. As per the results, the average DE of 142% alarm a higher portion of the company's controlling power in the hands of creditors.

Further, it has varied by 37.91%, recording minimum and maximum values of 110.97% and 370.98%, respectively. Next, LDE indicates its long-term Debt against the equity capital. However, the result indicates that LDE has varied by 18.69%. Then, the long-term Debt to equity has taken a minimum of 0.41% and a maximum of 58.39% in particular months. However, the capital structure ratios volatility is not particularly high since variability is below the respective averages in the two proxies. But, the long-term debt-equity ratio has a high volatility as the standard deviation is above its average. Then ME represents the efficiency of the management towards better financial performance. However, it is tracked as the higher the operating profits to total income (revenue), the more efficient management is in operational efficiency and income generation. Results indicate that the average of ME was 8.59% dispersed during the months by 5.83%. Then, the minimum and maximum ME stood at -15.20% and 17.48%. Results indicate that management has changed over time without sustainable operation among the firm. Finally, interest expenses representing interest coverage ratio recoded as 9.3 times which meant as 9.3 times, the company can pay their interest expense from profit before interest and taxes. However, it has varied by 8.6 times, taking the minimum and maximum -1.7 and 52.05 times, respectively.

Then, the results of the macro-economic variable indicate its behaviour. EX represents the average rupee value for one American dollar as the exchange rate. However, the average EX is recoded as Rs. 135.987 during the 61 months. However, EX has varied by Rs.7.891 while fluctuated to a minimum of Rs 126.304 and a maximum of Rs. 152.030. However, the changes of the EX significantly impact the firm's profitability due to its production based on imported raw materials. Then, the oil price (OI) highlights its importance, as the raw materials are by-products of the crude oil. However, the average crude oil drum rupee stood at Rs.10,076.91, while the minimum and maximum values were Rs. 4,306.680 and Rs. 14,410.32, respectively. But, the OI has varied during the period by Rs. 3,365.736. The three-month Treasury bill rates represent the interest rate (IR) which has recorded the average rate of 8.10% while recording minimum and maximum of 5.7 % and 11.97%. However, the interest rate has deviated by 1.694%, showing a somewhat constant rate. Colombo Consumer Price Index represents inflation, and it lay down the range between 162.1 and 195.2. However, the average index was 179.92 for a particular month but varied by 8.262. However, Factory Industrial Production Index (FIPI) represents the nature of the rubber and plastic sector. The minimum and maximum FIPI lay between 94.3 and 152.4 while the average of 129.77. However, the dispersion of the index during the period was at 14.358. It means the average of this index in a particular month can vary on both sides by 14.358. However, it measures the short-term changes in the volume of industrial production from the manufacturing sector in Sri Lanka.

4.2 Results of the Correlation among the Variables

The following table results indicate the association among the firms-specific and macro-economic variables between the financial performance proxies of ROA and ROE.

Table 3: Correlation Coefficient among Variables

Variables	ROA	ROE
CCC	0.028 (0.832)	0.176 (0.175)
CR	0.255* (0.048)	0.216 (0.094)
DA	-0.266* (0.039)	-0.060 (0.644)
DE	-0.251 (0.051)	-0.037 (0.778)
LDE	-0.266* (0.038)	-0.303* (0.018)
ME	0.561* (0.000)	0.457* (0.000)
IC	0.694* (0.000)	0.700* (0.000)
EX	-0.341* (0.007)	-0.294* (0.022)
lnOI	-0.335* (0.008)	-0.287* (0.025)

IN	0.114 (0.383)	0.285* (0.026)
CCPI	-0.479* (0.000)	-0.567* (0.000)
FIPI	-0.136 (0.296)	-0.309* (0.015)
PI	-0.418* (0.001)	-0.415* (0.001)

Note: Parenthesis are p-value in 5% significant level

Initially, a positive correlation between ROA and CR of the firm indicates that meeting the short-term obligations has improved the return generated from the company's existing assets (r = 0.255, p =0.048). However, the association between firms' liquidity and ability to generate returns from their equity is insignificant. Moreover, CR has explained the firms' ROA only by 6.5% (0.255^2) during the period. Existing results on the negative correlation between DA and ROA indicates that the higher the total assets financed by creditors, the lower the return earned from assets. According to the results, a negative correlation between LDE between ROA and ROE says that higher the long-term debt out of company equity has reduced the return earned on assets of the company (r = -0.266, p = 0.038). In contrast, it has reduced the ROE (r = -0.303, p = 0.018). However, it evidenced that long term and short-term debt of the company has gone up, which ultimately caused to reduce the return of the company.

Then, the positive association between ME and ROA, ROE indicates that higher operating profits generated through changes taken placed through management changes has improved the return generated on assets (r = 0.561, p = 0.000) and the company's equity (r = 0.457, r = 0.000). Therefore, the improvement of ROA is explained by the ME by 31.4% (0.561^2). The improvement of ROE has explained the ME by 20.8% (0.457^2). Then there is a positive correlation between IC and ROA, ROE, respectively. According to the results, more the interest pays out of company profit before interest and tax, improve the return on assets (r = 0.694, p = 0.000) and the impact of interest expenses explained the return on assets by 48% (0.694^2). Results further say that more interest pays out of its profits has improved the return generated from equity (r = 0.700, p = 0.000). However, ROE is also explained by the interest income by 49% during the period (0.700^2). Again, the results highlight that long-term debts included in the firms' operations have improved their return.

When considering the macro-economic variables, the negative correlation between EX and ROA, ROE indicates that the Sri Lankan rupees paid against US dollars has discouraged the return generated from company assets (r = -0.341, p = 0.007) and return generated from the company equity (r = -0.294, p = 0.022) during previous months. The exchange rate has

explained the ROA by 15% (-0.3912) and ROE by 8.6% (-0.2942), respectively, evidencing the impact of exchange rate company return due to materials being solely imported. Furthermore, the negative correlation between lnOI and ROA and ROE highlight that when prices on a barrel of crude oils go up, firms' ROA (r = -0.335, p = 0.008) and ROE (r = -0.287, p = 0.025) has gone down. The reason behind that is that the oil price increment may also affect the increment of their basic raw material prices because their basic raw materials are the by-product of the petroleum extraction process. Thus, it will cause to increase in their production cost. The positive correlation between IR and ROA indicates that more the interest rate on three months treasury bills has gone up, return of the company from equity has also improved (r = 0.285, p = 0.026). The negative correlation between CCPI and ROA, ROE respectively indicates that increment of the country's inflation rate has discouraged the ROA (r = -0.479, p = 0.000) and ROE (r = -0.567, r = 0.000). Further, it depicts that the inflation rate has explained the ROA by 22.9% (-0.479^2) and ROE by 32.1% (-0.567^2), respectively. However, the negative correlation between FIPI and ROE indicates that changes in the volume of industrial production from the manufacturing sector have decreased the ROE of the firm (r = -0.309, p = 0.015). Finally, the negative correlation between PI and ROA, ROE respectively indicate that more political decisions regarding the polythene industry in Sri Lanka have reduced the ROA (r = -0.418, p = 0.001) and ROE (r = -0.415, p = 0.001). Therefore, it is clear that government decisions in respect to the polythene industry were influenced negatively.

4.3 Results of the Multiple Linear Regression

After meeting the linearity and multivariate normality assumptions, the variance inflation factor (VIF) investigated the multicollinearity among the variables. Initially, two models were developed, including all the variables and variables taken VIF value more than ten is excluded from the exsisting model of multicollinearity among the variables. However, VIF values of 12.439, 11.942, 7,387.7, 7,105.9 and 16.375 recorded for debt ratio (DA), debt to equity ratio (DE), the exchange rate (EX), oil price (OI) and inflation (CCPI) were excluded, respectively. Then, the two models are tested with another assumption of whether residuals are independent of each other called autocorrelation. Durbin-Watson statistics indicate an autocorrelation problem in the model of ROE, recording the statistics of 0.917 as in Table 4.

Further progression of the analysis model of ROA is considered. However, the results of the model ROA indicates that return on assets is explained by the firm-specific factors and macro-economic factors by 64.2%. In contrast, the overall model is significant according to the ANOVA results (0.000).

Table 4: Regression results of the ROA and ROE

Variables	ROA			ROE		
	Unstandard. Coefficient (β)	P-value	VIF	Unstandard. Coefficient (β)	P-value	VIF
Constant	-0.031	0.140		0.020	0.632	
CCC	0.000	0.007	2.141	0.000	0.090	2.141
CR	0.014	0.151	2.878	-0.003	0.875	2.878
LDE	0.001	0.940	2.031	-0.005	0.802	2.031
ME	0.109	0.003	1.462	0.146	0.046	1.462
IC	0.002	0.000	2.603	0.004	0.004	2.603
IN	0.001	0.243	2.397	0.004	0.049	2.397
FIPI	0.001	0.544	1.829	0.000	0.552	1.829
PI	-0.003	0.599	4.625	-0.013	0.232	4.625
	Model Summary			Model Summary		
R^2	0.642			0.576		
DW	2.372			0.917		
	AVOVA			ANOVA		
Regression (Sig)	0.000			0.000		

Then, the researcher developed three models based on ROA, including the variables of DA, DE, EX, ln OI and CCPI, which are more important concerning the previous literature, which are excluded due to multicollinearity issue. However, the summary of three models developed on ROA is given in Table 5.

Table 5: Summary of regression models developed on ROA

Variables	Model I (ROA)			Model II (ROA)			Model III (ROA)		
	β	Sig.	VIF	β	Sig.	VIF	β	Sig.	VIF
Constant	0.014	0.806		-0.109	0.673		0.121	0.122	
CCC	0.000	0.003	2.261	0.000	0.003	2.259	0.000	0.001	2.176
CR	0.024	0.015	3.445	0.024	0.015	3.458	0.020	0.032	3.316
DA	-0.162	0.003	1.520	-0.162	0.003	1.516	-0.151	0.005	1.549
LDE	0.002	0.821	2.089	0.002	0.819	2.081	0.006	0.502	2.300
ME	0.095	0.006	1.510	0.095	0.006	1.510	0.101	0.003	1.486
IC	0.002	0.001	2.734	0.002	0.001	2.729	0.002	0.003	3.009
EX	0.000	0.580	8.128	-	-	-	-	-	-
lnOI	-	-	-	0.031	0.559	7.931	-	-	-
IN	0.003	0.019	2.904	0.003	0.019	2.902	0.002	0.210	4.595
CCPI	-	-	-	-0.701	0.560	2.516	0.000	0.263	9.182
FIPI	0.000	0.505	1.917	0.000	0.508	1.916	0.000	0.233	2.207
PI	-0.006	0.385	7.768	-0.006	0.374	7.691	0.000	0.952	6.702
	Model Summary			Model Summary			Model Summary		
R^2	0.701			0.701			0.706		
Adj.R^2	0.641			0.641			0.648		
DW	2.516			2.519			2.408		
	ANOVA			AVOVA			AVOVA		
Regression	0.000			0.000			0.000		

Results indicate that all three models are significant, as shown in the AVOVA result (0.000). Moreover, in three models, ROA is explained by the predictors by 70.1%, 70.1% and 70.6%, respectively. However, the autocorrelation result of the Durbin-Watson statistic indicates 2.4 compared to other slightly lower models. Further, the adjusted R^2 of the third model of ROA indicates a somewhat higher figure of 64.8% compared to other of 64.1%, which means that by including one variable to model, the third model can secure its explained power than the other. The model is discussed as follows.

Results indicate that though there is a significant influence by cash conversion cycle (CCC), improvement in ROA is very low. **Since**, **when one-unit change in CCC**, **has improved the ROA by 0%** ($r = 0.000$, $p = 0.001$). Scholars found a negative relationship between CCC and firm performance (Zariyawati *et al*., 2009; Nobanee *et al*., 2011), but the result of positive relationships tally with the findings of Gill et al. (2010) and Sharma and Kumar (2010) who suggested a significant positive relationship between cash conversion cycle and firm performance.

Then results indicate that one unit change in the current ratio (CR) has improved the ROA by 2% (r = 0.020, p = 0.032) while other predictors in the model are constant. Further, Ankintoye (2000) found a significant positive relationship between the current ratio and firm performance.

Debt ratio (DA) is a proxy used to represent the capital structure and found that one unit change in DR has decreased the ROA 15.1% (r = -0.151, p = 0.005) while other predictors in the model are constant. This result is also consistent with pecking order theory which suggested a negative relationship between leverage and firm performance. Further, Salim and Yadav (2012), Shubita and Alsawalhah (2012) revealed some similar findings with this study. However, the above finding is inconsistent with the capital structure theory by Modigliani and Miller (1963). Whether the coefficient of LDE shows a positive relationship with firm performance in regression analysis is insignificant for all of the above models.

Then results denote that when one unit changes in management efficiency (ME), it has improved the ROA by 10.1% (r = 0.101, p = 0.003) while other predictors in the model are constant. If a firm can increase the efficiency of their management, it directly may impact control their costs and generate economies for the company. Hence, finally, this overall process may positively impact their financial performance. That is consistent with the lifestyle model (Jovanovic, 1982), which suggest a positive relationship between management efficiency and firm performance. Agiomirgianakis *et al*. (2006), Almajali *et al*. (2012), and Ongore and Kusa (2013) found a significant positive relationship between the above variables.

The interest coverage ratio is the proxy that is used to represent the interest expense. Results indicate that when one unit change in IC has improved the ROA by 0.2% (r = 0.002, p = 0.003) while other predictors in the model are constant. A higher interest coverage ratio means a company can easily cover their interest expense from their profit. If they have sound financial performance, they can easily cover the interest expense. This result agrees with developing countries like Bhunia, *et al.* (2011) in the Indian context. Odalo (2015), in the Kenyan context, found a significant positive relationship between interest coverage ratio and firm performance.

Further, the three-month Treasury bill rate is the only macro-economic factor that shows the significant relationship with the financial performance of Primex Lanka Plastic (Pvt) Limited. Results show a significant positive relationship between interest rate and financial performance. When it was investigated whether this result is inconsistent with Amarjit, G. et al. (2010) and Demir (2007), Odalo (2015) found that interest rate showed a asignificant positive impacts on firm financial performance. According to the company view, they borrow loans continuously to invest whether the interest rate is high. Their investment returns are more than the cost of the loans. Hence this may be a possible reason for showing a positive relationship between interest rates and firm performance.

Most of the selected macro-economic variables, CCPI, FIPI and PI, do not indicate significant relationships with the financial performance of Primex Lanka Plastic (Pvt) Limited. Bekeris (2012) explained that most macro-economic variables like oil price and inflation do not impact corporate profitability.

5. Conclusion, Implication and Suggestions

The result suggested that liquidity, leverage, management efficiency, interest expenses and interest rate are the most important determinants of the financial performance of Primex Lanka Plastic (Pvt) Limited. However, the cash conversion cycle and current ratio have a significant positive impact on ROA through liquidity. Leverage represented by debt ratio shows a significant negative relationship with ROA. Management efficiency has significantly impacted ROA to improve. Then, interest coverage is also a significant positive impact on ROA. Among all the selected macro-economic variables, the Treasury bill interest rate is the only significant macro-economic variable that positively impacts ROA in the two models. However, in other models, the Treasury bill interest rate is not a significant variable in the Primex Lanka Plastic (Pvt) Limited. Results indicate the behaviour of determinants against the profitability in the plastic and polythene industry.
In recommendations, producing polythene and plastic government must bring rules and regulations for a win-win situation for the entrepreneurs and the general public.

In future studies, areas concerning the quality of the products, innovations, quality of the supply chain, goodwill of the company, social barriers, etc., can be considered to increase the awareness of both management and regulatory bodies.

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CHAPTER FIVE

CUSTOMER ADAPTATION OF INTERNET BANKING SERVICES WITH SPECIAL REFERANCE TO PEOPLE'S BANK - RATHNAPURA BRANCH

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Abstract

This study identifies the factors affecting the customer adaptation of internet banking in the People's bank Rathnapura branch. In order to comply with the objectives, eight hypotheses were developed based on the selected variables and tested. A survey was conducted to collect primary data by using a self-administered questionnaire. The population of this study was registered internet banking customers of the People's Bank Rathnapura branch. A sample of 130 customers was used to gather data on five selected Demographic Characteristics (Age, Gender, Occupation, Education, and Marital Status) and other three variables (Perceived ease of use, Perceived usefulness and Perceived security). Demographic Characteristics were analyzed using chi-square analysis, and other variables were analyzed using multiple regression analysis. The chi-square analysis proved that there are significant relationships between age and marital status on adaptation of Internet banking services. Regression analysis emphasized that perceived ease of use; perceived usefulness and perceived security have significant impacts on the customer adaptation of Internet banking services in People's bank Rathnapura branch. Policymakers are advised to monitor customer attitudes (perceived ease of use, perceived usefulness and perceived security) towards the internet banking system regularly. .

Keywords: Internet banking, Peoples' Bank, Perceived ease of use, Perceived security, Perceived usefulness.

1. Background of the Study

The banking sector in Sri Lanka plays a vital role in the financial sector. In the conventional banking system, customers prefer carrying out the banking services by physically visiting the bank and all the banking transactions take place manually. Manual transactions are time consuming and cost to both customers as well as the bank. And also, there are some problems such as limited working hours and personalized services.

In traditional banking, a greater amount of capital investment is required to maintain the in-house operating system. Therefore, the operating cost of traditional banks is relatively high compared to internet banking because internet banking uses the internet as the medium, which is deemed the cheapest distribution channel (Polasik & Wisniewski, 2008). In addition, traditional banks allocate capital for labor and infrastructure costs. On the other hand, internet banking acquires savings that allows them to offer higher interest rates and lower lending rates and service charges. Recently, the trend for traditional banks is to encourage their customers to do their banking online.

Internet banking is catching the banking industry by doing banking activities from web-based online systems. In electronic banking, customers take banking transactions electronically. E-banking may include ATMs, wire transfers, telephone banking, electronic funds transfers and debit cards (Mobarek, 2007). Customers do not want to physically access the bank and customer gets the bank account ID, password and can check account, pay bills and print receipt through personal computers connected with internet.

Sri Lankans are now enjoying internet banking services, where it was first introduced in Sri Lanka in March 1999 (Jayamaha, 2008). Internet Banking is steadily growing in Sri Lanka and now, many banks in Sri Lanka have applied internet technology services to delivering Internet Banking services to customers. Customers are demanding more banking services which are new levels of convenience and flexibility facilities on top of that it is powerful and easy to use.

Even though this improvement of new technology, recent findings in Sri Lanka demonstrate that consumers were more resistant to adopting such technology even if it has more relative advantages. Generally, less than 1% of total bank customers, use online banking, mobile banking, internet banking, telephone banking and internet payment gateway. Although ATM services are broadly used, the usage of other IT-driven services

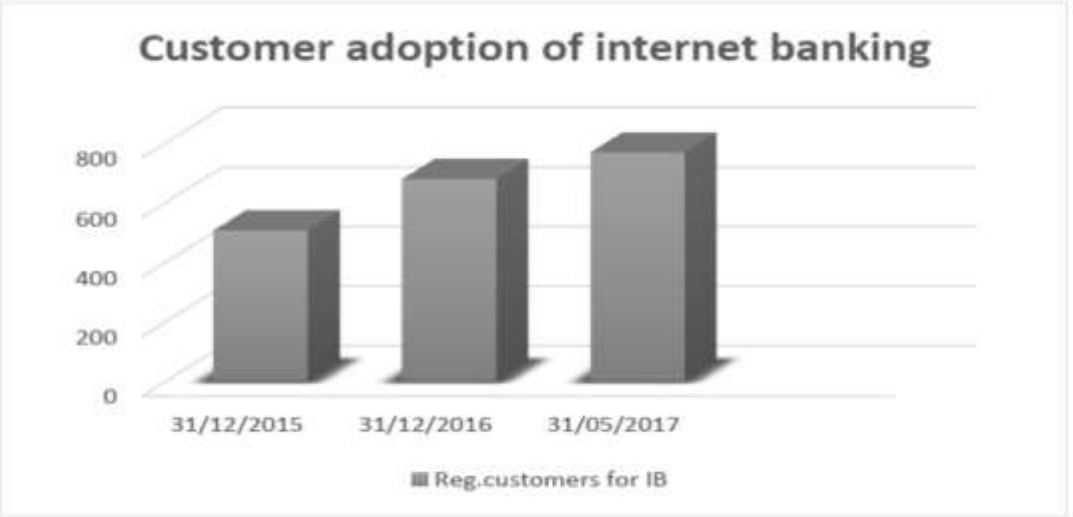
such as online banking, mobile banking, internet payment gateway and telebanking is almost insignificant (Suraweera *et al*. 2011).

Even though most of the customers in the country were aware of internet banking, they still pay bills, withdraw money, check balances and deposit cheques from bank counters as the traditional way. Even though there is a growth of Internet Banking usage, the usage of Internet Banking seems to be low, relatively to total customers who use banking services in Sri Lanka. So, banks must develop required actions to increase customer adaptation of internet banking.

A study finds internet banking facilities in the People's Bank by looking at customer adaptation of internet banking. People's Bank's Internet banking facilities allow to do a wide range of financial transactional facilities such as real-time, 24/7, making banking more convenient for customers located anywhere in the country. The bank's internet and mobile banking customer base grew by 53.2% compared to 2015. And also, there were Rs.2.3 million valued internet based payments in 2016 and considering 2017, the customer adaptation internet banking facility was raised as Rs.3.8 million (People's Bank Annual Report, 2016).

The following graph (Figure 1) shows the growth of customer adaptation of internet banking facilities in People's Bank.

Figure 1; Registered customers of internet banking at People's Bank-Rathnapura branch



Source: 2015 to 2017 registered internet banking customer list of People's Bank-Rathnapura branch

According to the figure 1, 2015 to 2017, 767 registered consumers use the internet banking services in Rathnapura People's bank. And also, there is a significant increase in the customer adaptation of internet banking in all branches of the People's Bank. But usage of Internet Banking seems to be low relative to the customers who use banking services. It means, there are 8467 customers of the People's bank-Rathnapura branch, but only 767 customers are using Internet banking facilities. According to that, registered internet banking customers are less than 10%, from all the People's bank-Rathnapura branch customers. So, the customer adaption for Internet banking rate is low in relation to the bank customers.

This study observes the factors influencing the adaptation of internet banking facilities by customers of the People's bank-Rathnapura branch. Awareness programmes of the factors that affect internet banking adaptation is required to increase the customer adaptation of Internet Banking.

Today, most Sri Lankan banks offer internet banking services. Both banks and the customers are benefited from Internet Banking. The customers gain profits by cost and time saving, convenience and anytime accessibility of internet banking services. And also, the bank gains benefits such as cost savings, reaching new segments of the population, increased efficiency and better customer service satisfaction.

Internet Banking is a rapidly growing trend in the People's Bank. This study is an effort to come up with a solution to the major research problem which can be titled as factors affecting customer adaptation of the internet banking services specially provided by People's Bank-Rathnapura branch.

2. Literature Review

Various theories are recognized in relation to the customer adaptation of Internet Banking. Based on those theories, several studies have been explored by academics and published their opinions to the world. Technology Acceptance Model (TAM) and Theory of Perceived Risks (TPR) are the two major theories primarily used in literature.

Technology Acceptance Model (TAM)

Davis (1989) was first to introduce the Technology Acceptance Model (TAM), where he assumes that perceived usefulness and perceived ease of use are the major determinants of Internet Banking. Perceived usefulness was defined as "the degree to which a person believes that using a particular system would enhance his/her job performance", and perceived ease of use is defined as "the degree to which a person believes that using a particular system would be free of physical and mental effort" (Davis, 1989). The TAM has been successfully applied to accept technologies such as the personal computer, mobile devices and other IT related applications (Davis, 1989). It has also been applied to consumers' attitudes towards the use of e-commerce or mobile commerce (Gefen, Karahanna, & Straub, 2003).

According to TAM, if a user perceives a specific technology as useful, user will trust in a positive use-performance relationship. Since effort is a limited resource, a user is likely to accept an application when she or he is perceiving it as more straightforward to use than an alternative. Consequently, educational technology with a high level of perceived usefulness and perceived ease of use is more likely to encourage positive perceptions.

Several authors have analyzed the website's features as determinants of the perceived usefulness and perceived ease of use. According to Davis (1989), system information and service quality determine the perceived usefulness and perceived ease of use of web retail. While perceived usefulness directly affects attitude and use, perceived ease of use impacts attitude and use indirectly through perceived usefulness. TAM proposes that users communicate a positive attitude toward the technology when they perceive it to be useful and easy to use (Davis, 1989).

Theory of Perceived Risks (TPR)

The theory of Perceived Risks (TPR) model proposed a theoretical model which is unfavorably affected for the adaptation of internet banking by the security risk, financial risk, time risk, social risk, physical risk and performance risk. It defined the adverse influence on intent to the usage of internet banking. Six forms of perceived risk have been defined as security, financial, physical, performance, social and time risk (Jacoby and Kaplan, 1972; Kaplan *et al*., 1974; Roselius, 1971). According to Reavley (2005), the security risk refers as a potential loss due to fraud or a hacker compromising the security

of an online bank user. Financial risk is defined as the potential for monetary loss due to transaction error or bank account misuse. (Kuisma *et al*., 2007). Performance risk is defined as losses incurred by deficiencies or malfunctions of online banking websites (Kuisma *et al*., 2007). Lee (2009) stated that social risk of using online banking may result in disapproval of one's friends, family and work group. Moreover, Forsythe and Shi (2003) define time risk as the loss of the time and inconvenience incurred due to the delays of receiving the payment or the difficulty in navigation

Empirical Review

Commercial internet connectivity was introduced to Sri Lanka in 1995 and it was the first time of introducing internet among Asian countries. Sri Lankan commercial banking sector is steadily developing online banking services by providing a wide range of products to their customer (Jayasiri & Weerathunga, 2008).

Internet technology had a steady growth in Sri Lanka. Now, many banks in Sri Lanka have implemented internet technology in their services by providing Internet Banking facilities to their customers. Even though many internet users and many banks are with fully fledged Internet banking services, yet the number of Internet Banking users is less amongst the internet users (Zarook, 2010).

Although the banking professionals interviewed by the researchers themselves are not pleased with this situation, they appear to be contented with the status quo (Suraweera *et al*, 2011). Though now internet banking is expanding its position from desktop PC to the mobile phonet, there is still a resistance with the Sri Lankans to get adapted to internet banking which is becoming a huge problem.

Hernandez *et al* (2007) found that system adaptation is determined by the perceived usefulness and perceived ease of use, which are related to attitude and thereby to actual use. According to Lee and Allaway (2002), the adaptation of electronic banking depends on the service firm's resource management lowering delivery costs and by releasing service personnel to provide better and more varied service.

Demographic variables are the most popular basis for distinguishing customers. Individual differences in consumer behavior have been theorized and associated with the acceptance of new information technology, such as Internet banking (Karjaluoto *et al*., 2002; Mattila *et al*., 2003; Sathye, 1999). Consumer's demographic characteristics have been widely used

to distinguish the difference between segments of customers (Kottler, 2003). The researcher denoted those demographic characteristics as age, sex, income, occupation, education, race, religion, nationality, family size and family life cycle.

Zeithaml *et al*. (2002) stated that the degree to which an innovation is easy to understand or use could be considered as perceived ease of use. The perceived ease of use is the consumer's perception that banking on the internet will involve a minimum of effort. Similarly, Consult (2002) noted that perceived ease of use refers to the ability of consumers to experiment with innovation and evaluate its benefits easily (Mathieson, 1991).

At first, Rogers (1962) that affirmed perceived ease of use is the term that represents the degree to which an innovation is perceived not to be challenging to understand, learn or operate. He further stated that perceived ease of use is the degree to which consumers perceive a new product or service as better than its substitutes (Rogers, 1983). Also, Davis (1989) stated that perceived ease of use could influence the perceived usefulness because the other things being equal easier the technology is to use the more useful it can be. In the context of internet banking, research shows that perceived ease of use (PEU) has a positive and significant effect on the perceived usefulness. Thus, customers are more likely to accept and involve in internet banking services if there is the ease of use in the operation process, which can be instrumental to the utilization of technology and contribute to the individual by reducing transfer costs and improving work performance. Information technologies that are easy to use will be less threatening to the individual (Moon & Kim, 2001).

Suganthi & Balachandran, (2001) highlighted that one of their dimensions "ease of use" showing its effect on internet banking adaptation. Therefore, the more the consumer perceives internet banking as easy to use, the more they are likely to the involvement in internet banking.

According to the Technology Acceptance Model, perceived usefulness is the degree to which a person believes that using a particular system would enhance their job performance. According to Davis *et al*. (1992), perceived usefulness refers to the consumers' perceptions regarding the outcome of the experience. Davis (1993) defined perceived usefulness as the individual's perception that using the new technology will enhance or improve their performance.

And also, according to Davis (1989), perceived usefulness (PU) is a significant factor in customer retention in internet banking. PU is defined as the degree to which a person believes that using a particular technology will enhance his performance. In the context of user acceptance of internet banking services, perceived usefulness could be because of transaction like online request for cheque, demand draft, sending monthly E statement online payments, etc. that improves performance, save time and increase the effectiveness of service or some or several add-on benefits such as bill payments, mobile recharge, etc. These benefits are also expected to be further enhanced over time through technological advancement or breakthroughs.

However, Gerrard and Cunningham (2003) noted that the perceived usefulness depends on the banking services offered such as checking bank balances, applying for a loan, paying utility bills, transferring money abroad, and obtaining information on mutual funds. Tan and Teo (2000) suggested that the perceived usefulness is an important factor in determining the adaptation of innovations.

Issues related to security have always been a concern when dealing with technologies related to online transactions, such as e-banking (Chang, 2007). Perceived security is defined as the customers' perception of the degree of protection against the abovementioned threats. Thus, the security of internet based banking transactions can be secured with adequate security measures like encryption, digital signatures, and firewalls (Bhimani, 1996).

Bauer (1960) defined risk in terms of uncertainty and consequences associated with a consumer's actions. Perceived risk increase with uncertainty and/or the magnitude of associated negative consequence (Hsi-Peng *et al*, 2005). Security risk is defined as "a potential loss due to fraud or a hacker compromising the security of an online bank User" (Reavley, 2005). Security in e-commerce is defined as a threat that creates the 'circumstance, condition, or event with the potential to cause economic hardship to data or network resources in the form of destruction, disclosure, modification of data, fraud, and abuse (Kalakota & Whinston, 1997). Wadie (2011) concluded that convenience and security perception positively affect on consumer adaptation of internet banking.

All the theories and research studies pave the ways to select the better variables to consider when developing a model to identify the impact of those selected variables on the adaptation of internet banking services.

3. Methodology

3.1. Conceptualization

The researcher selected the customer adaptation for Internet banking services as the dependent variable of the research, which is primarily interested. Customer adaptation of Internet banking affects by several independent variables. The conceptual model derived from the literature survey for this research is shown in below. The study focused on how the demographic factors, perceived ease of use, perceived usefulness and perceived security affect the customer adaptation of internet banking.

Independent variables

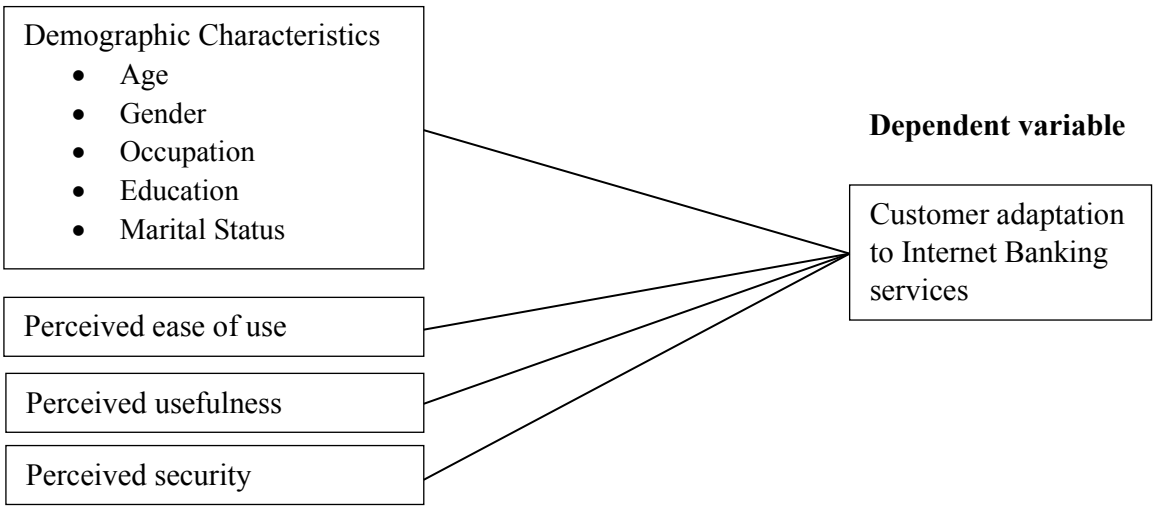


Figure 2: Conceptual Framework (developed by researcher)

3.2 Population and Sample of the Research

Both primary and secondary data were utilized to enhance the objectives of this study and structured questionnaire was used to collect primary data. Moreover, Secondary data were gathered from the data published by the People's bank. Questionnaires were distributed among customers of the People's bank-Rathnapura branch. The questionnaire comprises questions on selected eight factors that affect customer adaptation to Internet banking.

The population includes the entire group of people, events or things of interest that the researcher wishes to investigate. The study attempted to examine the impact of demographic factors, perceived usefulness, perceived ease of use and perceived security on customer adaptation to internet banking in the People's bank-Rathnapura branch. Therefore, the population of this study is the current internet banking customers of the

People's bank-Rathnapura branch. There are 767 registered customers of Internet banking in Rathnapura branch. Sample size was determined according to the recommended sample size of Green's (1991). He recommended using one of the two formulas as N> or = 50 + 8m or N> or = 104 + m (where m= number of independent variables). The second formula is 114 (104+8). According to this formula, the sample size of this study was 114 respondents. However, the researcher has increased the sample size to 130. According to that, the researcher selected 130 registered internet banking customers as the sample size.

The sampling method used in the research was convenience sampling which is one of the non-Probability sampling methods.

3.3 Data Analysis Tools

The study uses different statistical methods to analyze the data including reliability, validity, normality, correlation and regression model. Kurtosis and skewness were used to measure the normality of the data set. And also, correlation was used to measure the association between dependent and independent variables. Finally, a regression model was used to test the impact of independent variables on the dependent variable.

4. Results and Discussion

Gender, age, marital status, education level and occupation of customers were used as the demographic variables of this study. Perceived ease of use, Perceived usefulness and Perceived security were used as other independent variables that impact customer adaptation to Internet banking services.

Relationship between Customer adaptation of Internet Banking and gender of customers

According to the research objectives, to identify the association between gender and customer adaptation t theo internet banking, the Chi-squared test was used. The result shows that the Pearson Chi-Square value is 17.305 whose p-value is not significantly different from zero (p=0.240).

Hypothesis;

H_{0A}: There is no significant relationship between customer adaptation to internet banking and the gender of the customers.

H_{1A}: There is a significant relationship between customer adaptation to Internet banking and the gender of the customers.

There is no enough evidence to reject the null hypothesis at 95% confidence level. Therefore, it can be concluded that there is no any significant relationship between the customer adaptation to internet banking and the gender of the customers.

Relationship between the Customer adaptation to Internet Banking and the age of the customers

The results imply that Pearson Chi-Square value is 58.697 whose p-value is significantly different from zero (p=0.045).

Hypothesis;

H_{0B}: There is no any significant relationship between the customer adaptation to internet banking and the age of the customers.

H_{1B}: There is a significant relationship between the customer adaptation to internet banking and age of the customers.

If the p-value is less than 0.05 there are enough evidences to reject the null hypothesis. Therefore, there is a significant relationship between the age of the customers and the customer adaptation to internet banking.

Relationship between the Customer adaptation to Internet Banking and marital status of the customers

The analysis result shows that Pearson Chi-Square value is 25.231 whose p value is significantly different from zero (p=0.032).

Hypothesis;

H_{0C}: There is no any significant relationship between the customer adaptation to internet banking and marital status of the customers.

H_{1C}: There is a significant relationship between the customer adaptation toi nternet banking and the marital status of the customers.

Being p-value is less than 0.05, there are enough evidences to reject null hypothesis. Therefore, it can be concluded that there is a significant relationship between the marital status of the customers and the customer adaptation to internet banking.

Relationship between the Customer adaptation to Internet Banking and the educational level of the customers

The results indicate that Pearson Chi-Square value is 30.317 whose p value is not significantly different from zero (p=0.910).

Hypothesis;

H_{0D}: There is no any significant relationship between the customer adaptation to internet banking and the educational level of the customers.

H_{1D}: There is a significant relationship between the customer adaptation to internet banking and the educational level of the customers.

According to the P-value of the Chi-Square test, there is no enough evidence to reject null hypothesis at 95% confidence level. Therefore, it can be concluded that there is no relationship between the customer adaptation to internet banking and the educational level of the customers.

Relationship between the Customer adaptation to Internet Banking and the occupation of the customers

The Pearson Chi-Square value is 36.390 whose p value is not significantly different from zero (p=0.715).

Hypothesis;

H_{0E}: There is no any significant relationship between the customer adaptation to internet banking and the occupation of the customers.

H_{0E}: There is a significant relationship between the customer adaptation to internet banking and the occupation of the customers.

Since P-value (0.715) is greater than the critical P-value (0.05), there are no enough evidence to reject null hypothesis at 95% confidence level. Therefore, it can be concluded that there is no relationship between customer adaptation of Internet banking and the occupation of customers.

4.2. Descriptive Analysis

Table 1; Descriptive Statistics of Variables

	Mean	Std. Deviation	Minimum	Maximum
Perceived ease of use	3.7596	0.5458	2.25	5.00
Perceived usefulness	3.9250	0.5233	2.25	5.00
Perceived security	3.8500	0.5397	2.00	5.00
Customer Adaptation	3.8815	0.4833	2.20	5.00

The mean value of each variable represents the level of the responses of customers on each variable. Table 1 shows descriptive statistics calculated for three independent variables and the dependent variable. 5 point Likert scale questioner was used and point 1 is given to the customer who strongly disagrees while point 5 is given to the customer who strongly agrees. Mean value and standard deviation are calculated to understand the current level of each variable. Here, the mid-point value is 3 on a 5-point Likert scale, and the decisions criteria is, all mean values are close to 4, indicating an agreeable situation for each question.

4.3 Reliability and validity

Table 2; Reliability of data

	Cronbach's Alpha Value	Comment
Perceived ease of use	0.812	Accepted
Perceived usefulness	0.860	Accepted
Perceived security	0.816	Accepted

The reliability coefficient indicates how well the item in asset positively correlated to one another (Sekaram & Bougie, 2012). In order to determine the reliability of the questionnaire, the researcher used Cronbach's Alpha value. The alpha value can range from 0 to 1. If the Cronbach's Alpha value is greater than 0.70, it indicates that the questionnaire is reliable. According to Table 2, Cronbach's alpha value for all these three variables exceeds 0.7. It can be concluded that the set of questions that are used for each variable were reliable.

Table 3; Results of KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.680
Bartlett's Test of Sphericity	Approx. Chi-Square	284.819
Degree of freedom		6
Significance		0.000

Keiser–Meyer–Olkin (KMO) measure of sampling adequacy and Bartlett's test of Sphericity were used to test the construct validity. KMO values should be greater than 0.5. KMO measure of sampling adequacy is greater than 0.5 (0.680). Sample of questions is valid to interpret each variable.

4.4. Normality test

Table 4; Skewness and Kurtosis of each variable

	Skewness	Kurtosis
Perceived ease of use	- 0.054	- 0.065
Perceived usefulness	- 0.433	0.791
Perceived security	- 0.709	0.726
Customer adaptation	- 0.817	1.983

Skewness and Kurtosis were used to measure the normal distribution of the collected data. Values of Skewness should be near to Zero and Kurtosis should be between +2 to –2 to conclude as the data set is normally distributed. Table 4 shows that the data obtained from the sample is approximately normally distributed and sufficient to conduct parametric test.

4.5. Correlation Analysis

Table 5; Results of Correlation Analysis

	Correlation coefficient	P-Value
Perceived ease of use	0.689	0.000
Perceived usefulness	0.757	0.000
Perceived security	0.694	0.000

The researcher has used Correlation Coefficient Analysis to measure the relationship between dependent and independent variables. Correlation Analysis is a statistical technique that indicates the relationship between two or more variables in a linear

approach. According to table 5, Pearson's coefficient of correlation between customer adaptation to internet banking and perceived ease of use was 0.689 whose p-value is significantly different from zero. There is a strong positive correlation between the customer adaptation to internet banking and the perceived ease of use.

The correlation coefficient between the customer adaptation to the internet banking and the perceived usefulness was 0.757, and it is significantly different from zero. There is a strong positive correlation between the customer adaptation to internet banking and the perceived usefulness. Same time, Pearson's coefficient of correlation between customer adaptation to internet banking and the perceived security was 0.694 and whose p-value was significantly different from zero. There is a strong positive relationship between the customer adaptation to internet banking and the perceived security.

4.6. Significance of the model

The results of ANOVA is summarized in table 6. The results verify that fitted regression model is statistically significant to model the variables.

Table 6; Analysis of Variance (ANOVA)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	24.060	3	8.020	166.339	0.000
Residual	6.075	123	0.048		
Total	30.136	126			

4.7. Multi co-linearity analysis

Multi co-linearity is a problem that occurs with regression analysis when there is a high correlation of at least one independent variable with a combination of the other independent variables. When variables are highly correlated in a multiple regression analysis, it is difficult to identify the unique contribution of each variable in predicting the dependent variable because the highly correlated variables are predicting the same variance in the dependent variable. In this situation, the overall p-value may be significant, but the p-value for each predictor may not be significant. Multi co-linearity exists when the Tolerance value is below 0.1 and VIF is greater than 10 (Sekaran, 2010).

Table 7; Multi co-linearity Analysis of Variables

	Tolerance	VIF
Perceived ease of use	0.627	1.596
Perceived usefulness	0.632	1.582
Perceived security	0.790	1.265

Table 7 indicates the tolerance values greater than 0.1 and VIF values less than 10 for all independent variables. Therefore, there is no multi co-linearity problem between the above independent variables.

4.8. Model Summary

Table 8; The Model Summery of the regression analysis

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
0.894	0.798	0.794	0.219	1.790

According to Table 8, R^2 value is 0.794, indicating that variables will explain 79.4% of the total variability of the dependent variable. The line of best fit is important that researchers assess how well this line fits the actual data can be defined as goodness of fits of the model (Field, 2009).

Adjusted R Square (R^2) shows how far model is best. Due to R^2 is 79.4% , it describes the fraction of variation in dependent variable customer adaptation to internet banking is explained by the other independent variables such as perceived ease of use, perceived usefulness and perceived security. And also, 20.6% of the variation in customer adaptation to internet banking cannot be described by these three variables alone.

According to Chan (2004), Durbin-Watson value can be used to test the independency of the data. It ranges from 0-4 and values near to 0 indicate strong positive and near to 4 indicates a strong negative relationship. Value is near to 2 shows that data points are independent. Since the value of the Durbin- Watson estimate in this study is 1.790, the independency assumption is not violated.

4.9. Regression Analysis

The multiple linear regression analysis was carried out to investigate the significant dimensions of the dependent variable (customer adaptation of Internet banking) with the independent variables, while multi co-linearity analysis was conducted as above to identify the inter correlation exists among independent variables. The researcher used the multiple linear regression method to measure the impact of the perceived ease of use, perceived usefulness and perceived security on customer adaptation to internet banking.

Table 9; Significance of the Variables

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)		-0.002	0.175	-0.009	0.993
Perceived Ease of use	0.237	0.045	0.268	5.305	0.000
Perceived usefulness	0.404	0.046	0.438	8.698	0.000
Perceived security	0.365	0.040	0.407	9.051	0.000

Table 9 shows the coefficient table of the regression analysis. Beta values of the table represent the extent to which the dependent variable can be affected by a certain independent variable while the other independent variables remain constant. P-values of the selected three variables were significantly different from zero, indicating all the selected independent variables significantly impacted for the adaptation to the internet banking of the customers.

The following regression model was developed through the multiple linear regression analysis to explain the factors of customer adaptation to internet banking.

$Y_i = \beta_o + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon_i$

$Y = -0.002 + 0.237\ X_1 + 0.404\ X_2 + 0.365\ X_3 + \varepsilon_i$

Where,

Y= Customer adaptation of internet banking

X1= Perceived ease of use

X2= Perceived usefulness

X3= Perceived security

ε = Error term

To test the stated research hypotheses, P-value (Sig. level) is performed. With the aid of these statistical techniques, conclusions are drawn with regard to the sample and decisions are made with respect to the research hypotheses.

H_{1F}- Perceived ease of use has a significant impact on the customer adaptation to Internet Banking.

H_{0F}- Perceived ease of use does not have any significant impact on the customer adaptation to Internet Banking.

H_{1G}- Perceived usefulness has a significant impact on the customer adaptation to Internet Banking.

H_{0G}- Perceived usefulness does not have any significant impact on the customer adaptation to Internet Banking.

H_{1H}- Perceived security has a significant impact on the customer adaptation to Internet Banking.

H_{0H}- Perceived security does not have any significant impact on the customer adaptation to Internet Banking.

According to Table 9, P-value for all three variables reported as 0.000. Since it is less than 0.05 there are enough evidences to reject the null hypothesis. Therefore, it can be concluded that the perceived ease of use, perceived usefulness and perceived security have significant effects on the customer adaptation to the internet banking in the People's bank-Rathnapura branch.

5. Conclusion

This study focuses on investigating the factors influencing the customer adaptation to internet banking services in the People's Bank-Rathnapura branch. According to the previous literature it was found that the three main factors influencing customer adaptation to internet banking services are perceived ease of use, perceived usefulness and perceived security. In addition to that, demographic variables of respondents were also taken into consideration as variables which have impacts on the adaptation to the internet banking services of customers.

The study used two statistical tools (Chi-squared test and multiple regression method) to analyze the collected data for enhancing the research objectives. According to the Chi-squared test, there is a relationship between the customer adaptation to internet banking of the People's bank with the age and marital status as P-value is less than critical P-value

(0.05). And also, it proved that there is no association between the gender, educational level and occupation with the customer adaptation to internet banking services of the People's bank-Rathnapura branch.

According to the regression output, perceived ease of use, perceived usefulness and perceived security had a positive influence on the customer adaptation to internet banking services as P-values being less than 0.05. This study proved that the independent variables as age, marital status, perceived ease of use, perceived usefulness and perceived security were significantly associated with the customer adaptation to internet banking of the People's bank-Rathnapura branch.

Managers are advised to provide more potential information to the customers about internet banking through the bank assistants at the branch. The information may include references to usefulness, time saving, convenience anywhere, low cost, high security and information availability. The internet banking service providers are suggested to offer smart packages for the users to motivate and enhance the usage of internet banking services. Customer-friendly systems should be introduced for the ease of use.

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CHAPTER SIX

A STUDY ON CONSUMERS' BEHAVIOURAL INTENTION TO USE INTERNET BANKING: EXPLORING GENDER MODERATION

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Abstract

This study investigates the moderator effect of gender when analyzing the customers' behavioral intention towards internet banking in Sri Lanka. Seven theoretically chosen determinants (Perceived Usefulness, Perceived Ease of Use, Trust, Social Influence, Self-efficacy, Risk and Image) of behavioral intention were tested for the moderator effect of gender using linear regression analysis. Results indicated that only the relationships between intention towards internet banking and perceived usefulness and perceived ease of use were significantly moderated by gender. Meanwhile, a significant gender effect is not observed through the other determinants (Trust, Social influence, Self-efficacy, Risk, and Image) of internet banking penetration.

Keywords: Behavioral Intention, Gender, Internet Banking, Moderator Effect.

1. Introduction

Internet usage has significantly increased in Sri Lanka during the last decade. The internet penetration rate in 2018 was 32 percent and it is growing at a significant rate every year (Jebamani et. al 2018). Similarly, when considering the internet-based communication services in Sri Lanka, social media usage reaches a broader audience day by day. Further, the broad brand subscriptions of the country recorded a rapid growth since 2010 and continued to grow in years after (Department of Census and Statistics, 2018). Thus, technology adaptation in Sri Lanka can be hypothesized to grow at a rapid pace in the future too.

Meanwhile, the banking sector has been integrated with technology to serve its clients faster and conveniently. Emerging technologies have led the banking industry to change from paper-based banking to digitalized banking services. It is apparent that, among the

different types of technological improvements that are adopted within the banking industry, internet technology is playing a major role in the development of banking activities. Banks act as intermediates among financial transactions by providing numerous types of banking services to their corporate and retail customers. A decade ago most of the banking transactions were carried out manually and customers had to visit the branch and wait in huge queues even to do a small transaction. This condition made disadvantages to both the customers and banks as it incurred a high cost as well as consumed time unnecessarily. Therefore, banks implemented innovative technological solutions by shifting traditional branch banking to an online web-based banking system. This transformation improved the internal efficiency and enabled efficiently delivering services, which led to customer satisfaction and loyalty in long term (Premathilaka, 2018).

The application of the internet to the banking sector has removed the barriers of time, distance, and accessibility of the traditional banking system due to its anywhere and anytime accessibility. Furthermore, this transformation gained more advantages for both the banks and the customers. Customers benefited in terms of convenience, savings of time and cost, availability of any time banking services. In return, banks gained a competitive advantage through attracting new customers, increased brand image and revenue, expanding market area, and reducing other distribution channels and costs (Shah, 2009).

When considering Sri Lankan status of internet banking, Premathilaka (2018) stated that Sri Lanka is known as the first South Asian country which introduced commercial internet services. In 1999, Union Bank offered the first internet banking services to the country to provide banking activities conveniently and efficiently. Today, the banking sector consisted of 26 Licensed Commercial Banks (LCBs), including 13 domestic and 13 foreign banks (CBSL, 2018). Nearly, all commercial banks facilitate online banking services in a broader range.

Sri Lanka is considered as one of the best potential market places to develop internet banking services due to several reasons. Firstly, as earlier mentioned, consumers have a better technological environment to get adapted to internet banking. Secondly, in the present, the majority of customers are aware of internet banking and the advantages of using it. Thirdly, many private banks, public investors, and government greatly spend on

e-commerce and banking innovations including self-service technologies like internet banking.

Though, Sri Lanka shows potential for developing internet banking services, the user rate of online banking has not increased much, which means that there is still a lag behind (CBSL, 2016). Also, the usage level of internet banking remains at a low level compared to the developed and developing countries in the region. Since the usage remains low, there is a matter arising in behavioral intention in this regard. According to Fishbein & Ajzen, (1975) an individual's performance of a specific behavior is determined by his/her behavioral intentions. Therefore, a consumer's behavioral intention would play a major role in the efficiency and success of the internet banking system. However, consumers' intention heavily depends on their beliefs and perceptions. Therefore, bankers need to pay attention to the factors that inhibit or motivate customers to use internet banking services.

Previously, many researchers have studied this concern considering the entire consumers as a whole unit. Thus, they provide a general understanding in this respect. But this behavioral intention may not be general, the overall intention of one's would differ from another one due to their unique beliefs and perceptions. Further, it may change along with different demographical subgroups and individuals prospects.

In this regard, considering gender subgroup in the technology acceptance, various studies have been focused on the impact of gender role either as an independent or as a moderate variable (i.e. Venkatesh, 2000; Venkatesh ,2003; 2012). Similarly, in the global context, much previous literature has been proven that males' behavior towards using internet banking might be different from females' behavior (Li, 2011; Yuen, 2013). Therefore, this study examines whether males' intention differs from females' when using internet banking services in the Sri Lankan context.

2. Literature Review

Many previous researchers have considered the role of gender, either as an independent or moderate variable, when assessing technological acceptance. The word "gender" refers to social and cultural differences rather than biological one which is donated by males and

females. In the internet banking context, following literature evidenced that, gender plays a significant role in determining the intention of accepting internet banking services.

Ghamdi (2011) conducted a research relating to gender perception towards internet banking loyalty and the study concluded that male behavior towards internet banking might be different from female' behavior. The findings clarify that gender perceptions and behaviors towards internet banking differ and social influence has a significant effect on male behavior but not in the case of female behavior. Similarly, Venkatesh (2000) established that gender is a vital predictor of technology acceptance and usage, as well as female, tends to be influenced by social influence when compared to males.

Yuen (2013) conducted a study by focusing on cultural differences in internet banking acceptance in the United States and Malaysia. Results revealed that Malaysian females have significantly higher behavioral intention to use internet banking services compared to their counterparts in the United States. Also, Males exhibited no significant difference in behavioral intention to use internet banking services in both countries. Similarly, Akinci *et al.* (2004) conducted a study in Turkey related to internet banking adaptation, and findings revealed that men expressed a higher intention to use internet banking than females.

Meanwhile, Dwivedi *et al.,* (2015) studied whether Jordanian customers' perceptions of intention and use of internet banking services vary according to their demographic characteristics named age, gender, income, education, and customers' experience with the computer and internet. They found that there was no significant difference between consumer perception and gender. Riquelme (2010) conducted a research in Singapore on the moderating effect of gender in the adaptation of mobile banking usefulness, social norms, and social risk, in this order, are the factors that influence the intention to adopt mobile banking services the most. Ease of use has a stronger influence on female respondents than male, whereas relative advantage has a stronger effect on the perception of usefulness on male respondents. Social norms (or the importance of others in the decision), also influence adaptation more strongly among female respondents than male.

Subsequently, Venkatesh et al. (2013) stated that the decisions to adopt the technology by men are mainly determined by the perceived usefulness of technology use, while women are more influenced by their perceptions about a system's ease of use and social influences. Lichtenstein *et al*. (2006) conducted a research study regarding consumer adaptation of

internet banking services and they have confirmed most of the findings discussed above regarding the gender differences regarding the Australian context. Therefore, it can be concluded that there is an impact of gender on the intention to get adapted to internet banking as well as these studies support the idea that gender roles can create group-differences in the case of consumers' beliefs and perceptions. However, in the Sri Lankan context, it has been found that very few previous studies have been tested a technology adaptation model to understand the intentions of different gender groups. Specially, no one has tested how the gender moderates the relationship between the determinants of technology acceptance and internet banking penetration. Thus, this study attempts to fill the above empirical gap by studying whether gender moderates the individual's beliefs and perceptions towards internet banking usage in Sri Lanka.

3. Development of Hypothesis

The theoretical and empirical literature provides evidence for several factors as significant on the internet banking penetration. In the following section, those factors are explored in a way to emphasize the potential of gender in moderating the relationship among them and internet banking penetration.

Perceived Usefulness (PU) is defined as "the degree to which a person believes that using a particular system would enhance his or her job or life performance (Venkatesh, 2000). The ultimate reason that people tend to use online banking services is that they find the system to be useful in doing their banking transactions (Malhotra et al., 2014). From a gender perspective, earlier studies have been shown that PU is more important to men than women because "men are more likely to consider the value of money, financial activities and performance rather than women" (Venkatesh, 1996). However, in the current era, with the extension of the female's family role, they are required to use and manage IT to enhance and complete their household tasks. The tasks associated with banking activities such as account transfers, depositing money, bill payments, etc. have been considered as females' responsibility. In addition, a large number of females now engage in jobs and most of them are financially independent. Accordingly, they need to manage their banking activities as well as their families'. Internet banking has enabled females to reduce the time spent on it and traveling to banks or ATMs. On the other hand, women who are busy with household work and childcare have less or no time to go to the bank and spent time in long queues.

Therefore, internet banking enables them to do their banking transactions at night or any free time due to its 24/7 availability.

Perceived Ease of Use is also considered as a significant determinant of internet banking penetration. It has been defined as "the degree to which a person believes that using a particular system would be free of effort" (Venkatesh, 2000). Consumers perceive that the internet banking is easier to use if it is user-friendly, easy to operate and remember. So if it is easier to use, particular technology users more likely to accept it (Bashir, 2015). From a gender perspective, females normally perceive IT to be more difficult to use than males do (Teo, 1996). But that condition has been changed over the past period because today, the most internet banking websites are designed for public use, user-oriented, and without regarding user's attributes. Moreover, IT education is now compulsory for all genders which enabled females to overcome their computer anxiety and become confident in IT usage at work or home. In the Sri Lankan context, the rapid growth of female internet users in the workplace, education, and communication (i.e. email and social media) may question why internet banking is not perceived as easy to use by females than males. Because with the increasing number of females in the workforce and the continued growth of computer usage in the workplace, females are also enabled to easily use internet-based services.

In the context of internet banking services, trust is defined as "the assured confidence a consumer has in the internet banking service provider's ability to provide reliable services through the Internet'. In the internet banking environment, consumers give more importance to trust than branch banking (Ratnasingham, 1988). When consumers feel confident in banker's ability to provide a reliable service, they believe that they are secured and no privacy threats and that will lead to being more trustworthy with internet banking transactions. So, considering gender differentiation, men are likely to trust internet banking than women do. Because as earlier mentioned, while women value emotional things, men like to improve their financial performance and skills by doing transactions through the internet so that they keep their trust with online banking (Tsikriktsis, 2002).

Social influence is the next factor that is considered significant in this regard. It is defined as "the persons' perception that most people such as friends, family, colleagues, peers and social group, who are important to him think he should or should not use the internet banking services". Lee (2009) has noted that customers' behavior can be influenced by various social entities including friends, family, neighbors, colleagues, superiors, etc.

Venkatesh (1996) stated that women are more caring about the quality of life, emotions, social communication while men rely on self-confidence, own beliefs, and gathering individual experiences. Similarly, Venkatesh (2000) specified that social influence is more important for women because as a group, they are more expressive, more aware of others' feelings, and more compliant than men. So, in this study, researchers expect the effect of social influence on internet banking would be stronger for women compared to men.

Mitchell, (1999) stated that consumers consider all uncertainties and probable adverse effects when they make buying decisions of products and services. When considering the online environment consumers' perception of risk increases where negative outcomes or uncertainty is high. Mainly, it is due to the customer loses the face to face interaction with the bank assistants. Examples for this sort of uncertainties include fear of hacking, losing passwords, losing money with transactions, making errors while making transactions, etc. These generate positive risk perception and it will be negatively affected to the users' intention. Generally, females are known as risk-averse, and males risk-takers. In the internet banking context, it is also considered that women have more fear to engage in internet-based transactions because of it's inherent nature of risk. Therefore, their intention on internet banking usage will be negatively associated with the perceived risk.

Self-efficacy, which is defined as an individual's self-confidence in his or her ability to perform a particular behavior or action. In this study, self-efficacy is treated as an individual's belief about his ability to use internet banking on his own. Agarwal *et al*., (2000) state that there is a casual relationship between perceived self-efficacy and behavioral intention. Females are perceived information technology more difficult to use than males do. Jackson et al. (2001) specified that "Females are also reported to have higher levels of computer anxiety, less computer self-efficacy, and less favorable and less stereotypical attitudes towards computers". But in respect of this "Men have taken more technology classes and are more likely to have had a computer in their room, which provides more opportunities to experiment and acquire confidence and skills associated with digital technologies" (Correa, 2010).

Similarly, Image, which is defined as "the degree to which the use of an innovation is perceived to enhance one's image or status in his/her social system" (Moore, 1991), is also a significant determinant of internet banking penetration. If important members of an

individual's social group (e.g., peers, friends, family, and colleagues) think that he or she should use some particular system and at that point using that system will be likely to enhance his or her social status within the group then such person will perceive using that technology (e.g. Internet banking) will directly or indirectly lead to enhance his/her image in the particular social system. Traditionally, men are viewed as the financial providers and women have been viewed as caretakers. Therefore, men are more likely to focus on performance, financial activities, and value of money rather than women do (Venkatesh, 1996). According to Kennedy (2003) women are seen as primarily responsible for home care, childcare, and family reproduction thus people in many countries and cultures believe doing housework produces no income, and women are seen as living off the earnings of men. So that, condition has been led to consider women as with lower social status.

4. Methodology

The main purpose of this study is to find out whether gender moderates the consumers' intention to adopt internet banking regarding their beliefs and Perceived Usefulness (PU), Perceived Ease of Use (PEU), Trust (TR), Social Influence (SI), Self-efficacy (SE), Risk (PR) and Image (PI). Here, firstly the researcher did a literature survey regarding internet banking adaptation and through that seven constructs were identified which showed a direct effect with consumers' intention. The data collection instrument was developed based on the previously tested questionnaire by the various studies relating to internet banking and mobile banking. A pilot survey was conducted to refine and assess the questionnaire instrument. According to the results of the pilot survey, some redundant questions were eliminated and some were adjusted to enable better understanding and avoid erroneous interpretations. Questionnaire items were formulated as Likert-type statements anchored by a five-point scale ranging from 1 ('strongly disagree') to 5 ('strongly agree').

As the research site of the study, researcher selected the Wennappuwa area which is located in Puttalam district. The convenience sampling method was used to select respondents and the sample size was calculated by using the published table of Krejcie and Morgan (1970). Data was collected from two hundred seventy-seven (277) customers who are currently using and not using internet banking services including both genders. Data received from the questionnaires were analyzed through statistical analysis with the help of the SPSS 16th

version. Multiple linear regression analysis is used to analyze the set of data in order to find the relationship between the independent and dependent variables. The following model is used in this regard;

$$Y = \beta_0 + \beta_1 IV_i + \beta_2 M_i + \varepsilon$$

Where Y is the dependent variable; IV_i is the i^{th} independent variable; M_i is the gender moderator developed for the i^{th} independent variable. As this study concentrates on seven potential determinants of internet banking penetration, seven gender mediators need to be generated. Thus, to get rid of the multicollinearity issue seven two factor models, as specified in the above equation, are to be analyzed.

5. Data Analysis

The researcher identified the relevant variables and conducted a factor analysis before running the model. Here, the researchers used factor analysis to create regression variables. According to Eigen values of the factor analysis, eight components were extracted, which were then identified as the dependent and the seven independent variables that are used with this study.

Correlation Coefficient Analysis

The purpose of correlation analysis is to identify whether two measurement variables associates, and to quantify the strength of the association between the variables: PU, PEU, TR, SI, SE, PR, PI" and the dependent variable: "Behavioral intention". Table 4.1 depicts the Pearson correlations that were calculated in this regard.

Table 4.1: Correlation Coefficient of dependent variables

Variable	Pearson correlation	P-Value
PU	0.349	0.000*
PEU	0.349	0.000*
TR	0.179	0.003*
SI	0.106	0.077
SE	0.354	0.000*
PR	-0.149	0.013*
PI	0.444	0.000*

Source: (Survey data, 2019) (significant at 5% - *)

Note: Perceived Usefulness (PU), Perceived Ease of Use (PEU), Trust (TR), Social Influence (SI), Self-efficacy (SE), Risk (PR) and Image (PI).

According to table 4.1, as expected, PU, PEU, TR, SE, PI shows a positive association with behavioral intention and the statistics are statistically significant. It is a strong evidence to say that PU, PEU, TR, SE, PI increases consumers' overall intention to go for internet banking. The association for PR and internet banking is -0.149 and it expresses a significantly negative association. Thus, it evidences that when PR increases consumers' intention to use internet banking is decreasing.

Moderate effect of gender

When finding the moderator effect of gender, initially the researcher tested whether the attribute of gender has a significant effect on each independent variable and in the second step to find out how gender moderates the relationship between each independent variable and the dependent variable.

Table 4.2: Summary of analysis of variance

Variables	Sig
PU, Gender	0.000*
PEU, Gender	0.000*
TR, Gender	0.009*
SI ,Gender	0.125
SE, Gender	0.000*
PR ,Gender	0.045*
PI, Gender	0.000*

Source: (Survey data, 2019)

Note: Perceived Usefulness (PU), Perceived Ease of Use (PEU), Trust (TR), Social Influence (SI), Self-efficacy (SE), Risk (PR) and Image (PI).

The researcher used regression models to test whether there is an impact of gender on behavioral intention. This is tested separately for each and every dependent variable. According to the results of table 4.2, except (Gen, SI) other relationships (Gen, PU), (Gen, PEU), (Gen, T), (Gen, PR),

(Gen, PI) and (Gen, SE) were statistically significant. This indicates that gender is significantly affecting on the consumers' intention on internet banking by way of perceptions of Usefulness, Ease of use, Trust, Self-Efficacy, Risk, and Image.

Thereafter the researcher-developed standardized variables to create moderate variables that help to properly identify whether gender moderates the relationship between each independent variable and dependent variable (BI) in the proposed model.

To achieve the objective of the study, which is to investigate out how gender moderates the relationship between behavioral intention and consumers' beliefs and perceptions (PU, PEU, T, SI, SE, PR, and PI) the researcher used linear regression models as earlier. For this analysis, moderate variables (M1- M7) were developed and included in the regressions models.

Table 4.3: Analysis of the Model Predictors- Gender effect

Dependent variable	Independent variables	Unstandardized coefficient (B)	Sig.
BI	PU	0.374	0.000
	M1	-0.135	0.018*
	PEU	0.383	0.000
	M2	-0.130	0.024*
	TR M3	0.174	0.003
		0.074	0.215
	SI	0.124	0.049
	M4	0.015	0.816
	SE M5	0.382	0.000
		0.083	0.167
	PR M6	-0.150	0.017
		-0.050	0.426
	PI	0.438	0.000
	M7	0.033	0.550

Source: (survey output, 2019) (*- significant at 5%)

Note: Perceived Usefulness (PU), Perceived Ease of Use (PEU), Trust (TR), Social Influence (SI), Self-efficacy (SE), Risk (PR) and Image (PI).

According to the reported results in table 4.3, the moderators M1 and M2 are statistically significant. This means that there is a significant effect of M1 and M2 on the relationship between PU and BI also PEU and BI respectively. Therefore, it indicates that gender significantly moderates the relationship between PU and BI as well as PEU and BI. Further, when considering M3, M4, M5, M6, and M7 all these moderator variables are statistically insignificant because the p-value is greater than 0.05 alpha value. This indicates that there is no significant effect of M3, M4, M5, M6, and M7 on the relationship between BI and TR, SI, SE, PR and PI respectively. Accordingly, the researcher found that gender does not

create a difference between the above-mentioned relationships regarding consumers' beliefs and perceptions in the context of internet banking usage in Sri Lanka.

5. Conclusion

Internet banking is becoming much popular due to its convenience and flexibility. Banks are increasingly promoting online banking services to enhance their customer base while becoming efficient and cost-effective. This research has been conducted to study the customers' behavioral intention towards internet banking in Sri Lanka to examine the gender differences in their perceptions. The study has found some significant results regarding gender perceptions on Usefulness and Ease of Use. In the case of females, usefulness and ease of use were found to have a significant effect on their intention to use internet banking. In other words, as proven by the hypothesis, females consider that internet banking is a more useful and easily useable system for them than their male counterparts. In Sri Lanka, the inequality in computer knowledge between males and females has been significantly reduced due to the changes in workplaces and the education system. Thus, it has been reduced the difference in levels of IT competence and usage between these genders. As they show, either the traditional social role of males in society may still affect technology acceptance, females are now having the same opportunities as their male counterparts at work, in education, and IT usage. This may be a result that females are perceiving internet banking as more useful, easier to use, and more favorable. As well as males are less frequent users of counter services at banks due to their work restrictions. Therefore, they have been shifted their responsibilities to their female parties. Thus, the tasks associated with banking activities such as money transfers, depositing money, bill payments, etc. have been considered further responsibilities of females. But due to the busyness of women's role in households or workplaces, females have been found that internet banking is more useful than visiting the branch bank and wait in long queues.

When considering the trust perception, earlier studies show that the trust plays a significant role in determining consumer's behavior towards internet banking. In this study, results found that trust was not considered as a significant factor by customers (both males and females) on their usage intention of internet banking. This may be due to increased consumers' confidence towards internet banking than the earlier stages. Banks have been able to increase and maintain the trustworthiness of consumers on internet banking by

implementing or changing their trust-building strategies, advertising campaigns, data, and privacy protection procedures, or through other ways of doing.

Further, the study hypothesized that social influence, perceived risk, perceived image and self-efficacy significantly impact on the intention to use internet banking. But, there are no significant differences in gender perceptions in this regard. However, previous researchers have found varied results regarding gender roles and individual's perceptions. Considering social influence, Lee & Li (2011) show that male behavior is more likely to be affected by the members in the society such as their families and friends. But his findings were not supported by the Gefen & Straub (1997) and Venkatesh (2000), as they found that females are also more affected by the other parties' opinions when they make decisions. While considering the perceived risk, the researcher identified that the consumers still consider risky situations when they make decisions to select or not to select to use internet banking services. Also, existing researches prove that perceived risk has a negative influence on consumers' behavioral intention (Chiou, 2012; Lee, 2009). The results of this study further specified that the perceived image has a significant impact on consumers' intention. Kelman (1958) stated that individuals often respond to social normative influences to create or continue a favorable image within a reference group. Therefore, individuals may perceive that using the internet banking system will also lead to their image enhancement.

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CHAPTER SEVEN

RELATIONSHIP BETWEEN FOREIGN PORTFOLIO INVESTMENT AND SECTORAL PERFORMANCE OF COLOMBO STOCK EXCHANGE

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Abstract

Foreign Portfolio Investment (FPI) plays a vital role in the stock market by enhancing market efficiency, creating a non-debt source of capital and increasing stock market liquidity. Foreign investors enter into the stock market through stock purchases and exit through the sale of stocks. The impact of foreign investments on the stock market differs according to the nature of the foreign transaction. Thus, this study aims to investigate the relationship between FPI and individual sector performance of the Colombo Stock Exchange (CSE) using the data from 2007 to 2017. In order to examine the impact of FPI based on the nature of the transaction, foreign purchases and foreign sales are considered as two independent variables along with exchange rate (LKR/USD) deployed as a control variable. Sector indices are used as the proxy to measure the sector performance and employed Auto Regressive Distributed Lagged (ARDL) bound test to enhance the purpose. The findings reveal that nine sectors: Banking Finance & Insurance (BFI), Beverage Food & Tobacco (BFT), Chemicals and Pharmaceuticals (C&P), Diversified Holdings (DIV), Footwear and Textiles (F&T), Hotels and Travels (H&T), Plantation (PLT), Power and Energy (P&E) and Telecommunication (TLE) have a significant positive relationship with foreign purchases, foreign sales and exchange rate in the long run while the short-run relationship is not strong. The key findings of this study suggest future implications for current and potential investors, stockbrokers and policymakers to formulate strategies in managing FPI.

Keywords: ARDL model, Co-integration, Colombo Stock Exchange, Foreign Portfolio Investment, Sector Index.

1. Background

The Sri Lankan capital market is an attractive destination for foreign investors as it affords an opportunity to diversify their investments. As stated in the Capital Market Progress Report (2014), Colombo Stock Exchange (CSE) has a low correlation with other capital markets and it trades at discount compared to most frontier and emerging markets. Some literature supports the fact that foreign investments increase the stock market performance. El-Wassal (2005) stated that economic growth, financial liberalization policies, and foreign portfolio investments were the leading factors of the emerging stock markets growth. Pal (2006) in his study stated that the entry of foreign portfolio investors will boost a country's stock market and subsequently the economy. Yartey (2008) proved the fact in emerging economies and discovered that private capital flows are among the important determinants of stock market development in selected 42 emerging market countries. Moreover, some research findings emphasise that Foreign Portfolio Investments (FPI) are attracted to stock market performance. For example, Kumara & Dayaratne (2015) explored that London Inter-Bank Offered Rates (LIBOR), foreign reserves presented in months of imports; USD/LKR exchange rate and domestic share market performance measured by the All Share Price Index (ASPI) are statistically significant and have a long-run positive effect on Equity Foreign Portfolio Investment.

The ultimate goal of a country is the sustainable economic growth. It is a proven fact that stock market development and other institutional and macroeconomic variables play an important role in economic growth. Many researchers have proven a strong positive relationship between stock market development and economic growth. Sri Lankan scholars such as Dayaratne & Wijethunga (2015) and Jahfer & Inoue (2014) have proven the relevance of the fact to the CSE and stated that, there is long term equilibrium between stock market development and economic growth in Sri Lanka. Stock market investments; both domestic and foreign investors should be encouraged to develop the stock market. The literature and current requirement of increasing investments provide opportunities to address the research issue of interest; whether there is a significant relationship between FPI and the performance of the CSE.

The study has two main aims, firstly to investigate the relationship between foreign portfolio investment and sectoral performance and secondly, to explore the short run and long run dynamics of both foreign portfolio investment and sector performance. Most

researchers identify the impact of FPI on stock market performance considering the stock market as a whole. However, when practically analysing, it is clear that several sectors do not get a significant contribution from FPI. Therefore, this paper investigates the sectorial performance to document the level of impact of FPI to particular sectors. The study recognizes the short run and long run association of FPI and sector performance to shed light on the dynamic of the portfolio flows, leading to sector performance. In addition, it aims to provide an understanding of the performance of individual sectors in short run and long run which could assist the investors when creating their portfolios.

The study tests the sector performance with foreign portfolio purchases and sales separately. Unlike considering the net purchases, this research will provide a clear image of which variable; purchases or sales has the most significant impact on the sector performance. Further, the study deploys the LKR/USD exchange rate as a control variable along with foreign purchases and sales to eliminate the spuriousness as well as to strengthen the explanatory ability of the model. The exchange rate can affect both the independent variable; FPI and the dependent variable; sector performance. The "Flow-oriented" theory and "Stock-oriented" theory which are further elaborated in the theoretical review enlightens the impact of exchange rate on the share performance. Further, the study conducted by Kasman (2003) proved the long-run stable relationship between stock indices and exchange rate and stated that there is one-way causality from exchange rate to industry sector indices. The impact of exchange rate on FPI can be identified in the Pull and Push Factor theory. This theory discusses the country-specific economic forces that pull investments into the country and global economic forces that push the investment towards outside countries. Scholars such as Oke *et al*. (2020) and Kumara & Dayaratne (2015) showed that the exchange rate is among the significant pull factors which attract the foreign investments into the host country. In addition, the study employs the sector indices to proxy the sector performance.

The rest of this paper is organized as follows. Section 2 states the theoretical justification of the research and the empirical literature review is presented under section 3. The data and the sample period of the study are summarized in section 4. In section 5, a brief description of the selected variables is given and the statistical models and justification for the methodology is examined in section 6. The results are presented and discussed in section 7 while the concluding remarks are given in section 8.

2. Theoretical Background

The theoretical span of capital inflows can be viewed in the context of saving-investment-capital accumulation theories where it describes the fundamental economic variables underneath the capital flows. However, international trade induced the economies to move towards an open economy and then Balance of Payment (BOP) came into play afterwards. Despite the fact, some economies benefitted from international trade, many developing and underdeveloped economies began to struggle with the BOP crises since the 1970s. This led the developing nations to import capital to bridge the lack, creating globalization and cross border capital flows in the world economy (Marty, 1961). This persuaded more studies in the area and formulated theories relating to capital flows and the emergence of theories of capital and financial markets and macroeconomic factors. The theories dominating the flow of foreign investment have been the Standard Neoclassical theory of foreign portfolio inflows which predicts that capital should flow from capital-rich countries to capital-scarce countries, and the Lucas Paradox (1990) or why private capital doesnot seem to flow from rich to poor countries. Despite the general theories related to international capital flows, the current study follows the "Price Pressure Hypothesis" as the theoretical base for foreign portfolio investment and stock market performance.

Price pressure hypothesis explains the interactive relationship between portfolio flows and stock market return. Elliott *et al*. (2006) stated that the index changes are associated with demand shocks which would temporarily cause in a rise or decline in share prices. This buying or selling pressure causes the stock prices to diverge from its equilibrium level. As soon as the stock prices rise or fall it will automatically minimize the excess demand to attract sellers or buyers, supplying with immediate liquidity. In addition, when the stock market faces larger order flows the market makers have to incur higher maintaining costs to retain an adequate inventory level. As the market makers revise stock prices accordingly the observed changes in the riskiness of their inventory, that costs are reflected in that relevant security's bid-ask spread. Thus, the security prices return to an equilibrium level when demand shock was balanced.

Empirical evidences revealed that two schools of thought related to the exchange rate came into consideration namely, "Flow-oriented" theory and "Stock-oriented" theory. The Flow-oriented theory discusses the impact of exchange rate appreciation or depreciation on the stock price under two aspects. In the first, it states that depreciation in domestic currency

would increase the competitiveness of domestic goods compared to foreign goods and the result would collectively accelerate the domestic demand and supply. The second aspect describes that depreciation of exchange rate would impact the stock prices. It suggests that when the exchange rate depreciates, the firms would increase their share prices based on the expected future cash flows expected to flow in due to the increase in aggregate demand (Dornbusch & Fischer, 1980). The Stock-oriented theory explains the impact of stock market price level movements in determining the exchange rate. It assumes that the exchange rate creates equilibrium among demand and supply of the various assets such as; domestic money, domestic bonds, and foreign securities. Due to the integration between foreign and domestic market price levels, an increase in the price levels of the foreign stock market will cause to a rise in the domestic stock market prices (Guomundsson, 2014).

3. Literature Review

FPI is an equity source of capital which flows through the stock market to a country. Evans (2002) stated several benefits of FPI to the domestic capital markets as; it increases the liquidity and market efficiency, brings expert knowledge, and helps to promote the shareholders' voice in corporate governance. As revealed in the fact finding survey, unlike the domestic investors, foreign investors are more analytical about market movements, and they quickly response to an anticipated change in stock market movement. Thus, they prefer to invest in high capitalization markets to exit from the market without impacting the share price quickly. On the other hand, they immediately buy a large number of shares when they forecast positive movements of the share price. Eniekezimene (2013) finds that a 100% change in FPI would lead to approximately 2% increase in market capitalization. Further, the study tested the impact of foreign investments on domestic investments using the proxy; Return on Domestic Investment (RODI). The results indicated that FPI has significant positive impact on RODI. However, the material impact of FPI on stock market development is yet debateable among scholars. Studies relating to FPI and the domestic stock markets find positive involvement of FPI in assisting the domestic stock market (Patro & Wald, 2005; Kim & Singal, 2000). Eventually, the better access to funding provided by the free flow of portfolio investments contributes to efficient provision of capital in an economy (Raghuram & Zingales, 1998; Wurgler, 2000).

Similarly, Yartey (2008) examined the institutional and macroeconomic determinants of stock market development using panel data of 42 emerging economies from 1990 to 2004. The findings revealed that macroeconomic factors such as income level, gross domestic investment, banking sector development, private capital flows, and stock market liquidity are important determinants of stock market development. Thus, the study evidenced that FPI has a significant impact on stock market development in emerging markets. Some scholars consider both foreign direct investments (FDI) and FPI as capital flows. In light of the stock market, it is proved that only FPI would have significant influence on stock market development. Moreover, Ifeakachukwu (2015) investigated the relationship between capital inflows and stock market development in Nigeria for the period spanning 1986 to 2013 and it considered both FDI and FPI to proxy the capital inflow while stock market development was proxy by market capitalization, turnover ratio and value traded ratio. The results revealed that only market capitalization and value traded ratio had a significant influence on FPI while none of the measures of stock market development significantly influenced FDI in the long run in Nigeria.

Although foreign investors bring large amounts of capital, due to asymmetric information and home bias, they tend to invest only in certain stocks, rather than in the market as a whole. Therefore, the benefits of foreign investment may be limited and stock price dispersion may exist between foreign favoured stocks and un-favoured stocks Hsu (2013) and the study further compared the performance of favoured and un-favoured stocks of foreign investors. The findings showed that the foreign investor favoured group outperformed the other only during the economic expansion and during recession; the foreign investor un-favoured group performed better. There are foreign favoured stocks and un-favoured stocks in every stock market including CSE. As Hsu (2013) has emphasized, these sectors would not response equally to the movements in FPI. The current study further extended the idea by using the sector indices in CSE.

Exchange rate is expected to have significant relationship with FPI as well as with stock performance. For example, Rujiravanich (2012) investigated the impact of foreign portfolio investment on stock prices and exchange rate in Thailand. It used net foreign portfolio as the proxy for FPI, the exchange rate of baht per US dollar and SET index data to proxy the stock prices. The results showed that the stock prices had a long-run positive relationship with net foreign portfolio investment, while the exchange rate had a long-run

negative relationship with the net foreign portfolio investment. Also, the high market return was a factor that influenced foreign equity securities investment in the stock market. There are controversies in which way the two variables; exchange rate and stock performance are connected and through which channels. Wu *et al.* (2012) investigated the relationship between US dollar exchange rate and the Philippine stock exchange performance. The study used the granger causality technique and co-integration technique to evaluate the impact and the results suggested there is a bidirectional relationship between exchange rate and stock market performance in the Philippines.

Moreover, Jamil & Ullah (2012) test the relationship between the exchange rate and the banking industry in Australian stock exchange and found that there is a positive long-run relationship existing between two variables. Furthermore, Jumah (2013) stated that there is a positive correlation between exchange rate and stock market returns in Mexico. Thus, the current study uses the exchange rate as a control variable along with foreign purchases and sales to strengthen the explanatory ability of the model.

The previous literature shows there is a significant relationship between foreign portfolio investment and stock market measures in different contexts. Some scholars argue that foreign portfolio investment has a positive impact on the stock market (Yarty, 2008; Patro & Wald, 2005; Kim & Singal, 2000; Wurgler, 2000; Raghuram & Zingales, 1998) while several other scholars state negative or no relationship between the two variables (Gorg & Strobl, 2004; Koskei, 2017). Most of the reviewed literature considered stock market as a whole despite thin and thick transactions in respective trading sectors. Thus, the researcher identifies this elimination of sectoral specifications as a gap in the prevailing literature. Moreover, studies conducted on the impact of FPI on the CSE are inconclusive. Therefore, this study attempts to fill the existing literature gap.

4. Data and Sample Period

The study used secondary data to measure the variables; foreign purchases, foreign sales, exchange rate (LKR/USD) and sector indices gathered from the CSE data library and Federal Reserve Economic data sources. The sample period was eleven years; from 2007 to 2017 and monthly data was deployed for the purpose. Sectors IT, Oil Palms, Stores Supplies and Services were eliminated due to thin trading issues. The selected 16 sectors, namely; Banking, Finance and Insurance (BFI), Beverage, Food and Tobacco (BFT),

Construction and Engineering (C&E), Chemicals and Pharmaceuticals (C&P), Diversified Holdings (DIV), Footwear and Textiles (F&T), Healthcare (HLT), Hotels and Travels (H&T), Investment Trusts (INV), Land and Property (L&P), Manufacturing (MFG), Motors (MTR), Plantation (PLT), Power and Energy (P&E), Telecommunication (TLE) and Trading (TRD).

5. Description of Variables

After rigorous theoretical and empirical review, the explanatory variables for the study have been selected. As the proxy in measuring the portfolio performance, the monthly Foreign Portfolio Purchases and Foreign Portfolio Sales are used. For the purpose of measuring the sector performance, monthly Sector Indices are used. The Foreign Portfolio Purchases and Foreign Portfolio Sales are identified to the model based on the conceptual model developed by Koskei, (2017) and Ali & Hussain, (2013). To satisfy the nonspurious results Exchange Rate is used as a control variable. The study uses the directly quoted exchange rate which is LKR/USD as the control variable. Despite Euro and other currencies, the research selected the USD exchange rate provided the USA is the largest foreign portfolio investor base in the world as well in Sri Lanka.

6. The Models

The study used a common model (1) which will be altered to separate sector variables as given below;

$$LNSIt = \beta_0 + \beta_1 LNP_t - \beta_2 LNS_t + \beta_3 LNEXSLUS_t + \varepsilon_t \quad (1)$$

Where,

LNSI	Natural Logarithm of Monthly Sector Stock Index
LNP	Natural Logarithm of Monthly Sector Foreign Portfolio Purchases
LNS	Natural Logarithm of Monthly Sector Foreign Portfolio Sales
LNEXSLUS	Natural Logarithm of Monthly Exchange Rate (LKR/USD)
β0	Intercept
εt	Error Term

In order to develop the fitted model for the time series, the unit root test used is the Augmented Dickey Fuller (ADF) test.

The long run dynamics is measured using the co-integration test. The Autoregressive Distributed Lag (ARDL) bound test model (2) based on the bound test is applied to investigate the co-integration.

$$\Delta LNSI = C_0 + \sum_{i-0}^{p} C_{1i}\Delta LNP_{t-i} + \sum_{i-0}^{p} C_{2i}\Delta LNS_{t-i} + \sum_{i-0}^{p} C_{3i} LNEXSLUS_{t-i} + \varepsilon_t \quad (2)$$

As the data series cointegrate in different levels the ARDL model is appropriate. The procedure is consistent with Pesaran *et al*. (2001) who incorporated I(0) and I(1) variables in the same estimation. There are several pre-conditions to be satisfied in order to run ARDL model. One of the key conditions is that none of the variables should be stationary at I(2) or in an above level in normal conditions. Several previous researchers have used ARDL model in their methodology such as Kumara & Dayaratne (2015) and Garg & Dua (2014). The long-run equation (3) is as follows;

$$LNSI_t = \beta_0 + \beta_1 LNP_t + \beta_2 LNS_t + \beta_3 LNEXSLUS_t + \varepsilon_t \quad (3)$$

The Error Correction Model (ECM) is used to estimate the short-run dynamics of each time series as both conditions negativity and significance of coefficients satisfy in the test. Thus, the ECM is used to forecast the speed of restoring back to the equilibrium in short-run during disequilibrium in system. The estimation of short-run coefficients is carried out using the equation (4) given below;

$$\Delta LNSI = C_0 + C_1\Delta LNP_t + C_2\Delta LNS_t + C_3\Delta LNEXSLUS_t + \phi ECT_{t-1} + \varepsilon_t \quad (4)$$

Where,

C_1, C2, C3	Short-run coefficients
ECT	Error correction term
Ø	Speed of adjustment

7. Results and Discussion

The results of the ADF test are summarized in Table 1. It shows that the variables are stationary in the I(0) or in I(1) which suggests that , all the data series in the model are not integrated in the same order. Further, none of the variables is integrated at I(2) or in an

above level. Interestingly, the stationary test satisfies the pre-requisite for applying the ARDL model.

Table 1: Unit Root test

Variable	Null Hypothesis: Variable has a unit root		
	I(0)	**I(1)**	**Order of Integration**
EXSLUS	0.0458	0.0000	I(0)
BFI			
- Purchases	0.0701	0.0000	I(1)
- Sales	0.0000	0.0000	I(0)
- SI	0.9166	0.0000	I(1)
BFT			
- Purchases	0.0006	0.0000	I(0)
- Sales	0.0000	0.0000	I(0)
- SI	0.9785	0.0000	I(1)
C&E			
- Purchases	0.0065	0.0000	I(0)
- Sales	0.0000	0.0000	I(0)
- SI	0.9089	0.0000	I(1)
C&P			
- Purchases	0.0001	0.0000	I(0)
- Sales	0.0000	0.0000	I(0)
- SI	0.9586	0.0000	I(1)
DIV			
- Purchases	0.0001	0.0000	I(0)
- Sales	0.0004	0.0000	I(0)
- SI	0.8897	0.0000	I(1)
F&T			
- Purchases	0.0000	0.0000	I(0)
- Sales	0.0000	0.0000	I(0)
- SI	0.2850	0.0000	I(1)
HLT			
- Purchases	0.0002	0.0000	I(0)
- Sales	0.0000	0.0000	I(0)
- SI	0.2679	0.0000	I(1)
H&T			
- Purchases	0.0000	0.0000	I(0)
- Sales	0.0011	0.0000	I(0)
- SI	0.9596	0.0000	I(1)
INV			
- Purchases	0.1118	0.0000	I(1)
- Sales	0.5819	0.0000	I(1)
- SI	0.7687	0.0000	I(1)
L&P			
- Purchases	0.0000	0.0000	I(0)
- Sales	0.0000	0.0000	I(0)

- SI	0.5863	0.0000	I(1)
MFG			
- Purchases	0.0000	0.0000	I(0)
- Sales	0.0000	0.0000	I(0)
- SI	0.9193	0.0000	I(1)
MTR			
- Purchases	0.0000	0.0000	I(0)
- Sales	0.0000	0.0000	I(0)
- SI	0.9452	0.0000	I(1)
PLT			
- Purchases	0.0313	0.0000	I(0)
- Sales	0.0000	0.0000	I(0)
- SI	0.5380	0.0000	I(1)
P&E			
- Purchases	0.0501	0.0000	I(1)
- Sales	0.1138	0.0000	I(1)
- SI	0.3819	0.0000	I(1)
TLE			
- Purchases	0.0000	0.0000	I(0)
- Sales	0.0000	0.0000	I(0)
- SI	0.3796	0.0000	I(1)
TRD			
- Purchases	0.0002	0.0000	I(0)
- Sales	0.0023	0.0000	I(0)
- SI	0.9318	0.0000	I(1)

Source: Data Analysis 2007-2017.

The paper did not proceed with the models which had not satisfied the co-integration condition. The Table 2, summarizes the findings of sectors which satisfy the above condition. The notation "NA" is used to indicate that there is no relationship available. The signs +/- marks are used to indicate the positive and negative relationships, respectively.

Table 2: Summary of Findings of the Co-integration Test and ECM

Variable	Co-inte.	Long-run	Short-run
BFI			
- P	Yes	+	+
- S		NA	NA
- Ex		NA	NA
BFT			
- P	Yes	+	NA
- S		NA	NA
- Ex		NA	NA
C&P			
- P	Yes	NA	NA
- S		NA	NA

- Ex		NA	-
DIV			
- P	Yes	+	NA
- S		NA	NA
- Ex		NA	NA
F&T			
- P	Yes	+	NA
- S		+	NA
- Ex		+	NA
H&T			
- P	Yes	NA	NA
- S		+	NA
- Ex		+	NA
PLT			
- P	Yes	+	NA
- S		+	+
- Ex		+	NA
P&E			
- P	Yes	NA	NA
- S		+	+
- Ex		+	NA
TLE			
- P	Yes	+	NA
- S		NA	NA
- Ex		NA	NA

Source: Data Analysis 2007-2017.

The findings suggest that C&E, HLT, INV, L&P, MFG, MTR and TRD sectors do not show any long-run relationship in the independent and dependent variables. It means that selected variables are not co-integrated in those sectors. Foreign portfolio purchases have a positive long-run relationship with sector index in some sectors namely; BFI, BFT, DIV, F&T, PLT and TLE while short-run relationship is shown only in BFI sector. When carefully analyzing the degree of impact from foreign purchases only BFI, BFT and DIV sectors show above 0.5% impact while BFT is 0.92%. These are the sectors recognized under MSCI frontier market index: Commercial Bank – BFI, Ceylon Tobacco – BFT and John Keells Holdings – DIV. The results suggest that foreign purchases have a high impact on those sectors. It provides evidence to agree with the fact that foreign investors are interested in investing in high market capitalization companies. Even though the literature does not provide evidence to prove by the same sector analysis, the long-run positive relationship of foreign portfolio purchases towards sector index is consistent with Halale (2014) and Ali & Hussain (2013). When considering the foreign portfolio sales, the general expectation is that the capital outflow would have a negative impact on the stock index.

However, the results show a long-run positive relationship in sectors: F&T, H&T, PLT and P&E. Further, PLT and P&E show both long-run and short-run positive relationships. The foreign investors are considered to be more analytical and tactful than the local investors. Dornbusch & Park (1995) stated that foreign investors develop a tendency to acquire securities when the prices are rising and sell when the prices start to fall. Hence, when the foreigners sell the shares, the domestic investors would assume those shares are still profitable and willing to purchase. Therefore, it is expected the negative impact from foreign sales would be overcome by the domestic purchasing and it will result for upturn in sector index. A close look to results state that the positive impact gained from domestic purchases is higher than that of the negative impact of foreign sales. However, this significant positive relationship is contradictory to the study conducted by Koskei (2017).

Furthermore, exchange rate (LKR/USD) shows a positive relationship with stock index and it is a long-run positive relationship in F&T, H&T, PLT and P&E sectors. Since the researcher considered direct quotation of exchange rate, an increase means depreciation in local currency. The, depreciation in local currency would increase the monetary value of the aggregate demand of the aforementioned sectors and increase their future cash flows. As theory states, this will cause for the increase in the share price. Interestingly, the only short-run relationship is with C&P sector and it is negative (-1.27). The C&P sector is more into imports since most chemical and pharmaceutical products are not manufactured or discovered in Sri Lanka. Possible explanation is that, during the depreciation of local currency, the cost of imports will go up, resulting in a downturn in the profitability and performance of the sector. The results consistent with Ma & Kao (1990) found that a currency appreciation negatively effects on the domestic stock market for an export-dominant country and positively affects the domestic stock market for an import-dominant country.

8. Conclusion

This paper examines the relationship between FPI and sectoral performance with the exchange rate used as a control variable. Since the stock market tends to be highly sensitive and volatile, the study examines monthly data to capture short-run dynamics. The results indicate that the relationship between foreign portfolio purchases and sector index is positive as expected in Price Pressure Hypothesis theory. However, the relationship between foreign portfolio sales and stock index is positive, contrary to the theoretical

framework established in the paper. According to the findings, an increase in the exchange rate (LKR/USD) positively impacts the sector index of export-oriented sectors while it has a negative impact on the import-oriented sectors. As an increase in the exchange rate means the depreciation of local currency, the finding corroborates the Flow-oriented Theory, which relates depreciation in domestic currency causes an increase in the share price. The most sensitive finding is that all the sectors response to FPI in varying degrees. Hence, any policy directives should focus on selected sectors rather than the entire market.

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CHAPTER EIGHT

INFLUENCE OF LIQUIDITY RISK ON BANK PROFITABILITY IN SRI LANKAN COMMERCIAL BANKS

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Abstract

The balance between liquidity and profitability may be a big challenge for a bank. Managing liquidity risk will be a good practice to maintain a higher level of profitability. Therefore, this study investigated the impact of liquidity risk on the bank profitability of commercial banks in Sri Lanka, considering the sample period from 2009 to 2018. Liquidity risk was measured by using the current ratio, capital adequacy ratio, liquid assets to total assets ratio, equity to total assets ratio and the number of deposits while bank profitability was measured by using return on assets. 11 local commercial banks were selected for the sample. Secondary data were collected from the published annual reports of selected banks. Correlation coefficient and panel data regression analysis were used to analyze the data. The study found that the current ratio and the number of deposits significantly influence bank profitability. The current ratio showed a positive relationship and the number of deposits has a negative relationship with the profitability. Further, there is no significant impact of liquid assets to the total assets ratio, equity to total assets ratio and capital adequacy ratio to return on assets.

Keywords: Bank Profitability, Commercial Banks, Liquidity Risk.

1. Introduction

In the present, financial crisis affect the economic conditions of many countries in the world. This situation can be seen in a considerable number of developing countries and developed countries (Ajao & Obida, 2012). As a result of financial crisis, most of the industries in the world collapsed such as World Bank, International Monetary Fund (Ajao & Obida, 2012). Thus, after the crisis, the liquidity concept is considered as the most important factor in the economy.

Due to the effects of the financial crisis, financial sector directly faced the worst situations. Banks are the main part of the financial sector in any economy. The banking sector in Sri Lanka is very important to the growth of the Gross Domestic Production (GDP) through better credit quality and increase in investments including Foreign Direct Investments (FDI) through developments of infrastructure projects. In 2017 the GDP growth contribution of the banking sector was 3.8%, 4%, and 3.3% respectively in the first , second & the third quarters . During the first quarter of the year 2018, they expected to maintain 5% contribution to the GDP rate. (Lokugamage & Weerasinghe, 2017)

In Sri Lanka, the main regulatory body of the banks is the Central Bank of Sri Lanka (CBSL). There are 26 commercial banks currently operating through a total of 1,711 branches and other banking outlets in the country under the CBSL. The main duties of banks are accepting customers' deposits and issuing credit facilities for their clients. Therefore, banks tent to earn more profit through accepting a large amount of customer deposits, investing in long term bonds, issuing long term lending and providing other financial services. When doing those functions in the banking industry, banks face some sort of risks that influence their profitability and the sustainability. Shen, *et al.* (2018) point out that the future of the banking industry will be more likely to suffer from the liquidity problem due to the dependence on the short term money market and the purchased fund market. Therefore, banks must maintain proper risk mitigation tools to face those risks arise in banking sector such as operational risk, credit risk, liquidity risk, foreign exchange risk, market risk, and interest rate risk etc. Otherwise, it may cause a failure to the whole financial system which will impact on the GDP too (Shama, Muhammad & Khizer, 2011).

In order to gain an insight and understand the relationship, if any, between liquidity risk and profitability in commercial banks in Sri Lanka, the main objective is set. That is to investigate the influence of liquidity risk on commercial banks' performance in Sri Lanka & to discover the highly impacted factor on liquidity risk.

The banks in the economy have a responsibility to maintain a risk management system to reduce losses. Among those risks, credit risk and liquidity risk highly influence on the bank performance because those risks may cause a negative impact with bank performance.

Liquidity risk is a risk arising from a bank's inability to meet its obligations when they come due without incurring unacceptable losses (Comptroller of the Currency, 2001). Banks must hold a considerable position in liquid assets while on the other hand, they are required to be profitable for them to be sustainable. The banks tend to earn more profit by giving long term loans. They fund their money in profitable bonds with a higher risk and banks desire high profits for their clients. Helder, Delio, & Renato (2011) said these type of procedures can be highly risky when providing the financial services because they directly influence to the whole economy. Distress in one bank may cause to happen contagion effect in the whole banking industry (Lahiru & Manjula, 2014).

To reduce the liquidity risk, banks have to monitor the various liquidity ratios and taggers like stress testing to gauge the bank's capacity to handle liquidity shocks and monitoring of the liquidity ratios. The Basel Committee on Banking Supervision (2013) introduce the Liquidity Coverage Ratio (LCR) for this purpose. The objective of the LCR is to promote the short-term resilience of the liquidity risk profile of banks. The regulatory parties have taken various actions to mitigate those risks and reduce the potential financial losses. But the important thing is that the Basel Committee on Banking Supervision (2013) says the beginning of the 2007, beginning of the financial crisis, many banks despite adequate capital levels, still experienced difficulties because they did not manage their liquidity in a prudent manner. As a recent incident, the United States Subprime crisis was the latest financial and economic crisis which impacted to Sri Lanka. Some registered and non-registered finance companies in Sri Lanka faced difficulties in 2008. As well as, we have some of the experiences before the year 2008 as well.

Derana Bank PLC Failure

Derana bank was a licensed commercial bank under the supervision of Central Bank which was establish in 1979. They had a fundamental problem with finances of the bank as well as liquidity problems. According to the liquidity problem faced in 2009, Derana bank faced panic among the customers. A construction company took advantages of the government contacts to obtain scarce bank capital from state controlled banks. Bank, without a feasibility study and without the collateral for the loans, given it to the company. As a main creditor of the Derana bank, collapse of that construction company created a liquidity problem for Derana bank. The Deana bank was collapsed due to that liquidity problem.

Pramukha Bank Failure

According to the Charted Accounts of Sri Lanka (2010), the Pramukha savings & development bank was one of the specialized saving banks, which had an employee strength of 160 personnel with more than 15,000 accounts. They approached poor villagers through established agencies at village level to grant credit facilities. Within the first five years the Pramuka bank exceeded 3,700 million worth of savings. In October, 2002 Pramukha bank collapsed due to bad debts amounting to Rs. 2.2 Billion. The Non-Performing Assets (NPA) amounted to Rs. 1.27 Billion and the NPA ratio which was initially at 25% has risen to 50% overnight and at the time of collapse it was 80%. As a result of negative 'net-worth", the central bank of Sri Lanka confirmed their loss as Rs. 419.7 Million in 2002. Finally, the Pramukha bank collapsed due to those bad debts. The Charted Accounts of Sri Lanka (2010) specially mentioned there, Pramukha bank was unable to maintain the minimum statutory liquid assets ratio of 20% at that period. However, the bank had not been able to raise enough equity capital along with its expansion. The capital adequacy ratio of the bank has remained slightly below that of the other leading commercial banks (Lahiru & Manjula, 2014).

Financial Crisis in 2008

Hemachandra (2012) identified that under the subprime crisis in US, the liquidity problem was impacted to some of the domestic banks (e.g. Seylan Bank) and some finance companies. Apart from the Seylan bank, Golden Key Credit Card Company Ltd and Sakwithi House Construction (pvt) Ltd and finance companies affiliated to the Ceylinco group also collapsed.

Seylan Bank Failure

In 2008, Seylan bank was the 6th largest commercial bank in Sri Lanka and faced a deposit run towards the end of December 2008 due to the Subprime crisis. The reasons of the failure of Seylan Bank are some unauthorized deposit acceptors failed to honor their commitments towards depositors in the midst and their poor financial management. As a systematically important bank in Sri Lanka, the Seylan Bank PLC faced sudden distress due to liquidity problem. None of the commercial banks had suffered a similar situation in the past. Lahiru & Manjula (2014) said that the Seylan bank distress was directly linked with US Subprime crisis. Expecting contagion effect, larger scale of Sri Lankan depositors

had placed their money and investors also withdraw their savings with these financial institutions despite the warnings issued by the CBSL.

Edirisinghe Trust Investment (ETI) Failure

ETI Finance under the ownership of the EAP group worked as a nonbanking financial Institution. In 2018 ETI Finance was to be liquated due to bankruptcy. Until 30th of September 2018, the ETI depositors informed to make their payments. There were over 25,000 depositors at that time & these depositors estimated as the total sum of deposits amount to approximately 36 b billion rupees. According to further investigation, ETI was collapsing recently because of inability to pay their customers around 36 billion rupees. ETI company's financial accounts for the year ended March 2012 showed a lower capital adequacy ratio and lower liquid assets than to the company standard minimum requirements. In 2018, they could not repay Rs. 36 billion for the depositors even if they sell their all the assets of ETI Company which is amounting to Rs. 15 billion.

The necessity of liquidity management in a bank was arisen after those incidents. Managing sufficient liquid means, banks have to tie up in liquid assets. Some of the banks tend to earn more profit by investing their liquid position in long term lending, long term investments accepting higher risks. To restrict this kind of situations, as the main regulatory party,the CBSL has introduced rules and regulations to mitigate the liquidity risk and reduce the potential financial losses due to the lack of liquidity. After the financial crisis in 2008, the necessity of liquidity risk was arisen. The liquidity risk affects both the performance and the reputation of banks. Every bank needs to balance their liquidity position under the CBSL warnings and otherwise they may have to face distress situations. Thus, it is important for the banks to strengthen liquidity risk management, and liquidity risk will be an important issue in the future. It is expected to read out the research problem as,

What is the impact of liquidity risk on profitability of the commercial banks in Sri Lanka?

As a developing country, Sri Lanka pays more attention to the service sector because of higher development and higher contribution to the GDP (Lokugamage & Weerasinghe, 2017). Finance sector, as a major sub sector to the service sector, plays a vital role with the banks as their main players. Banks are very important to the economy. But the risks arising related to the banking sector are higher than the other financial institutions. Liquidity

management becomes a very important part in financial management decisions, where the liquidity management efficiency could be achieved by firms that manage a trade-off between liquidity and profitability (Bhunia & Khan, 2011). Thus, every bank manager must give a priority to manage liquidity risk. The findings of the research will be helpful to bank managers and shareholders of the financial companies to take efficient financing decisions. As well as, it can be used to predict possible risks that may be occurred in future, and they can get prior decisions to minimize the risks arising from bank activities.

2. Literature Review

There are various definitions for the liquidity risk. The simple meaning of the liquidity risk is inability of converting assets in to cash quickly at the lowest possible cost at the time itself. When analyzing the previous research articles, more definitions and concepts can be identified relating to the liquidity. A bank may lose the confidence of its depositors if funds are not timely provided to them. The bank's reputation may become at stake in this situation. In addition to this, a poor liquidity position may cause penalties from the regulator. Therefore, it becomes imperative for a bank to keep a sound liquidity arrangement. Liquidity risk has become a serious concern and challenge for the modern era banks (Comptroller of the currency, 2001)

Garson (2001) mentioned that the liquidity risk has become the most challengeable concept for the banks in the modern era. The importance of liquidity risk is emphasized due to the world subprime crisis from 2007 to 2008. Basel Committee (2015) asserts that fundamental role of banks in the transformation of short-term deposits into long-term loans makes banks vulnerable to liquidity risk, a liquidity shortfall at a single bank can have system-wide repercussions. After the global sub-prime crisis of 2007 to 2008, the importance of liquidity management in banking sector was emphasized. According to Demirguc *et al* (2010), the banks should highly consider their creditworthiness, because controlling liquidity risk is a difficult thing when developing guiding principles to mitigate the liquidity problems of banks. As well as banks must consider the stressful market conditions, managing price and interest rates. While having this kind of a difficult situation, banks have less flexibility. Derivatives and hedge the banks' position are required to access the financial markets. A bank's liquidity control methods are determined by its ability to access future markets.

Within a short period of time, liquidity crisis can be developed to a capitalization crisis. The crisis can be avoided by the bank itself by using liquidity ratios such as liquidity coverage ratio, capital adequacy ratio, liquid assets to total assets ratio and maintaining the other liquidity requirements that are announced by the CBSL. On the other hand, holding a large amount of liquid assets may develop the maturity transformation and funding risk. Because of these, liquid assets can be sold or pledged (Goodhart, 2008). To mitigate the liquidity risk, anybody can decide to hold a large amount of most liquid assets in hand to meet customer requirements and minimize the liquidity risk, but it may cost highly. Furthermore, the CBSL announces the statutory requirements that banks have to maintain to face the outcomes of future liquidity problems. A bank always tries to avoid the capital injection from the government because this may place a given bank at the government's mercy (Jeanne & Svennsson, 2007). Therefore, banks hold minimum cash balance to avoid liquidity problems (Jenkinson, 2008).

Profit is very important for all businesses, because the survival depends on this factor. Profitability plays as a major tool in measuring the management efficiency in the use of organizational resources by adding value to the business firm. Ajao & Obida (2012) mentioned that a company should earn profit to ensure the survival and growth over a long period of time. Further, they mentioned that the profit is essential, but all management decisions should not be profit centered. There are several ratios that can be used for evaluating the profitability of a business like return on assets (ROA) and return on equity (ROE).The ROA is selected to measure the profitability for this analysis which measures the corporate performance of a bank. Potential investors focus on the profitability ratios as they are interested in dividends and appreciation in share prices (Ajanthan, 2013).

Liquidity ratios determine the ability of a firm to generate the cash flow in the year and compared it with short term obligations. This provides a clear picture if the firm has a problem related to the short term debt paying ability (Saleem & Rehman, 2011).

Current ratio is the most common and oldest measure of cooperate liquidity (Lamburg & Valming, 2009). From this ratio, it can be measured the ability of covering current liabilities by using current assets. As a benchmark, companies keep value of 2:1 for current ratio. It means, companies need to hold twice of the current assets value as the current liabilities.

Capital adequacy ratio is taken as a measure of the bank's capital level and also relation to its risk which included in loans, advances and investments in securities so on. Mostly, capital adequacy ratio is used to measure the bank's ability to withstand the risk measured by the bank. The bank's higher capital adequacy ratio than the Central Bank minimum requirement means risky. However, the bank must maintain an acceptable ratio. The bank must be aware of the need to strengthen its Tier I capital and is working with a range of possible alternatives to improve this critical ratio (BOC Annual Report 2018).

Furthermore, the capital adequacy ratio is used to measure the financial strength and the adequacy of bank's capital. Currently acceptable minimum ratio is 10%. This is a significant ratio that is known as capital to risk assets ratio.

The researcher uses the ratio of Equity to Total Assets (ETA) to express the capital strength of banks held. High equity to assets ratio means that the bank is safer than the others from problem of liquidation. Capital of the bank increases means the expected earnings may rise due to reducing the expected cost of financial distress (Berger, 1995). The lower risk of the banks increases the creditworthiness as well as reduces the cost of funding consequently. Past researchers used equity to total assets ratio as an explanatory variable. Demirgüç & Huizinga, (2010) found positive relationship between equity to total assets ratio and profitability. Thus bank have to maintain a higher equity to total assets ratio to minimize the liquidity risk and increase the profits. If a bank has a higher equity to assets ratio, it will have lower needs of external funding and therefore bank can earn higher profitability.

Increase in cash reserves decreases the earnings of the bank. One of the prime causes of liquidity risk is the maturity mismatch between the assets and liabilities. In the banking business, the majority of the assets are funded with deposits most of which are current with a possibility to be called at any time. This situation is known as the mismatch between assets and liabilities (CBSL, 2008). Banks use deposit as a natural hedge against the liquidity risk (Gatev & Strahan, 2003). The fund inflows to the banks act as a natural hedge in banks to bank's outflows due to loans. Therefore, the deposits can be used as a hedge to minimize the liquidity risk.

Liquidity Risk Vs. Profitability

The past researches revealed that liquidity levels significantly affect the bank's profitability. This is consistent with Dang (2011) who found that adequate level of liquidity is positively related with bank profitability. Shen, *et.al* (2018) found the liquidity risk as the endogenous determinant of performance of the banks. The causes of liquidity risk include components of liquid assets and dependence on external funding, supervisory and regulatory factors and macroeconomic factors. Besides, they also found that liquidity risk may lower the bank profitability with negative relationship.

Furthermore, previous empirical evidence showed that the effect of liquidity risk on bank profitability is mixed. Some studies like Molyneux & Thornton (1992) who found out the positive effect between liquidity risk and profitability. Others found out the negative effect (Boruke, 1989; and Demirgüç & Levine, 1999).

Referring to the previous empirical studies, it has been identified the following key highlights. Mamatzakis & Bermpei (2014) examined the impact of liquidity risk by using 97 of sample banks in Switzerland. The result showed negative impact with bank performance. The Iranian study investigated by Tabari, Ahmadi and Emami (2013) who used a seven years' time period to study the effect of liquidity risk on bank performance in Iranian commercial banks. The main results indicate that, besides the negative effect of liquidity risk on performance of Iranian banks. Ariff and Anees (2012) investigated the impact of liquidity risk on bank profitability on 22 Pakistani banks over the period 2004-2009, Results show that bank performance is negatively and significantly correlated with the liquidity risk. On the other hand, Latary, Antwi, & Boadi (2013) in Ghana who analyzed the relation between liquidity and profitability by using seven listed banks during the period 2005-2010 found that there is a weak positive effect of liquidity on bank profitability. Boruke (1989) also showed a positive relationship of his study between the liquidity risk and bank performance. He used a sample of 13 banks during the period 2004-2012.

3. Methodology

Pearson Correlation analysis and Panel Data Regression analysis were used to analyze the collected data as the main two methodological tools.

Conceptual Framework

The dependent variable of the study is Return on assets (ROA). As independent variables liquid assets to total assets ratio, current ratio, capital adequacy ratio, equity to total assets ratio and number of deposits are used.

Independent Variables — Dependent Variable

Liquidity Risk — **Bank Performance**

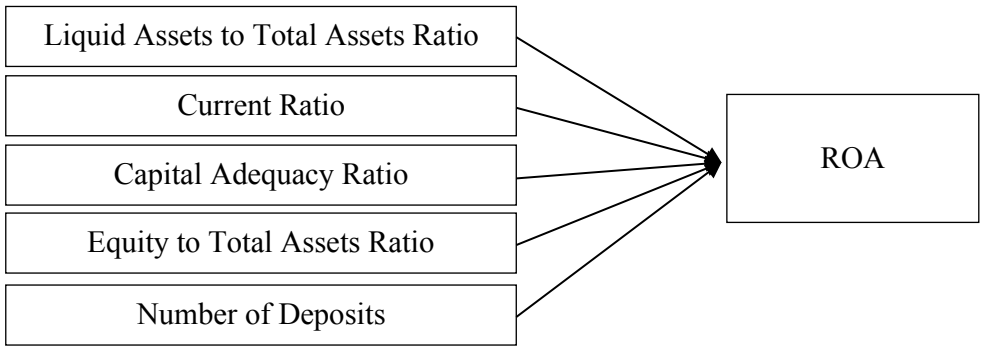

Figure 1: Conceptual framework

Source: (Shen, *et al* ,2012)

Return on Assets (ROA)

Return on Assets ratio is a profitability ratio that calculates the net income as a percentage of the total assets held by the bank at the end of the financial year. If a bank has higher amount of assets that means a bank should be able to earn higher amount of income.The ROA can be calculated by dividing the net income plus interest expenses by bank's assets during the year and then multiply by 100 to express it as a percentage.

Current Ratio

Current ratio represents the ability of covering current liabilities by using current assets. As a benchmark, companies keep value of 2:1 for current ratio. Thus, companies must hold twice of the current assets value than current liabilities (Maness & Zietlow, 2005). Higher value of the current ratio provides a good picture for the relationship between current assets and liabilities because all the current assets and current liabilities are included in this ratio. The current ratio is the most important one to make favorable decisions for the interested parties. Bank managers can investigate the present and potential financial strength through the current ratio. The short term debt paying ability, the requirement of changing policies relating to the debtors, creditors, inventories and other bank activities related to current ratio provide a good indication to the bank and it may help to increase the bank performance

through the proper management of current assets and current liabilities. Current ratio measures the liquidity of a company that reveals whether a company has enough short term assets to meet their short term liabilities.

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

Capital Adequacy Ratio

The capital adequacy ratio is considered as a measurement of a bank' risk, insolvency from excessive losses. Another way, it can be identified as capital to risk assets ratio. It has a direct relationship with statutory capital requirements. The acceptable value of capital adequacy ratio is 8% in the present. The banks have to maintain a comfortable CAR level according to the statutory requirements of the CBSL.

$$\text{Capital Adequacy Ratio} = \frac{\text{(Tier 1 capital + Tier 2 capital)}}{\text{Risk weighted Assets}}$$

Liquid Assets to Total Assets Ratio

If banks hold much more liquid assets, it means that the net interest margin of the banks may be low. It directly influences the bank profitability. The reason for the low interest margin is lower return of holding assets without investing. Thus, all bank managers should diversify their funding sources to manage the liquidity risk properly. For this reason, the researcher uses this ratio to assess the liquidity risk. It can calculate by dividing liquid assets in to total assets.

$$\text{Liquid Assets to Total Assets Ratio} = \frac{\text{Liquid Assets}}{\text{Total Assets}}$$

Equity to Total Assets Ratio

Higher equity to total assets ratio of a bank is considered as safer in the occasion of liquidation. High capital of a bank may increase the expected earnings by reducing the expected cost of financial distress. If a bank has low liquidity risk, it may increase the creditworthiness (Berger, 1995). Equity to total assets ratio represents the company's assets on which shareholder's equity. The necessary figures are taken from the company balance sheet to calculate the ratio.

$$\text{Equity to total assets ratio} = \frac{\text{Shareholder's equity}}{\text{Total assets}}$$

Number of deposits

Deposits play a vital role in the banking sector because they increase the bank's profitability. Deposits can be identified as the main pillar of the industry. Thus, there is a direct relationship between the number of deposits and the profitability of banks. If depositors withdraw their deposits from banks, it creates a liquidity trap in a bank (Jeanne & Svennsson, 2007). There are two types of bank deposits like demand deposits and savings deposits. Most of the banking activities run through deposits of the bank.

Data and Data Collection method

To meet the intended outcomes of the research, audited financial statements from 2009 to 2018 of each bank was used to estimate the profitability and the liquidity risk.

Data Analysis Tools

Pearson correlation coefficients were used to identify the association between selected variables and regression analysis was used to identify the relationship between independent and dependent variables.

Panel data analysis is a statistical method which is used to analyze two dimensional panel data. Panel data are also called cross-sectional time-series data. These data have observations on the same units in different time periods. Panel data may have individual effect, time effect, or both which are analyzed by using fixed effect model, random effect model or pooled ordinary least squares (OLS) regression model. Among the three models, to find the right model, the researcher applied F test, Breusch and Pega's Lagrange Multiplier (LM) test and Hausman test. To compare pooled ordinary least squares (OLS) model and the fixed effect model, the F test is used. To compare the fixed effect model and random effect model, the Hausman test is performed. If the findings are statistically significant, the fixed effect model will be used, or else random effect model is appropriate. To test random effect and pooled ordinary least squares (OLS) regression model it is performed the Lagrange Multiplier (LM) test. If the findings are statistically significant, random effect model will be used or else fixed effect model is appropriate. If the null hypothesis is not rejected in both the tests, the pooled OLS regression is most appropriate.

Pooled Ordinary Least Squares (OLS) Regression

The Pooled Ordinary Least Squares (OLS) regression assumes that each individual has time invariance but unique effect on dependent variable. If the individual effects such as cross sectional or time effect does not exist, ordinary least squares (OLS) produce efficient and consistent parameters. As the pooled regression model neglects the heterogeneity across the individuals and further assume that the same coefficient for all individuals, those effects are unique to each individual included in the error term. The basic model of pooled ordinary least squares (OLS) regression can be developed as follows,

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \ldots + \beta_k X_{kit} + \varepsilon_{it}$$

Where,

– Y_{it} is the dependent variable (DV) where i = entity and t = time

–X_{it} - X_{kit} represents independent variables (IV) where i= entity and t = time

– β_1 - β_k is the coefficients of independent variables

– β_0 is the constant of independent variables

– ε is the error term

Fixed Effect (FE) Model

Fixed effect model assumes that the time-invariant factors are unique to the individual and it may not be correlated with other individual factors. Thus, FE model controls the time-invariant differences between each entity. Every individual unit is different from each unit. Thus, the entity's error term and constant should not be correlated with the predictors. Thus, the fixed effect model applies when the error terms are not correlated. The basic fixed effect model can be mentioned as below,

$$Y_{it} = \beta_1 X_{it} + \alpha_i + u_{it}$$

Where,

– α_i (i=1….n) is the unknown intercept for each entity (n entity-specific intercepts)

– Y_{it} is the dependent variable (DV) where i= entity and t = time

– X_{it} represents one independent variable (IV) where i= entity and t = time

– β_1 is the coefficient of the independent variable

– u_{it} is the error term

Random Effect (RE) Model

Random effect model assumes that the entity's error term is not correlated with the predictors which allow for time invariance variables to play a role as explanatory variables. Random effect model is applied when the error terms are correlated. The basic random effect model can be mentiond as below,

$$Y_{it} = \beta_1 X_{it} + \alpha + u_{it} + \varepsilon_{it}$$

Where,

– Y_{it} is the dependent variable (DV) where i= entity and t = time

– β_1 is the coefficient for that independent variable

– X_{it} is independent variable (IV) where i= entity and t = time

– α is common intercept

– u_{it} is between-entity error

– ε_{it} is within-entity error

Model Development

The major objective of this study is to find the impact of liquidity risk on profitability of commercial banks in Sri Lanka. The following model is going to be developed for that objective.

$$ROA_{it} = \alpha + \beta_1 CR_{it} + \beta_2 LATA_{it} + \beta_3 ETA_{it} - \beta_4 CAR_{it} + \beta_5 LNND_{it} + \varepsilon_i$$

Where,

ROA = Return on Assets

α = Constant

CR = Current Ratio

LATA= Liquid Assets to Total Assets Ratio

ETA = Equity to Total Assets Ratio

CAR = Capital Adequacy Ratio

LNND = Natural Log of No of Deposits

ε = Error Term

4. Data Presentation and Analysis

For this study, several statistical methods have been used to analyze the data that have been collected from 11 local commercial banks on the profitability as well as liquidity risk. Gathered data were analyzed by using Pearson Correlation and Panel Data Regression method with the support of STATA software. And also the researcher has used descriptive statistics to describe the behavior of the variables in the study.

Behavior of the Variables

Behavior of ROA

The ROA is a measure of the bank's profitability which identifies the net income of the bank on total assets of the bank during a period of time. This Return on Assets ratio shows how a bank has earned profits against its total assets over time. Stakeholders use the ratio not only to evaluate whether the bank has considerable profits, but also to assess whether the bank has higher returns according to the assets. Mostly, investors use this ratio to see how the profitability of the bank to invest their money is.

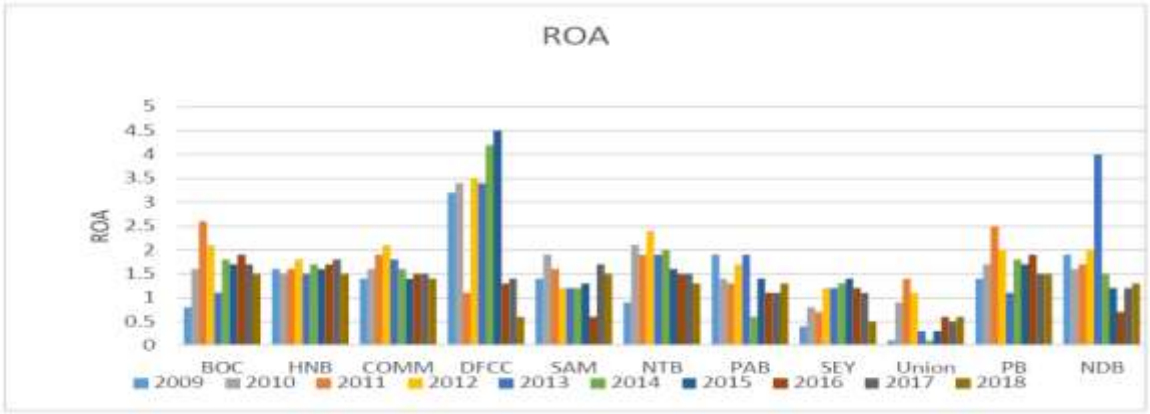

Figure 2: Return on Assets Ratio
Source: Based on annual reports of banking sector

When considering the year 2015 DFCC recorded the highest value of the ROA amounting to 4.5 while the 0.6 recorded as the lowest amount in the year 2018 in this bank during these ten years of time period. It is highlighted that in 2013 HNB has the highest ROA as 4. It shows an abnormal increase. UNION bank has the lowest values for ROA ranging from 1.1 to 0.6. Generally HNB, Commercial bank, Sampath bank, Pan Asia Bank, Peoples'Bank, Seylan bank & NDB recorded a sharply stable amount of ROA during the ten years.

Behavior of Current Ratio

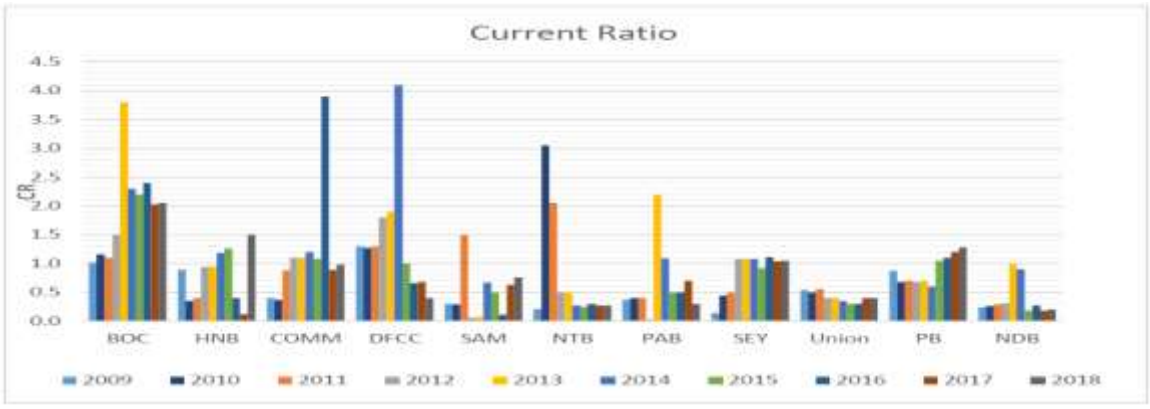

Figure 3: Current Ratio
Source: Based on annual reports of Commercial banks

When considering the current ratio of above banks, there are so many highlighting points. BOC has a peak in 2013 while commercial bank has a peak in 2016. DFCC shows a peak point in 2014 while NTB shows a peak in 2010. Most of the banks maintain less than 1 ratio value. BOC and DFCC shows better CR than the rest of the banks.

Behavior of Capital Adequacy Ratio

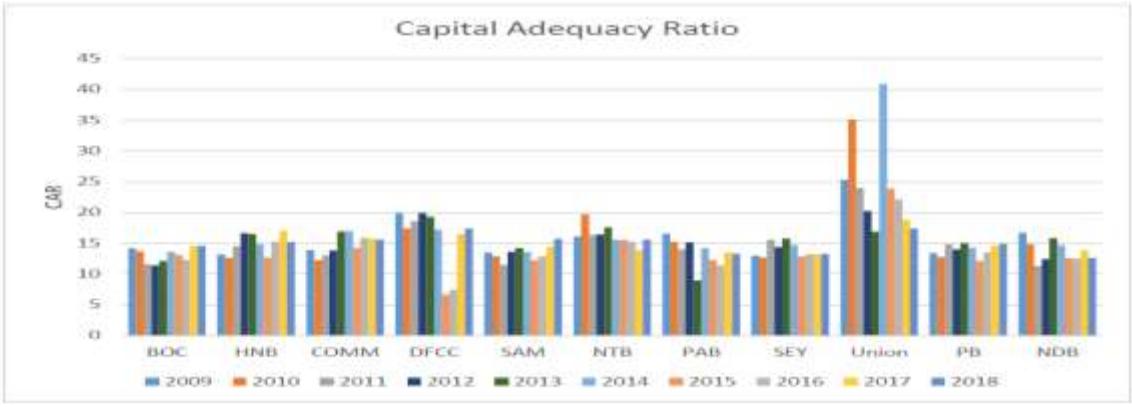

Figure 4: Capital Adequacy Ratio
Source: Based on annual reports of Commercial banks

According to the figure 4, there are higher amounts of CAR of Union Bank PLC. The highest amount is 40% in 2014 and the lowest amount recorded by Union Bank is 16.89% in 2013. When comes to the lowest CAR of entire banks is 6.62% that record DFCC bank in 2015. In 2016 also DFCC Bank reported the lowest CAR. All the other banks show the higher capital adequacy ratio with slight fluctuations.

Behavior of Liquid Assets to Total Assets Ratio

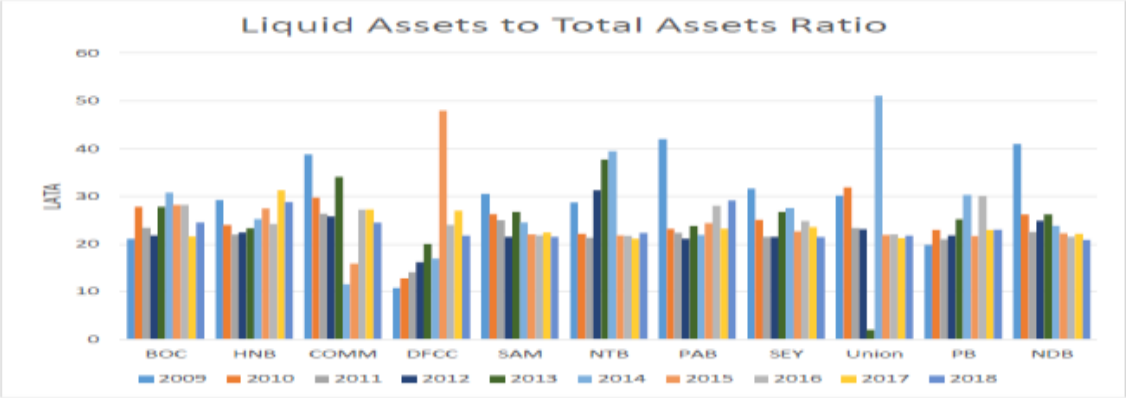

Figure 5: Liquid Assets to total Assets Ratio
Source: Based on annual reports of Commercial banks

Liquid Assets to total assets ratio indicates the liquid assets held by the banks from their total assets. During these time period, it can be seen many more fluctuations of this ratio. Most of the banks do not maintain stable amount of this ratio while less number of banks could maintain. Banks like DFCC, Union, NTB, NDB and PAB couldn't maintain a stable amount of this ratio. The lowest amount reported in Union Bank was 2.01 in 2013. As well as Union Bank reported highest LATA as 51.1 in 2014. That is a higher amount than statutory requirement also. Most of the banks cover the liquidity ratio during the period.

Behavior of Equity to Total Assets Ratio

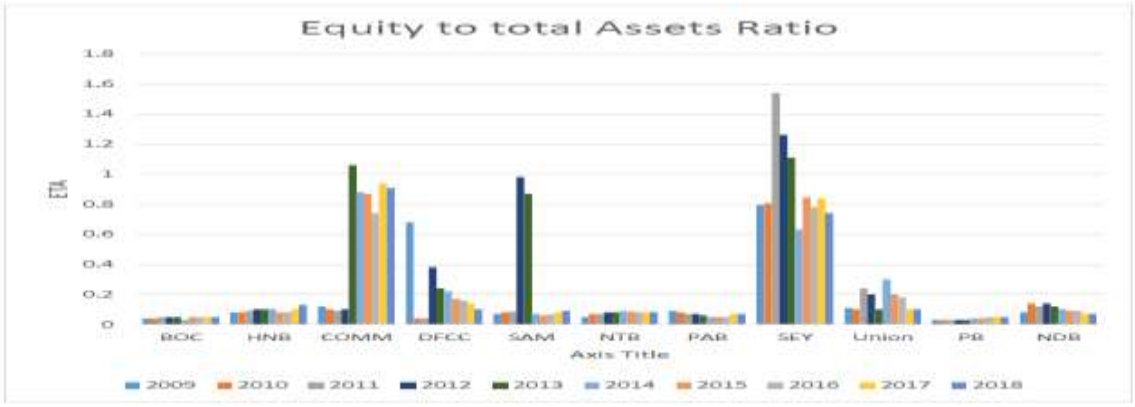

Figure 6: Equity to Total Assets Ratio
Source: Based on annual reports of Commercial banks

When considering the above figure, it can be seen that there is a considerable difference of this ratio among the banks during this time period. A fewer number of banks like Commercial Bank, Sampath Bank and Seylan Bank showed the ratio around 0.5 to 1. While the other banks showed it less than 0.5. But in 2018, the ratio stated the lower amounts

except the Commercial Bank. The Peoples' Bank and BOC show the lowest amounts of ETAR from 2009 to 2018.

Behavior of Number of Deposits

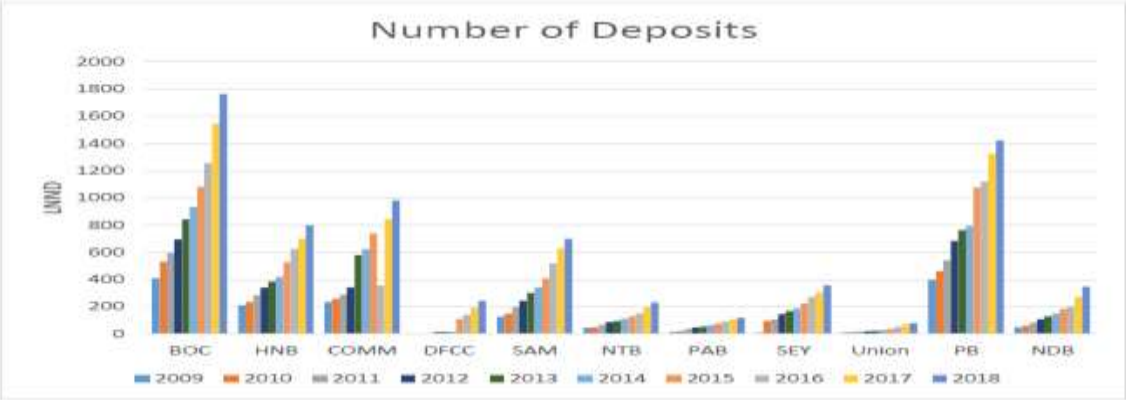

Figure 7: LN values of no. of Deposits
Source: Based on annual reports of Commercial banks

According to figure 7, it can be identified that the highest number of deposits are held by BOC and People's bank. The lowest amount of deposits are held by Pan Asia bank and Union bank during the period. However, all the banks have got their deposits increased year by year. Less number of banks like Seylan, Pan Asia, NTB and NDB show a lower amount of deposits in this time period. HNB and Commercial bank have considerable deposits amount than the other banks.

Descriptive Analysis

Table 1: Descriptive Statistics

Variable	Minimum	Maximum	Mean	St. Deviation
ROA	0.1	7.2	1.6	0.9
CR	0.1	4.1	0.9	0.8
CAR	6.6	40.9	15.3	4.2
LATA	2.1	51.1	24.9	6.6
ETAR	0.1	1.5	0.2	0.3
LNND	1.1	7.5	5.1	1.4

Source: STATA Output

Table 1 represents descriptive statistics of the collected variables for commercial banks under the CBSL for the period of ten years from 2009 to 2018 and for total 110 observations. For the total sample, the mean value of banks' ROA is 1.6%, and the standard

deviation of return on assets is approximately 0.9. The meaning of this value is that the mean value can be changed by approximately 0.9 positively or negatively. The average value of Current Ratio is 0.9 percent. This means, average percentage of current ratio which is defined as current assets divided by current liabilities. This showed Sri Lankan commercial banks maintain moderate level of current ratio with mean value of 0.9. Variability of current ratio among commercial banks during the study period as shown by their standard deviation values 0.8%.

Minimum value of the Capital adequacy ratio is 6.6. It indicates that there are some banks which are poorly capitalized, while the maximum is representing as 40.9. The mean value of it amounted to 15.3. Thus, we can understand that Sri Lankan commercial banks are moderately capitalized. And the standard deviation is stated as 4.2. It is indicated that the capital adequacy ratio can be deviate from the mean to both sides by 4.2.

When considering the Liquid Assets to Total Assets Ratio, the mean of this ratio is 24.9 and it represents a good liquid assets to total assets is maintained by Sri Lankan commercial banks. The standard deviation is stated as 6.6. It indicates that the value of the Liquid Assets to total assets ratio can be deviated from the mean value by 6.6 and it represents a low deviation from the mean value.

The equity to total assets ratio showed as a highlighted factor, that the standard deviation is higher than the mean value. That means, the mean value is deviated by 0.3 and it represents more deviation than the mean value. The minimum value of ETA is stated as 0.1 while the maximum value is representing as 1.5. Then the mean value is stated as 0.2.The number of deposits showed a mean value of 5.1. Each bank has good deposits amount. The standard deviation is indicated that the value of the number of deposits can be deviated to both sides by 1.4.

Pearson Product Movement Correlation

The correlation analysis is conducted to determine the relationship between different variables and also it indicates the numerical measure of strength in the linear relationship between two variables.

Table 2: Correlation Matrix

	ROA	CR	CAR	LATA	ETA
CR	0.4455				
	0.0000				
CAR	-0.1584	-0.0641			
	0.0985	0.5069			
LATA	-0.0134	-0.1226	0.1385		
	0.8893	0.2020	0.1489		
ETA	-0.1179	0.0343	0.0388	-0.0736	
	0.2197	0.7223	0.6876	0.4447	
LNND	-0.0984	0.1385	-0.4525	0.0680	-0.0010
	0.3063	0.1491	0.0000	0.4802	0.9920

Source: STATA Output

Table 2 presents the correlation coefficients for all the variables mentioned related to liquidity risk and profitability. Since the p value of Pearson correlation coefficient is 0.0000 which is less than critical p value (0.05), there are enough evidence to reject H_0 (H_0 = There is no significant association between variables, H_1: There is a significant association between variables. It can be concluded with 95% confidence level that there is a significant association between ROA and CR. Furthermore, according to Pearson correlation 0.4455, it can be concluded that there is a low degree of positive correlation between ROA and CR. Pearson correlation coefficient between ROA & CAR, LATA, ETA and LNND are insignificant. Association between independent variables is also considered. Other than the association between CAR and LNND, all the relationships are insignificant.

Panel regression method

Table 5: Regression Output

	OLS Output			FE model Output			RE model Output		
ROA	**Coef.**	**Std. Er.**	**P**	**Coef.**	**Std. Er.**	**P**	**Coef.**	**Std. Er.**	**P**
CR	0.5597	0.0966	**0.000**	0.4726	0.1030	**0.000**	0.5047	0.0976	**0.000**
CAR	-0.056	0.0197	**0.005**	-0.0331	0.2419	0.175	-0.0394	0.0218	0.071
LATA	0.0128	0.0115	0.268	0.0187	0.0104	0.076	0.0142	0.0103	0.096
ETA	-0.322	0.2263	0.157	0.2317	0.3549	0.516	-0.0188	0.2904	0.948
LNND	-0.186	0.5971	**0.002**	-0.1976	0.8929	**0.029**	-0.1803	0.0739	**0.015**
Cons	2.6495	0.5505	0.000						
	Prob > F = 0.0000			Prob > chi^2 = 0.0000			Prob > chi^2 = 0.0000		
	R-sq: = 0.299			R-sq: between = 0.248			R-sq: between = 0.404		
				F = 4.5			$Chibar^2$ = 20.55		
				Prob > F = 0.0000			Prob > $chibar^2$ = 0.0000		

Source: STATA Output

According to the table 5, Pooled OLS is significant and ability to influence the (ROA) profitability of the bank is (Prob > F = 0.0000). According to the results, current ratio and liquid assets to total assets ratio have a positive coefficient with ROA, under the pooled OLS model. As well as capital adequacy ratio, equity to total assets and number of deposits have a negative coefficient with ROA.

The fixed effect model is significant and the ability to influence the profitability of the bank is (Prob > F 0.0000). Furthermore, the researcher has considered the R^2 value. The value of R^2 in fixed effect model is 0.248. The R^2 value has been used to determine the amount of variance in the dependent variable which is explained by all the variables in the formula. The F test is used often when statistical model which has been fitted to a data set are comparing, with the purpose of identifying the model which is the best fitted to the population where the sample is taken. In the above test already the fixed effect model is better than the pooled OLS model. Prob > F is 0.0000. Therefore, the fixed effect model is selected as it is better than the OLS for return on assets.

FE explores the relationship between predictor and outcome variables within a bank. Each bank has its own individual characteristics that may or may not influence the predictor variables. When using FE, we assume that something within the individual may impact or bias the predictor or outcome variables and we need to control this. This is the rationale behind the assumption of the correlation between entity's error term and predictor variables. FE removes the effect of those time-invariant characteristics so that we can assess the net effect of the predictors on the outcome variable. Based on that information fixed effect model is fitted better than the OLS.

Random effect model is significant and has the ability to influence the profitability of the bank. Furthermore, the researcher considers the R^2 value. Value of R^2 in random effect model is 0.404. It denotes a higher value than R-squared in fixed effect model. Therefore, it can be argued that the best model among OLS and random effect model is random effect model.

Breusch and Pegan's Lagrange Multiplier (LM) test is used to select the most fitted model among OLS and random effect model. Null hypothesis of the LM test is the Pooled OLS model which is not appropriate and alternative hypothesis is the random effect model which is appropriate. Since the Prob> $chibar^2$ = 0.0000, obtained from LM test is less than 0.05

is rejected the null hypothesis of random effect model is not appropriate while accepting the alternative hypothesis of random effect model is appropriate.

To identify the most suitable model between random effect model and fixed effect model, Hausman test is used. According to the results of Hausman test, random effect model is the most fitted model because the p value of chi^2 is higher than 0.05 ($Prob>chi^2 = 0.9909$).

The equation for the random effects model becomes:

$Y_{it} = \beta_1 X_{it} + \alpha_i + u_{it}$

$ROA_{it} = \alpha_i + \beta_1 CR_{it} - \beta_2 LNND_{it} + u_{it} + \varepsilon_{it}$

The result of random effect model as presented in table 5, the study proves that the current ratio significantly impacts on bank profitability with 0.5047 coefficient. This results support to conclude that, CR has significant positive impact on bank profitability with ROA. Nevertheless, CAR, LATA, ETA showed as influential variables when determining the bank profitability. ROA and LNND have a significant negative impact with the bank profitability. The p value is 0.015 which is also less than the recommended level of 0.05, hence, it is able to express that the number of deposits impact on the bank profitability.

P value of the capital adequacy ratio is 0.071 which indicates that CAR does not impact on ROA of commercial banks in Sri Lanka. The liquid assets to total assets ratio with 0.096 significant level which is greater than 0.05. There is an insignificant impact caused with ROA. The p value of equity to total assets ratio is 0.948 since the p-value of ETA is higher than 0.05, there is no any impact between ETA and ROA

5. Discussion

It is focused on the outcome of the research in more critical way by discussing the original aims of the research in combination with the past researches which have tested the similar type of relationships of profitability with different variables. In addition to that, the explanations on implications on the significant values and insignificant values of research outcome will be elaborated based on the research outcome and information on empirical evidence of the prior researches. The result of panel data regression analysis implies that there is a significant positive relationship between current ratio and profitability of banks. This means that the higher the ratio of liquidity risk, higher the profitability position in the bank. The parameter value indicates that 1% increase in current ratio increases ROA by

0.5047%. And also there is a significant negative relationship between the number of deposits and profitability of banks. This means that the higher the amount of deposits handle by banks, lower the profitability position in the bank. The parameter value indicates that 1% increase in number of deposits decreases ROA by 0.1803%.

Liquidity risk is considered as an important financial stability indicator (Lamburg & Valming, 2009). If it happens any liquidity shortfall in one bank, it may influence to a systematic crisis in the whole banking industry due to the interconnected network of all the banks in an economy (Shen, Chen, Kao, & Yeh, 2018). The liquidity risk for commercial banks in Kenya was significant and this could be attributed to increase in liquidity of commercial banks in Kenya as per the Central Bank regulations (Maniagi, *et al*, 2017). The results of the article of Liquidity risk and performance of banking system of Arif, & Anees (2012) show a significant relationship between Liquidity risk and the Bank profitability. The other study of Shen, *et al.* (2018) represented that liquidity risk as an endogenous determinant of bank performance. They express the components of the liquidity risk like liquid assets and dependence on external funding, supervisory and regulatory factors and macroeconomic factors. Besides, they also found that liquidity risk may lower the bank return on assets and return on equity. Maaka (2013) investigated the relationship between liquidity risk and financial performances of commercial banks in Kenya in his unpublished thesis by using panel data of 33 Kenyan banks for the period 2008 to 2012, the results had significant negative results to performance. In a similar research done in Kenya by Mwangi (2014) for the period 2010 to 2013 and selected 43 commercial banks found that the asset quality and banks to total Assets as proxies of liquidity were negatively correlated to performance at 99% confidence level. However findings of Maniagi, Clive, Mbithi, & Tobias (2017) showed positive and significant relationship with bank performance.

The results that are reported by Marozva (2015) in his article, showed a significant negative relationship between net interest margin and funding liquidity risk. On the other findings interpreted, there are insignificant relationships between net interest margin and market liquidity by Maudos and Solis (2009).

Finally, this study showed only two significant variables with return on assets of banks. Rest of the three variables are insignificant with the dependent variable. Thus, as a conclusion, it is found that there is no significant impact among ROA and the liquidity risk. The liquidity risk may not highly influence on the bank profitability.

6. Conclusion

The concept of liquidity risk management is a very important factor that banks have to pay prioritized concern for daily the operations of the banks. But still the banking sector do not pay a considerable attention to avoid the liquidity risk. All the financial institutions and banks try to earn more profit taking a higher risk. However, the findings of the empirical studies have generated varying evidences that will lead this topic to a debatable condition. Majority of the researches have been carried out in the developed countries and when it comes to the Sri Lankan context, there is a huge necessity for doing this type of researches as well as it is very important to minimize the future liquidity problems.

With the statistical evidence, the paper shows that there is a relationship between return on assets and other independent variables such current ratio, liquid assets to total assets ratio and equity to total assets ratio have positive relationship. The model, which was estimated for the period of 2009 to 2018, explained ROA and the other independent variables with the 95% of confident level. The main objective of the research is to investigate the influence of liquidity risk on commercial banks' profitability in Sri Lanka & to discover the highly impacted factor on liquidity risk. According to the findings of specification tests, random effect model is selected as the best fitted model in ROA among the three models of pooled OLS, fixed effect model and random effect model. To achieve the objective of the study, a panel data regression analysis was conducted. According to the analysis, current ratio and ROA has a significant positive relationship while the number of deposits and ROA has a significant negative relationship. As well as, capital adequacy ratio, equity to total assets ratio and liquid assets to total assets ratio have an insignificant relationship with ROA

If a bank can minimize its liquidity risk, it can lead to superior profits and also it will be a competitive advantage to survive in the industry. As the above study has identified the current ratio and deposits have significant influence on the profitability of the banking sector, the banks should consider the following matters in order to minimize the liquidity risk. For managing the liquidity risk, banks must monitor the various liquidity ratios or

triggers like stress testing to gauge the capacity to handle liquidity shocks and monitoring of the liquidity ratios prescribed under Basel III and internal prudential ratios implemented by the top management of the bank.

Running an Assets and Liabilities Committee (ALCO) in the bank will help to monitor the funding and fulfill the liquidity requirement by pricing of assets and liabilities. Furthermore, ALCO is entrusted with the responsibility of managing the bank's balance sheet within the performance and risk parameters defined by the Board of Directors. Thus, the bank can implement Board-approved liquidity management policies regularly and review the liquidity, pricing of assets and liability products, cash flow and asset liability maturity mismatches within the bank through ALCO.

Another proper way to minimize the liquidity risk is involving in an intra-day liquidity management system. Fewest of the banks already follow this system. From that, the bank can manage the funding sources and evaluation of structural imbalances in the balance sheet. A large customer deposits base, along with a strong capital base provides strength and support for the maintenance of a strong liquidity position. Further, the banks have to follow fully implemented BASEL III required liquidity standards and maintain liquidity ratios. Liquidity Coverage Ratio (LCR), Net Stable Funding Ratio (NSFR) with a considerable cushion over and above the regulatory requirement are needed to mitigate the liquidity risk. Also the Bank can conduct regular stress tests or scenario analysis to measure the impact on liquidity due to adverse movements in the bank's cash flow.

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