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ANALYZING FINANCIAL PERFORMANCE OF
SELECTED BANKS IN MYANMAR
(CAMEL APPROACH)

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**ANALYZING FINANCIAL PERFORMANCE OF
SELECTED BANKS IN MYANMAR
(CAMEL APPROACH)**

**This thesis is submitted to the Board of Examiners in partial fulfillment of the
requirements for the degree of Master of Accounting and Finance**

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ABSTRACT

This thesis analyzes the impact of CAMEL factors on firm's financial performance of selected banks in Myanmar. The study uses two financial performance measures including Return on asset (ROA) and Return on equity (ROE) as dependent variables and CAMEL factors components measures including Capital adequacy, Asset quality, Management efficiency, Earnings and Liquidity as independent variables. The sample of this study consists of five banks. There are two listed banks (FPB and MCB) and three unlisted banks (AYA, UAB and AGD) on the basis of availability of information necessary for conducting the study and the readiness of annual financial reports for the period 6 years from 2013-2018. The objectives of the study therefore, are to determine the Ordinary Least Squares (OLS) and Panel Data Regression Analyze on Bank Efficiency, to evaluate the CAMEL factors impact on firm performance of bank efficiency. The study employed Correlation, Panel Data Regression with Pooled, Fixed Effect and Random Effect Regression, Breusch and Pagan LM Test.

Our findings suggest that the association with between the selected CAMEL model variable to profitability measures of Return on asset (ROA) and Management efficiency (ME) have negative relation and positive relation with Capital adequacy ratio (CA), Asset quality ratio (AQ), Earnings ratio (ER) and Liquidity ratio (LR). This indicates that Management efficiency (ME) ratio has inverse relation with the ROA. Addition, the association with between the selected CAMEL model variable to profitability measures of Return on equity (ROE) Capital adequacy ratio (CA), Asset quality ratio (AQ), Management efficiency ratio (ME), Earnings ratio (ER) and Liquidity ratio (LR) have negative relation with the Return on equity of the commercial banks and there is no positive relation with the ROE. This indicates that Capital adequacy ratio (CA), Asset quality ratio (AQ), Management efficiency ratio (ME), Earnings ratio (ER) and Liquidity ratio (LR) have inverse relation with the ROE. The study recommends that the banks should strive to be more efficient meaning that banks should also strive to initiate the best management quality available and pay them well as the people who determine its operation through decisions, ensure the bank's smooth business, handles risks and exercises control. The selected banks should develop new strategies to achieve more of equity and retained earnings to maximize their financial performance.

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CONTENTS

	Page No.
Abstract	i
Acknowledgements	ii
Contents	iii
List of Tables	v
List of Figure	vi
List of Abbreviations	vii
Chapter 1 Introduction	
1.1 Rationale of the Study	2
1.2 Problem Statement of the Study	3
1.3 Objectives of the Study	3
1.4 Research Question	3
1.5 Methods of Study	4
1.6 Scope and Limitations of the Study	4
1.7 Organization of the Study	4
Chapter 2 Literature Review	
2.1 Measurements of Financial Performance	5
2.2 Capital Structure Theories	8
2.3 Definition of Financial Performance	12
2.4 Effects of CAMEL on Financial Performance	13
2.5 CAMEL Framework and Major Ratios	16
2.6 CAMEL Provisions in Myanmar	18
2.7 Empirical Literature (CAMEL and Financial Performance)	19
2.8 The Risk Management Process	22
2.9 Conceptual Framework	24
Chapter 3 Profile of Selected Banks in Myanmar	
3.1 Overview of Banking Industry in Myanmar	25
3.2 Target Population	27
3.3 First Private Bank (FPB)	27
3.4 Myanmar Citizen Bank (MCB)	28
3.5 Ayeyarwady Bank (AYA)	29
3.6 United Amara Bank (UAB)	30

3.7	Asia Green Development Bank (AGD)	31
Chapter 4	Analysis of CAMEL Factors and Firm Performance of the Selected Banks in Myanmar	
4.1	Research Design and Methodology	32
4.2	Data Collection	33
4.3	Profitability Measures	34
4.4	Panel Data Model	35
4.5	Description and Measurement of Variables	36
4.6	Analysis of Correlation between CAMEL Factors and Firm Performance	39
4.7	Analysis of Regression between CAMEL Factors and Firm Performance	41
4.8	Panel Data Analysis: Fixed and Random Effect Model	44
4.9	Regression Analysis (Hausman Specification Test)	46
Chapter 5	Conclusion	
5.1	Findings and Discussion	50
5.2	Suggestions and Recommendations	52
5.3	Needs for Further Study	54
	References	
	Appendices	

LIST OF TABLES

Table No.	Description	PageNo.
Table (3.1)	Target Population	27
Table (4.1)	Pearson Correlation Matrix for ROA	40
Table (4.2)	Pearson Correlation Matrix for ROE	40
Table (4.3)	OLS Regression for ROA	42
Table (4.4)	OLS Regression for ROE	43
Table (4.5)	Return on assets with all the independent variables	46
Table (4.6)	Return on equity with all the independent variables	48
Table (4.7)	Breusch and Pagan LM Test (ROA)	49
Table (4.8)	Breusch and Pagan LM Test (ROE)	50

LIST OF FIGURE

Figure No.	Description	Page No.
Figure (2.1)	Conceptual Framework of the CAMEL factors and Bank Performance	24

LIST OF ABBREVIATIONS

AGD	Asia Green Development Bank
AYA	Ayeyarwady Bank
CAMEL	Capital Adequacy, Asset Quality, Management efficiency, Earnings and Liquidity
CBM	Central Bank of Myanmar
EBIT	Earnings Before Interest and Tax
ER	Efficiency Ratio
FPB	First Private Bank
MCB	Myanmar Citizens Bank
ML/TF	Money Laundering/Terrorism Financing
MM	Modigliani and Miller
MMK	Myanmar Kyat
NPA	Non-Performing Assets
ROA	Return on Assets
ROE	Return on Equity
TRWA	Total Risk Weighted Assets
UAB	United Amara Bank
WACC	Weighted Average Cost of Capital
YSX	Yangon Stock Exchange

CHAPTER 1

INTRODUCTION

The Financial sector of an economy plays a crucial role in its economic outgrowth and well-being of the country. The banking system performs as the backbone of the financial sector that accumulates saving from surplus economic units such as deposits and provides it to deficit economic sectors like advances. When banks are at the guts of economic recession or banks are the explanation for the financial crisis just like the recent past financial crisis 2007-2009, it makes the worst condition for economic recovery. Thus, it's of a powerful moment to observe the performance of the banks and their submission with the regulatory requirements.

Myanmar had a vibrant banking sector before 1962. At that point, there have been 14 foreign banks, 10 privately-run local banks and a state-owned bank that supported the country's business. Nationalization of the banks stifled the event of the world. After 2011, this type of service business has been promoted within the country. The govt has prioritized reform of this sector. The govt amended existing financial laws and enacted new laws including the Foreign Exchange Management Law and therefore the Financial Institutions Law. The many thing is that the Central Bank became an independent financial institution after enacting the new Central Bank of Myanmar Law.

Central Bank of Myanmar can fix foreign currency exchange rates and therefore the CBM reduced restrictions for private banks. It's hard to compete with foreign banks within the country even though the country developed strong financial laws for the world. Banking benefits including mobile banking, ATMs and other card systems are available but 50 years late. It's hard to be a strong sector within a short period. The foreign bank couldn't enter without benefits. Myanmar, because the last frontier economy, has great opportunities for investment and growth. As a developing nation, there are many needs in every sector. The country receives financial assistance from the World Bank and the Asia Development Bank also as other financial institutions. The financial sector will promote the country's business. There's fit evidence that a strong financial sector will improve the economy of neighboring China. The CBM plays a crucial role in regulating foreign banks. Currently, CBM plays a crucial role in regulating foreign banks. Currently, CBM is weak in technology and human resources. It must develop its data infrastructures.

The perpetual of the financial sector is of superior significance for the welfare of a country and its human. Myanmar practiced a severe banking crisis in 2003 when a bank

runs on private banks led to the breakdown of three major financial institutions and final resulted in economic trouble for the entire country. Since 2003 banking crisis, Myanmar's juridical framework for governing the financial sector has been undergoing onerous reforms to bring the country's banks closer to internationally agree standards of operation and arrange the country for ASEAB integration.

Modern reforms have forward-looking financial-sector development in Myanmar, but features of the regulatory environment still don't adapt to international best practices. Several current administrative controls likely hinder the banking sector from expanding access to credit and other financial services in Myanmar, while doing little to scale back the banking system's vulnerability to shocks. The foremost distinctive of those restrictions is that the current rate of interest rate policy, whereby the CBM sets a hard and fast banks width for deposit and lending rates supported the CBM reference rate. The existence of less efficiency and tiny & insufficient competition within the country's banking system may be a clear indicator of relatively poor performance of the world compared to the developed world financial institutions. Thus, it's integral part to evaluate the banks performance for an efficient management of banking operations also on make sure the financial soundness of the banking system.

The purpose of this paper is to assess the performance of Selected Banks using CAMEL model. This model is that the supervisory and regulatory system. There are five crucial components of a bank when it evaluates performance of the bank. These components are Capital, Assets, Management, Earning and Liquidity.

1.1 Rational of the Study

Banks perform as backbone to the financial sector, which facilitate the proper utilization of financial resources of a rustic. The banking system is increasingly growing and it has witnessed a huge flow of investment additionally to easily being concerned within the financial intermediation functions, banks are operating during a rapidly innovating industry like creating more specialized financial services to raised satisfy the changing needs of their customers. And then, to develop the country's banking industry, the world needs government support and to match with the foreign banks' financial performance.

Otherwise, to assess determinants of bank performance based on the CAMEL model and provides important insight to banking industry's supervisors as well as managers of Selected Bank in Myanmar. It also shades light about the importance of

CAMEL Model to risk managers and others who are interested to research the performance of the banks.

1.2 Problem Statement of the Study

Myanmar remains a predominantly cash-based economy. The memory of the 2003 banking crisis remains strong, and there's a scarcity of charitable trust within the banking industry as an entire. There is a drag for financial managers to make a decision how best to finance their firms in order to maximize profits. This problem could outcome in businesses becoming bankrupt or losing out on opportunities because they need either taken on an excessive amount of debt or insufficient debt. When the Myanmar banking financial performances compare with foreign banking financial performances, Myanmar banking financial performances should be better performances than another foreign banking system.

So, there is no evidence that can prove the client's trust on the banking in Myanmar. For these causes, banking regulation has remained somewhat onerous handed. The economic system enables an economy to be more productive because it allows investors with few resources to use savings from those with few prospects of investing. Thus, a well-functioning financial performance system is significantly important for economic process.

Today, achieving these intents in Myanmar would claim making gradual, steady and transparent reforms to the present financial system to proceed the failings of the paste, address the sector's weaknesses and response on its strengths.

1.3 Objectives of the Study

The general objective of this study is to analyze the factor effect of a CAMEL Model and Financial Performance of Selected Banks as well as the ratios derived from the numerous components of the CAMEL Framework.

The specific objectives of this study are

- To determine the Ordinary Least Squares (OLS) and Panel Data Regression Analyze on Bank Efficiency
- To evaluate CAMEL factors are impact on firm performance of bank efficiency

1.4 Research Question

How do the CAMEL factors impact on financial performance of Selected Banks?

1.5 Methods of Study

CAMEL may be a ratio-based model used to evaluate the performance of banks with the help of different criteria, viz. “Capital Adequacy”, “Asset Quality”, “Management Quality”, “Earnings and Liquidity”. The present study is a panel data regression, fixed effect and random effect and ordinary least square method supported analytical research design.

The study is often considered as a desk research as it has made an in-depth search on existing literature and up to date and relevant researches published domestic and international journals. The study has relied basically on secondary data and historical data from the website, audited and unaudited financial reports.

1.6 Scope and Limitations of the Study

This study is said to select only Two Listed Banks and Three Non-Listed Banks. The scope of the study is limited to Selected Banks established in Myanmar. The study has taken in to account the performance of the banks for the amount starting from 2013 to 2018. It includes the 2 listed banks such as First Private Bank and Myanmar Citizens Bank and three unlisted banks such as Ayeyarwady Bank, United Amara Bank and Asia Green Development Bank. The quality of this research depends on quality and reliability of data disclosed in annual reports of banks. There are various methods to measure the profitability of the banks. The lay out study is largely based on ratio analysis. The limitation is that this study does not cover all performance indicators, it uses only accounting performance. There was also a problem of time constraint whereby the time required analyzing the data needs to be created to ensure that one is able to carry out an efficient study.

1.7 Organization of the Study

This study is organized into five chapters. Chapter one presents introductions of the study. The literature reviews a part of the study is presented in chapter two. The literature review includes the theoretical background in its first section which is followed by the review of previous studies. Chapter three presents the research design

and methodology and analyzing financial performance of selected banks in Myanmar are presented in chapter four. Finally, chapter five presents summary, conclusion and recommendation of the study.

CHAPTER 2

LITERATURE REVIEW

The literature surrounding the study of bank performance has been conducted within the context of various theories and models. Firstly, review the literature and therefore the debate round the theories and models that are wont to study bank performance. Secondly, literature on; Capital adequacy, Asset quality, Management efficiency, Earnings Performance and Liquidity as outlined under the CAMEL framework and the way they're measured, their effect on the performance of banks are going to be reviewed and discussed.

2.1 Measurements of Financial Performance

A financial system is of fundamental importance within the economic development of a rustic because it provides help in mobilization of funds. Monetary system works as the backbone of a nation and is a catalyst within the enhancement of the performance of financial institutions (Khan et al., 2014). Financial measures were based upon two indicators total asset and total equity during this study. Financial ratios included Return on Assets ratio, Return on Equity ratio, Admin Expenses to Profit before Tax Ratio, Cash and Cash Equivalent to Total Assets Ratio, and capital ratio.

There are various ratios want to measure financial performance namely the Asset ratios- Return on Assets, Operating Ratios- Return on Income (ROI) and operating Equity – Return on Equity, (Ikhide 2000). Regarding that earnings and profitability factors, (Sahajwala and Bergh, 2000) include aspects like: Return on assets compared to see group averages and therefore the bank's own trends, material components and income and expenses – compared to peers and therefore the bank's own trends, adequacy of provisions for loan losses, quality of earnings, and dividend payout ratio in reference to the adequacy of bank capital.

Return on Income (ROI)

$$\text{Return on Asset (ROI)} = \frac{\text{Net Profit}}{\text{Cost of Investment}} * 100$$

Return on Asset (ROA)

$$\text{Return on Asset (ROA)} = \frac{\text{Net Profit After Tax}}{\text{Total Asset}}$$

Return on Equity (ROE)

$$\text{Return on Equity (ROE)} = \frac{\text{Net Profit After Tax}}{\text{Total Equity Capital}}$$

2.1.1 Equity Financing

Equity is grander than debt, especially when interest rates are low. However, unlike debt, equity doesn't get to be paid back if earnings decline. On the opposite hand, equity represents a claim on the longer-term earnings of the company as a part owner. In these components of capital structure, equity share capital indicates the ownership of the company. It's the permanent capital and can't be withdrawn during the lifetime of the company. Owners are the important risk investors, but they also enjoy rewards. Their liability is restricted to their capital contributed.

Equity shares are very common among the investing class. With equity financing via common stock shares, you'll decrease or increase your ownership percentage in your company through the sale or purchase of common shares from one or more individuals or entities in exchange for a specified amount of cash. The common share represents the quantity that each one common shareholder has invested during a company. Capital consists of two types: (1) Contributed capital, which is that the money that was originally invested within the business in exchange for shares of stock or ownership and (2) Retain earnings, which represent profits from past years that are kept by the company and want to strengthen the balance sheet record or fund growth.

If a firm doesn't use debt financing, it's mentioned as an unlevered firm. This is often mentioned to as business risk which is defined as the risk a firm's common stockholders would face if the firm had no debt. In other words, it's the risk inherent within the firm's operations, which arises from uncertainty about future operating profits and capital requirements. If a firm doesn't apply debt then its return on invested capital shall be measured by Return on Equity. This simply means the business risk of a leverage free firm are going to be measured by the standard deviation of its ROE.

2.1.2 Debt Financing

Debt has lower cost than equity, expects a lower rate of return than equity and contains restrictions on operational flexibility. Companies can raise capital by using debt financing within the capital markets. Companies enjoy issuing debt due to the tax advantages. Interest payments are tax deductible. Debt also allows a

company/corporation or business to retain ownership, unlike equity. Additionally, debt is abundant and straightforward to access at the lower rate of interest.

In components of capital structure, debenture capital may be a part of borrowed capital; the creditors of the company are the debenture holders. Differing types of debentures are issued for the convenience of investors. Also, organizations can get long-term and medium-term loans from banks and financial institutions. Public Deposits are often used as debt finance; public deposit means any money received by a non-banking company by way of deposit or loan from the general public, including employees, customers and shareholders of the company aside from within the sort of shares and debentures.

When a firm decides to use debt financing for its operations, it's faced with a financial risk and it's mentioned to as a levered firm. Also, the financial risk arises because debt features a fixed financing obligation usually within the sort of interest which must be met when the requirement falls due before the shareholders can share within the retained earnings. The degree of debt is suitable for one industry or line of business are often highly risky in another, because different industries and features of business have different operating characteristics.

2.1.3 Asset Financing

Asset Financing means as a practice of using the company's assets like machinery, inventory, buildings, short term investments, account receivable, etc. because the security to require a loan or borrow money – the borrower provides an interest in the assets to the lender. This differs from traditional financing methods, like issuing debt or equity securities, because the company simply pledges a number of its assets in exchange for a fast cash loan. It's the loan taken by the companies on the basis of the financial strength of the company. It provides a simple and secure way of bringing the working capital for the business.

Asset-backed securities (ABS) are bonds backed by the income of a spread of pooled receivables or loans. ABS are often securities backed by any sort of asset with a linked cash flow, but are generally securities collateralized by certain sorts of consumer and business loans as against mortgage-backed securities, which are backed by mortgages. Fixed asset financing mentions to the financing for real estate and equipment needs of a business. The foremost common apply of asset financing includes

the pledging of trade receivables, since receivables are more easily convertible into cash. Inventory isn't as liquid an asset, so lenders are less willing to simply accept it as collateral. Smaller companies and startup businesses are the foremost common users of asset financing, because they're not yet in a position to qualify for longer-term debt that features a lower interest rate of interest related to it. A specific advantage of asset financing is that it is often used to obtain cash from a lender relatively quickly.

2.2 Capital Structure Theories

Below the most theories concerning capital structure are going to be explained. Firstly, "M & M theory", "trade-off theory", "static trade-off theory", "pecking order theory" and finally "market timing theory".

2.2.1 Modigliani and Miller Theory (M&M)

The capital structure of irrelevance theory, which has been published in this famous article in 1958 was introduced by Merton Miller and Franco Modigliani and this theory was the primary breakthrough concerning the subject of the impact of capital structure on firm financial performance. At the start, as Modigliani and Miller stated that the capital structure is irrelevant to the firm financial performance, if there have been competitive markets, which suggests that there's no significant relationship between capital structure and firm financial performance. Similarly, the company's value doesn't influence by capital structure of the firm. The effect of transaction cost, taxes and inflation that connected with increasing funds or the probability of company going bankrupt exclude within the Miller and Modigliani (1958) supposition of a fully competitive markets.

After various critiques to Miller and Modigliani theory, they issued a change to their first theory and in their revised proposal tax advantage was included as capital structure delimiters. The more crucial feature for taxes is that the disclosure that interest may be a tax-free expense. As stated by Miller and Modigliani a firm which pays its tax commitments can gain from interest because interest may be a tax-free expense, which leads firms to pay less taxes. Hence, they keen out that firms can expand their performance and value by using more debt to profit from interest because interest is tax-free expenses. Consequently, using on more leverage is useful for firms.

Modigliani and Miller (1963) displayed that company performance and its value is a growing function of leverage due to interest payments is that the tax

deductible at the companies' level. In the real-world market is ineffective, due to the agency costs, transaction costs, tax, asymmetric information and costs of monetary distress and the other incomplete components. When taking in consideration that markets are inefficient within the real world, the Modigliani and Miller theorem features a tendency to lose main a part of its clarifying power. Their theory has been criticized an excessive amount of due to some weak points and its irrelevant hypothesizes of the truth, but it still supplies the idea for several other theorems proposed by many researchers.

2.2.2 The Trade-off Theory and Financial Distress Costs

The results of MM depend upon the statement that there are no any bankruptcy costs. However, bankruptcy is often quite costly. Firms in bankruptcy have very high legal and accounting expense, and that they even have a tough time retaining customers, suppliers, and employees. Moreover, bankruptcy often forces a firm to liquidate or sell assets for fewer than they might be worth if the firm were to continue operating. Therefore, significant employees jump ship, suppliers waste to grant credit, customers try to find more stable suppliers, and lenders demand higher the rate of interest and enforce more restrictive loan covenants if potential bankruptcy looms as Ehrhardt & Brigham (2011). Bankruptcy-related problems are presumably to arise when a firm includes an excellent deal of debt in its capital structure. So, bankruptcy costs depress firms from pushing their utilize of debt to excessive levels.

As capital structure was defined as mixture of debt and equity, firm hope to succeed in the optimal capital structure with lowest WACC and highest firm value, the tradeoff theory tries to elucidate levels so there's a balance between the advantages from their tax shield and their financial distress costs Malm & Roslund (2013). Consistent with the idea, the optimal capital structure is reached when this value of the tax shield is simply offset by this value of the financial distress costs.

According to the trade-off models, the optimal capital structure does exist. A firm is considered setting a target debt level and gradually moving towards it. The firm's optimal capital structure will involve the tradeoff among the effect of corporate and private taxes, bankruptcy costs and agency costs. Bankruptcy-related cost was divided for 2 components by Ehrhardt & Brigham (2011); (1) the probability of monetary distress and (2) the costs that might be incurred if financial distress does occur.

Main focus of a firm is to substitute debt for equity, the other way around so as to seek out optimal debt ratio and maximize value of the firm. Hence, trade-off theory is often summarized as balancing the various benefits and costs related to debt financing to possess optimal capital structure. Debt also has disciplining role due to reduction in free cash flow (Gansuwan & Onel, 2012). Tax buffer is also crucial point of the theory. Firms can deduct interest payment of debt from tax, because of a result net income of the firms rise. So as to maximize tax shield, firms may choose higher debt levels. Consistent with Niu (2008), the trade-off theory predicts that firm profitability is enhanced by maximizing the advantages of the tax shield offered by debt.

It's interesting to notice that as years go by other researchers are continuing to use the MM theory as a base to launch further analysis – with some not even believing with the applicability of the propositions under current global economic conditions. In their sight, the theory suggests that highly profitable firms should have higher debt levels so as to guard the profits from tax – a fact that they observe is not stayed by empirical evidence. An extension to this point provided by (Gangeni, 2006) in his study, there's a limit to what the firm can borrow because the actual cost of debt refers to lower profitability of the firm- successively reducing the effectiveness of the tax shield.

2.2.3 Static Trade-off Theory

The static trade-off theory may be a financial theory supported the work of economists Modigliani and Miller. With the static trade-off theory, and then a company's debt payments are tax deductible and there's less risk includes in removing debt over equity, debt financing is initially inexpensive than equity financing. This suggests a corporation can lower its weighted average cost of capital (WACC) through a capital structure with debt over equity. However, increasing the quantity of debt also raise the risk to a company, somewhat offsetting the decrease in the WACC. So, the static trade-off theory categorizes a mixture of debt and equity where the decreasing WACC offsets the increasing financial risk to a corporation.

The static trade-off theory support that firms have optimal capital structures, which they determine by trading off the prices against the advantages of the utilization of debt and equity. One among the advantages of the utilization of debt is that the advantage of a debt tax shield. One among the disadvantages of debt is that the cost of potential financial distress, especially when the firm relies on an excessive amount of debt. Already, this results in a trade-off between the tax break and therefore the

disadvantage of upper risk of monetary distress. But there are more cost and benefits involved with the utilization of debt and equity.

2.2.4 Pecking Order Theory – Hierarchy of Financing Alternatives

In finance, the hierarchy theory postulates that the value of financing increases with asymmetric information. Financing derives from three sources, internal funds, debt and new equity. Companies arrange their sources of financing, first preferring internal financing, and then debt, lastly raising equity because a “last resort”. In this theory keeps that companies adhere to a hierarchy of the financing sources and choose internal financing when available, and debt is preferred over equity if external financing is essential (equity would mean issuing shares which meant ‘bringing external ownership’ into the company). Thus, the shape of debt a firm chooses can act a sign of its need for external finance. The pecking order theory is popularized by Myers and Majluf (1984) where they claim that equity may be a less preferred means to raise capital because when managers (who are assumed to understand better about true condition of the firm than investors) issue new equity investors believe that managers think that the firm is overvalued and managers are taking advantage of this over-valuation. Because of a result, investors will place a fewer value to the new equity issuance.

The rational idea behind the idea is predicated on the notion of asymmetric information that exists between managers and therefore the investors (Frank and Goyal, 2009; Baker and Marting, 2011). It’s argued that managers have a far better understanding and more information about the firm than outsiders about the firm’s future and thus they act within the best interest of the corporate (Harrison and Wisnu Widjaja, 2014; Boadi et al., 2015).

Pecking order theory adopts that this is the suitable method for firms to behave since if they issue equity to finance their operations, it signals to the outsiders that the company is lack of capital, which can result in falling stock price. In detail, empirical evidence shows that there’s a relation between issuing new equity and decrease in stock price (Baker and Martin, 2011). However, when external financing is necessary, the theory emphasizes that the choice of different finance opportunities rely heavily on the relative costs and the lowest risk for the investment (Myers, 1984; Boadi et al., 2015). As such, firms issue debt as a primary option and then equity as a final (Mysers, 1984; Graham and Harvey, 2001).

2.2.5 Market Timing Theory – Adapt to Current Market Conditions

Market timing is that the act of occupation and out of the market or switching between asset classes supported using predictive methods like technical indicators or economic data. Because it's extremely difficult to forecast the longer-term direction of the stock exchange market, especially mutual fund investors, be liable to underperform investors who remain invested. A denotation of the Signaling theory suggests that managers will utilize equity finance once they believe it's overvalued and utilize debt when they believe equity is undervalued. This's often supported that they the evidence that they have information that the firm is positioned to get better performance within the future than the market currently believes.

In finance, consistent with Baker & Wurgler (2002), equity market timing denotes to the practice of issuing shares at high prices and repurchasing at low prices. The intention is to take advantage of temporary fluctuations within the cost of equity relative to the cost of other sorts of capital. Within the efficient and integrated capital markets studied by MM (1958), the costs of various sorts of capital do not vary independently, so there's no gain from opportunistically switching between equity and debt. In capital markets that are ineffective or portion, against this, market timing benefits ongoing shareholders at the expense of entering and exiting ones. Managers thus have incentives to time the market if they think it's possible and if they care more about ongoing shareholders.

According to Al-Tally (2014), the market timing theory proposes that managers, counting on their meaning of firm value, tend to issue equity once they feel that the market overvalues their company. Market timing is usually classified as a part of the behavioral finance literature, because it doesn't explain why there would be any asset mispricing, or why firms would be better ready to tell when there was mispricing than financial markets. The effect of market timing on capital structure examined by Al-tally (2014), the study found that low leverage firms are people who raise funds when their market valuations are high, while high leverage firms are people who raise funds when their market valuations are low.

2.3 Definition of Financial Performance

Financial performance may be a subjective measure of how well a firm can use assets from its main way of business and generate revenues. Financial performance refers to the performance of monetary activities. Financial performance represents the

degree to which financial objectives being or has been accomplished. This term is additionally applied as common measure of a firm's overall financial health over a given period of time, and may be applied to compare similar firms across an equivalent industry or to match industries or sections in aggregation.

A firm's performance is often measured in many various ways, counting on what the firm wishes to evaluate. Financial performance like profit maximization, maximizing profit on assets, and maximizing shareholders' benefits are the core of the firm's effectiveness. Furthermore, the analyst or investor might need to seem deeper into financial statements and look for margin growth rates or any declining debt. Thus, analysis of monetary statements is a crucial aid to financial performance analysis. Financial performance of a bank is defined as its capacity to get sustainable profitability, (European Central Bank (ECB), 2010). Therefore, can say that financial performance of a bank is its ability to employ the available resources to extend shareholder's wealth and generate sustainable profits to strengthen its capital base through retained earnings to make sure future profitability.

Measurement of financial performance of any firm is crucial in deciding the strategies to be formulated to make sure that the firm is within the right way. This is often particularly important so as to determine if a firm is making losses which if they become consistent may lead a firm to depleting its capital base, (ECB, 2010). The main key drivers of measuring bank performances are "earnings", "efficiency", "risk taking" and "leverage", (ECB, 2010). Firstly, a bank must be ready to generate earnings to stay in operational, secondly, it should be efficient meaning it should be ready to generate revenue from the given assets and make profits, thirdly, it should be ready to adjust its earnings to pass the varied risks involved like credit risk and eventually it should be ready to improve its results through the way it functions.

There are various ways through which bank performance are often measured. European Central Bank (2010) report has categorized them in to three major types which are traditional, economic and market-based measures. The normal measures are almost like those employed by other firms which include Return on Assets (ROA) which is that the net income for the year divided by the total assets. The other measure is Return of Equity (ROE) which is that the internal performance measure of shareholder's value and this is often the foremost famous measure of financial or monetary performance. The Economic measures of performance intent at assessing the economic outcomes generated by the bank from its economic assets. The market-based

measures basis on the method of capital market value the performance of firm as compared to its economic and accounting value. Therefore, financial performance may be a main factor in banking system so as to be ready to identify the expansion of the economy at large.

2.4 Effects of CAMEL on Financial Performance

In accordance with the theories and models, many studies have introduced some useful variables within the financial performance function of banks to shed light on key factors that make a difference in bank financial performance. Such studies aren't unambiguously especially with reference to the measurement of the variables and therefore the results reported thereafter. However, there's general agreement that bank financial performance may be a function of internal and external factors. Koch (1995) noted that the performance distinction between banks indicate differences in management philosophy as also as differences within the market served.

Athanasoglou et al, (2006) concurred and argued that financial performance may be a function of internal factors that are mainly influenced by a bank's management decisions and policy objectives such as the size of liquidity, provisioning policy, capital adequacy, expense management and bank size, and thus the external factors associated with industrial structural factors such as ownerships, market concentration and stock exchange market development and other macroeconomic factors.

CAMEL may be a widely used framework for evaluating bank performance in reference to ALM. The system was developed by the US Federal Deposit Insurance Corporation (FDIC) for early identification of problems in banks "operations" (Uzhgova, 2010). Though some alternative bank performance evaluation models have been proposed, the CAMEL framework is that the most generally used model and it's recommended by Basle committee on Bank Supervision and IMF (Baral, 2005).

i. Capital Adequacy and its Effects

Capital adequacy refers to the sufficiency of the quantity of equity to soak up any shocks that the bank may experience (Kosmidou, 2009). The two main functions of bank capital are, first and foremost the incentives function and secondly, the risk-sharing function and secondly, the risk-sharing function. Due to the debt-like nature of their liabilities, banks have a motive to interact in risk shifting or asset substitution, that is, to claim on excessive risk knowing that the downside risk is born by their creditors (depositors). Requiring banks to possess a minimum ratio of capital to assets reduces

the bank's incentive to require risk. On the risk sharing aspect, Capital acts sort of a buffer which will offset the losses of the creditors (depositors) and allows for the orderly liquidation and disposal of assets within the event of financial distress. (Gale & Ozgur, 2005)

ii. *Asset Quality and its Effects*

An expressive component of bank risk lies within the quality of its assets, otherwise termed as 'credit risk', since a bank's primary activity relates to extending credit to borrowers. Credit risk is one among the factors that affect the health of a private bank. The extent of the credit risk depends on the quality of assets held by a private bank. The quality of assets held by a bank depends on exposure to particular risks, trends in non-performing loans, and therefore the sound and profitability of bank borrowers (Baral, 2005). The financial performance of a bank depends on its ability to foresee, avoid and monitor risks, possibly to hide losses caused by risks arisen. Hence, in making decisions on the allocation of resources to asset deals, a bank must take under consideration the extent of risk to the assets. Asset Quality as measured by the ratio of net non-performing loans to gross loans has improved consistently over the past five years and this is often attributed to the Risk Management Plans appliance by the financial institutions which raised credit appraisal and administration standards. Inferior asset quality and low levels of liquidity are the two main causes of bank failures.

iii. *Management Quality and its Effects*

Poor expenses management is that the major contributors to poor profitability (Sufian and Chong 2009). In the literature on bank performance, operational expense efficiency is typically used to evaluate managerial efficiency in banks. The management of banking institutions, a bit like the management of enterprises, determines its operation through decisions, ensures the bank's smooth business, handles risks and exercises control (Apostolos et al, 2011). Although the relationship between expenditure and profits appears straightforward implying that higher expenses mean lower profits and therefore the opposite, this might not always be the case. The rationale is that higher amounts of expenses could also be related to higher volume of banking activities and thus higher revenues.

iv. *Earnings and its Effects*

Through earnings and supported the banks dividend policy a bank can overtime increase its capital base through retained earnings, thereby ensuring its ability to seize opportunities as they arise, as an example using retained profits to finance an adoption

of technology which will increase operational efficiency. Apostolosetal, (2011) contribute to the prevailing literature on the importance of earnings by stating that strong profits combined with its earnings profile reflect a bank's ability to support current and future tasks. More specifically, this ratio reflects the bank's ability to soak up losses, expand its financing, also as, its ability to pay dividends to its shareholders, and helps develop an adequate amount of own capital. Olweny and Shipho (2011) find a healthy negative significant relationship between ROA and operational cost efficiency implying that increasing operational costs result to poor profitability.

v. ***Liquidity and its Effects***

Financial intermediation theory posits that liquidity creation is that the key reason why banks exist. One key purpose of bank managers is that the management of liquidity risk which may result from a mismatch within the maturities of assets and therefore the 'obligations due' in these cases withdraw able deposits, and whose occurrence in one institution can have systemic effects on the entire industry. With this in sight bank regulators endeavor to manage bank liquidity risk by imposing minimum liquidity ratios and also by using monetary policy. Another important decision that the managers of commercial banks take refers to the liquidity management and specifically to the measurement of their needs associated with the method of deposits and loans. The trade-offs that normally exist between return and liquidity risk are illustrated by observing that a shift from short term securities to long term securities or loans raises a bank's return but also increases its liquidity risks and therefore the inverse is true. Thus, a high liquidity ratio indicates a less risky and fewer profitable bank (Hempel et al, 1994). Therefore, management is faced with the difficulty of liquidity and profitability.

2.5 CAMEL Framework and Major Ratios

During an on-site bank exam, supervisors gather private information, like details on problem loans, with which to gauge a bank's financial condition and to watch its compliance with laws and regulatory policies. A key product of such an exam may be a supervisory rating of the bank's overall condition, commonly mentioned as a CAMEL rating. The acronym "CAMEL" aims to the five components of a bank's situation that are assessed:

Capital Adequacy

Capital base of financial institutions helps depositors in forming their risk the sight about the institutions. Also, it's the key parameter for financial managers to take care of adequate levels of capitalization. Moreover, besides exhausting unanticipated shocks, it points that the institution will still to honor its obligations. The foremost widely used indicator of capital adequacy is capital to risk-weighted assets ratio (CRWA).

Capital adequacy ultimately determines how well financial institutions can deal with shocks to their balance sheets. Thus, it's useful to trace capital-adequacy ratios that take under consideration the foremost important financial risks – foreign exchange, credit, and rate of interest risks – by assigning risk weightings to the institution's assets.

Asset Quality

Asset quality determines the healthiness of monetary institutions against loss useful within the assets. The weakening value of assets, being prime source of banking troubles, directly pour into other areas, because losses are eventually written-off against capital, which is ultimately expose the earning capacity of the institution. The solvency of monetary institutions typically is at risk when their assets become impaired, so it's important to watch indicators of the quality of their assets in terms of overexposure to specific risks, trends in nonperforming loans, and therefore the health and profitability of bank borrowers-especially the corporate sector.

Management Efficiency

Management of financial institution is usually evaluated in terms of capital adequacy, asset quality, earnings and profitability and liquidity. Additionally, performance evaluation includes compliance with set norms, ability to plan and react to changing circumstances, technical competence, leadership and administrative ability.

Sound management is one among the foremost important factors behind financial institutions' performance. Indicators of quality of management, however, are primarily applicable to individual institutions, and can't be easily aggregated across the world. Furthermore, given the qualitative nature of management, it's difficult to gauge its soundness just by watching at financial accounts of the banks. Nevertheless, total lend to total deposit, business per employee and profit per employee helps in measuring the management quality of the banking institutions.

Earnings

Earnings and profitability, the main source of increase in capital base, is examined with regards to the rate of interest policies and adequacy of provisioning. Additionally, it also helps to support present and future operations of the institutions. The only best indicator used to gauge earning is that the Return on Assets (ROA), which is net income after taxes to total asset ratio.

Strong earnings and profitability profile of banks reflects the power to support present and future operations. More specifically, this determines the capacity to soak up losses, finance its expansion, pay dividends to its shareholders, and build up an adequate level of capital.

Liquidity

An adequate liquidity position refers to a situation, where institution can obtain sufficient funds, either by increasing liabilities or by converting its assets quickly at an expensive cost. It is, therefore, generally assessed in terms of overall assets and liability management, as mismatching gives to liquidity risk.

Initially solvent financial institutions could also be driven forward closure by poor management of short-term liquidity. The term liquidity is employed in various ways, all concerning availability of, access to, or convertibility into cash. An establishment is claimed possess liquidity if it can easily meet its needs for cash either because it's cash on hand or can otherwise collect or borrow cash. A market is claimed to be liquid if the instruments it trades can easily be bought or sold in quantity with little impact on market prices. An asset is said to be liquid if the marketplace for that asset is liquid.

The common them altogether three contexts are cash. An organization is liquid if it's ready access to cash. A market is liquid if participants can more easily transform positions into cash- or conversely. An asset is liquid if it can more easily be transformed to cash.

2.5.1 Determinants of CAMEL Rating on Bank's Overall Condition

The purpose of CAMEL ratings is to work out a bank's overall condition and to spot its strengths and weakness:

- (a) FINANCIAL
- (b) OPERATIONAL

(c) MANAGEMENT

2.6 CAMEL Provisions in Myanmar

Central Bank of Myanmar has enacted CAMEL provisions for all bank. CAMEL provision is basically, a ratio-based model to judge the performance of banks under various criteria. These are:

- (a) Strong performance, sound management, no cause for supervisory concern
- (b) Fundamentally sound, compliance with regulation, stable, limited supervisory needs
- (c) Weakness in one or more components, unsatisfactory practices, weak performance but limited concern for failure
- (d) Serious financial and management deficiencies and unsound practices need close supervision and remedial action
- (e) Externally unsafe practices and conditions, deficiencies beyond management control. Failure is highly probable and outside financial assistance need.

2.6.1 Determinants of Capital Structure of Banks in Myanmar

Bank's capital includes cash, government securities, and interest-earning loans (e.g., mortgages, letters of credit, and interbank loans). The liabilities portion of a bank's capital involves loan-loss reserves and any debt it owes.

Tier 1 Capital (International)

Tier 1 capital which consists of perpetual non-cumulative preference shares, capital grants, deferred charges and leasehold rights.

= (paid up capital + statutory reserves + disclosed free reserves) – (equity investments in subsidiary + intangible assets + current & brought-forward losses)

Tier 2 Capital (International)

Tier 2 Capital which consists of revaluation reserves, hybrid capital instruments, general loss reserves and subordinated debts.

Capital (International)

Tier 1 capital are often calculated by 6 %.

Tier 2 capital are often calculated by 8 %.

Capital (Central Bank of Myanmar)

Capital Adequacy Ratio may be a measure of the quantity of a bank's capital expressed as a percentage of its risk weighted assets. Banks are required to take care of the Capital Adequacy Ratio as follows:

- (a) Regulatory capital adequacy ratio is 8%.
- (b) The minimum Tier 1 Capital Adequacy Ratio is 4%
- (c) In meeting the capital adequacy ratio, elements of Tier 2 or supplementary capital may be included subject to approval of the Central Bank of Myanmar up to a maximum of 100% of Tier 1 or core capital.

2.7 Empirical Literature (CAMEL and Financial Performance)

Financial performance is significantly suffering from various factors and measure of how well a firm can use assets form its primary mode of business and generate revenues. Lot of empirical studies has been done to explore if there's any (Positive, negative or no relation) relation between financial performance and CAMEL and these studies produced mixed results.

CAMEL is a world scoring system employed by regulatory banking authorities to the rate of financial institution, consistent with the five factors represented by its acronym. Hirtle and Lopez (1999) carried out a study to seek out the adequacy of CAMEL in capturing the general performance of a bank, to seek out the relative weights of importance altogether the factors in CAMEL and lastly to tell on the simplest ratios to always adopt by banks regulators in evaluating banks' efficiency. Additionally, the simplest ratios in each of the factors in CAMEL were identified.

Olweny and Shipho, (2011) adopt the CAMEL model with the exclusion of the Earnings component which is proxied by ROA, since they use it because the experimental variable to measure profitability of banks in Kenya. They additionally include Foreign Ownership and Market Concentration to the model to cater for market factors. Using data for the amount from 2002 to 2008 they find that each one the components have a significant effect on profitability with Capital Adequacy the foremost important followed by operational efficiency, asset quality and Liquidity respectively. However, no effect of the market factors is found to affect bank performance.

Aikeli (2008), Kamau (2009) inventions that Kenyan banks hold excess liquidity which when regressed against x-inefficiency index is additionally ground to possess a positive significant relationship confirming the hypothesis that accumulation of excess liquidity in banks precipitates ineffective.

Consistent with the Kamau (2011) makes use of non-parametric approach (DEA) to live the efficiency and productivity within the intermediation process of the

banking sector in Kenya. Finally, the findings also indicate that banks in Kenya have excess liquidity despite the necessity for credit within the economy which at a mean of 40 percent is 20 percent above the minimum statutory requirement.

Jie Liu (2011) scrutinizes the impact of independent variables from CAMEL model on bank performance in China's banking sector. Jie Liu adopted fixed effects multiple linear regression model in his study to live the relationship between internal determinants from CAMEL model and bank performance. The findings of his research point that return on assets are often influenced by shareholder's risk-weighted capital adequacy ratio, NPL to total loans ratio, costs to income ratio, net rate of interest margins, and loans to deposits ratio.

According to Skopljak and Luo (2012), at relatively low levels of leverage a rise in debt results in increased profit efficiency hence superior bank performance, at relatively high levels of leverage increased debt results in decrease profit efficiency also as bank performance. This will presumably be attributed to financial distress outweighing any gains made up of managerial performance improving.

Suvita Jha and Xiaofeng Hui (2012) equivalence the financial performance of various ownership structured commercial banks in Nepal supported to their financial diagnosis and distinguish the determinants of performance unprotected by the financial ratios, which were supported CAMEL Model. The result shows that public sector banks are significantly less efficient than their counterpart however domestic private banks are equally efficient to foreign-owned (joint venture) banks. Furthermore, the approximation results expose that return on assets was significantly influenced by capital adequacy ratio, interest expenses to total loan and net interest margin, while capital adequacy ratio had considerable effect on return on equity.

Maryam Azizi & DR. Yusef Ahadi Sarkani (2014) review the financial performance of Mellat Bank using CAMEL model and every of the model dimensions examined using trend analysis method and both mean and standard deviation statistics. Within the inferential statistics section, again the relationship between model variables and therefore the financial performance of Mellat Bank was studied and examined using two linear and multiple regressions also as OLS method. Results of the study indicate that there's a positive significant relationship between the indices of liquidity, quality of management and earnings with financial performance. Yet, no relationship was seen between capital adequacy and assets quality with bank financial performance and multiple correlation test showed only a positive significant relationship with financial

performance in management quality section. Because of a result, Mellat Bank has better financial performance in management quality portion.

And then, Ramlall (2009) and Alper and Anbar (2011) initiate that bank financial performance is often hindered by both internal external features. Internal features are associated with bank management which includes the ALM culture of the bank and external determinants are features which reflect the economic and legal environment that distress the operation and performance of commercial banks. The common macroeconomic factors that determine the financial performance of banks in general and commercial banks in especially are GDP, rate of inflation, market interest rates, and ownership.

According to Hester and Zoellner (1996), there's statistically significant relationship between ALM and financial performance and that they disregarded the null hypothesis that there's no relationship between them.

Kosmidou et al, (2004) create that liability management plays its own pivotal role in contributing profitability difference among commercial banks. However, Vasiliou (1996) suggested that asset management instead of liability management play crucial role in explaining the differences in banks profitability.

According to Yue (1992), financial ratios are often employed to measure the general financial soundness of bank and therefore the quality of its management. Then, Banks' regulators employ the financial ratios to support evaluate a bank's performance as a part of the CAMEL structure.

Ashok (2009) in his study scrutinized how the financial performance of State Bank of India (SBI) group, nationalized banks group, private banks group and foreign banks group in India had been suffering from the financial deregulation of the economy. The most objective of the empirical study was to assess the financial performance of scheduled commercial banks through CAMEL analysis.

2.8 The Risk Management Process

Risk management is defined as the process of identifying, monitoring and managing potential risks so as to understate the negative impact they'll wear a organization. The risk management process involves the followings:

- (a) Identification
- (b) Measuring
- (c) Controlling

- (d) Monitoring
- (e) Mitigation

(a) Identification

Identification is that the first stage of the risk management process. The CBM expects banks to be aware of the ML/TF risks that are inherent in their operations. These risks appear from a number of sources involving; -

- (1) Customers;
- (2) Products and services;
- (3) Delivery channels and
- (4) Geographic regions and markets.

Banks must therefore be ready to be conscious of the ML/TF risks that arise from each of those sources.

Banks should even be conscious of the ML/TF risks that exist in Myanmar in generally. At a national level this process requires the identification of risk factors related to ML/TF threats and vulnerabilities. Threats are a function of the overall levels of criminal and terrorist activity to which a country is exposed. Vulnerabilities are a function of political (the characteristics of the political system), economic (the species of economic activity), social (demographic characteristics), technological (level of technological advancement), environmental (issues associate to the physical environment) and legislative (the coverage, maturity and effectiveness of the legislative system) factors.

(b) Measuring

The identification or recognition of risk is that the initiative in an efficient risk management process. Beyond identifying risk, it's equally important to measure or quantify risk. Unless it's effectively measured it's difficult to assess the potential impact that a given type or source of risk can have on a bank. Banks are therefore expected to develop techniques and mechanisms which can allow them to assess the quantum of every sort of ML/TF risk with which it is faced and therefore the likely duration of such risk. If, for instance, a bank considers a selected sort of customer to represent a high ML/TF risk, the CBM expects that the bank should at all times be aware of the number of such customers it's and therefore the types and volume of commercial activity and transactions they're conducting.

(c) Controlling

Having described and measured risks, the CBM anticipated banks to prepare a risk management framework and practices to effectively mitigate such risks. This needs the development of policies that reflect the bank's risk appetite and its approach to risk management, procedures that give effect to the policies and limits that preclude undesirable level of risk concentrations or exposures. A crucial aspect of a framework for controlling risk is that the establishment of clear lines of authority and reporting lines and responsibilities. Effective control of risk is additionally dependent on the bank's ability to communicate its policies, procedures and limits to all employees and business units involved within the management of ML/TF risks.

(d) Monitoring

The CBM anticipates banks to find out effective systems for the on-going monitoring of their risk vulnerability and therefore the effectiveness of associated risk management systems and practices. Banks are therefore expected to possess Management Information Systems (MIS) that measure their inherent ML/TF risks and changes in such exposures. Within the context of ML/TF risks it's important, for instance, that the MIS monitors the rise or decrease of the bank's exposure to ML/TF risk. Further, the MIS should monitor the adherence to established policies and procedures to work out, for instance when a longtime internal limit or legal and regulatory obligations are breaches.

(e) Mitigation

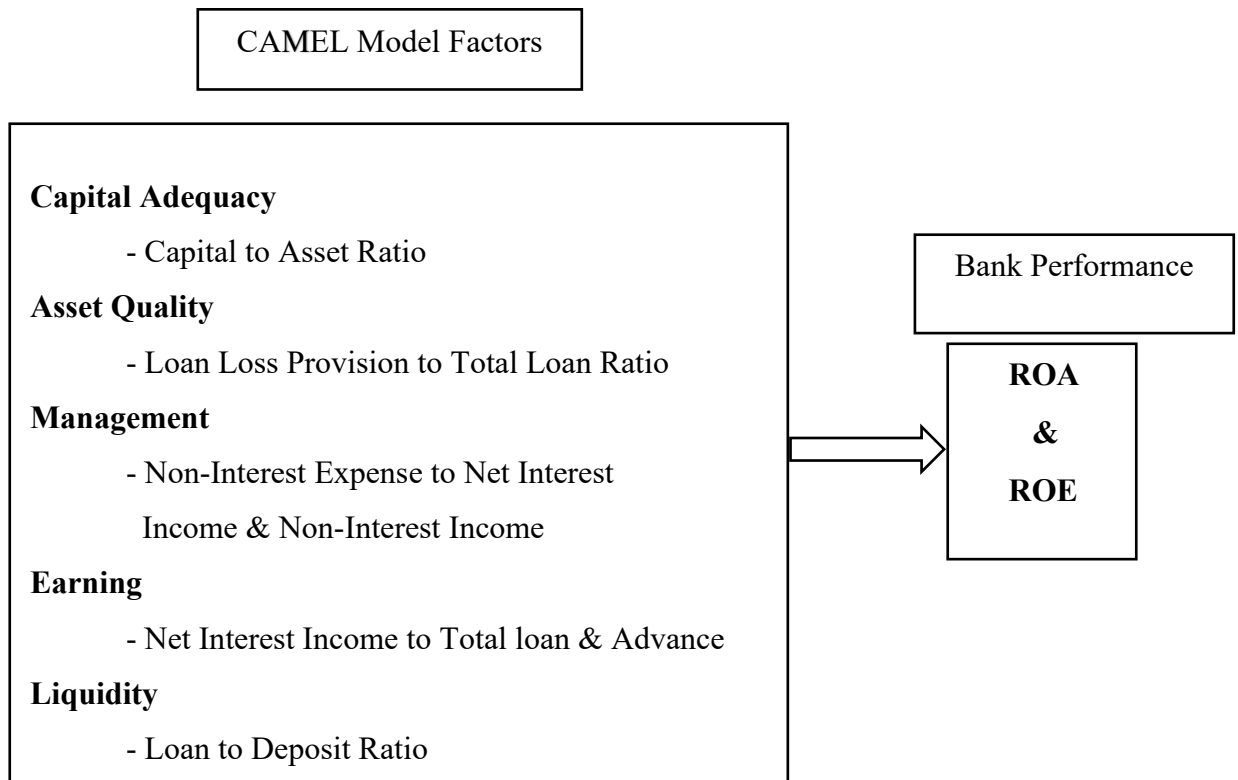
The successful mitigation of ML/TF risks is that the outcome of all of the above measures if they're effectively and consistently implemented.

2.9 Conceptual Framework

Based on the objectives of the study and therefore the review of empirical evidence above, the following conceptual framework was developed:

Independent Variables

Dependent Variable



Source: Adopted from Mulualem Getahun

Figure 2.1: Conceptual Framework of the CAMEL model factors and Bank performance

According to conceptual framework will use two accounting-based measurements of bank performance as dependent variables are ROA and ROE. Furthermore, CAMEL factors such as capital adequacy, asset quality, management, earnings and liquidity as independent variables.

CHAPTER 3

PROFILE OF SELECTED BANKS IN MYANMAR

In this chapter, overview of banking industry, profile of selected banks and current situation of banking sector in Myanmar are presented. The population of the study selected five banks including listed and non-listed banks in Myanmar. Two Listed banks are First Private Bank and Myanmar Citizen Bank. Three non-listed banks are Ayarwaddy Bank, United Amara Bank and Asia Green Development Bank. Information for six years periods was collected from the websites of the relative firms and analyzed using statistical techniques.

3.1 Overview of Banking Industry in Myanmar

The banking industry appeared at the year 1861 within the Colonial era. The primary bank was Bank of Bengal and owned by British citizen and had been expanded from India. In 1862, Chartered Bank was opened in Yangon and it had been also owned by British citizen. National Bank of India was opened in 1886 and two year later Lloyds Bank arrived. Later the Mercantile Bank of India disbursed its operation in Myanmar.

In 1935, Federal Reserve Bank of India opened its branch in Yangon and was conducting the functions of Central Bank. The bank applied the Western banking industry in 1941, which was generally known for having foreign exchange as its main area of operations and conducted foreign exchanged for the financing international trade. This bank later became and member of clearing association and this was the primary step toward the clearing system introduced within the Myanmar banking industry. On the opposite hand, the Eastern banking industry mainly engaged in deposit taking, advancing money and transferring funds from place to put for the need of government, business, and households.

Myanmar gained independence from the British government in 1948 and from 1948 to 1962 to economy of Myanmar was characterized by the event of monetary institution along the road of a market of capitalist economy. Banks in Myanmar were established round the country gained independence in 1948. Following the change of government in March 1962, Myanmar's economy was transformed into a socialist or centrally-planned financial system and every one the banks in Myanmar were nationalized in February 1963.

The government settled the economic system as a mono-banking system during the socialist period. The Monolithic People's Bank of Burma functioned not only as a

Central Bank but also engaged in commercial, industrial, saving, insurance, and financing institution through its specialized divisions. This monolithic bank system was restructured into two-tiered banking industry under a new law in 1975. Under this structure the reorganized banking industry consisted of the Union of Burma Bank, which became the Central Bank, and four other specialized banks. All banking business was placed under state control and private banking business was restricted. There was no private banking and no private business participation within the economy. Only state-run banks were allowed all together areas of trade and commerce.

The dawn of Myanmar's market-oriented economic system was in 1989, and to facilitate the event of the system, the country's banking industry was reorganized to make it sounder and move efficient. Existing laws were amended and new laws were promulgated in reference to banks and other financial institutions. The new laws broadened the scope of banking activities, enabling both state-owned and private banks to cater for the economic needs of the market. Myanmar has been paying more attention to increasing economic process by encouraging the development of the private sector. In line with the market-oriented economy, authorities have chosen the "new entry" approach, which is predicated on encouraging the new entry of private banks.

All the financial institutions are guided and under the control of the Ministry of Finance and Revenue, except the Myanmar Agricultural Development Bank, which is controlled by the Ministry of Agriculture and Irrigation. Alongside the adoption of a market-oriented policy, the structure of financial institution was transformed by new bank laws enacted in 1990, namely the Central Bank of Myanmar Law, the Financial Institution of Myanmar Law, and therefore the Myanmar Agricultural and Rural Development Bank Law.

The private banks were fixing alongside the emergence of the financial institution of Myanmar Law from 1992. The Financial Institution of Myanmar Law (FIML) allowed private banks to supply more or less a full range of traditional banking services with the exception of foreign exchange activities. Financial institutions explained under the FIML had to be permitted by the CBM, except for banks this was the ultimate stage in procedure that concerned firstly the creation of a limited liability company under the Myanmar Companies Act.

3.2 Target Population

Commercial banks play a crucial role within the financial system and the economy. As a key factor of the financial industry, banks apportion funds from savers to borrowers in an efficient system. They provided specialized financial services, which lessen the cost of obtaining information about both savings and borrowing opportunities. These financial services help to make the general economy more efficient.

Table (3.1) Target Population

Sr.No.	Category of banks	Number of banks
1	Listed Banks	2
2	Non-Listed Banks	3
Total		5

Source: Secondary Data, 2019

3.3 First Private Bank (FPB)

First Private Bank (FPB) may be a public bank that registered as a corporation in September 1991 and was the primary to be licensed as a commercial bank in Myanmar in May 1992. Earnings are mostly strong since its founding, and therefore the bank has paid dividends to shareholders annually. Authorized capital of FPB is 100 Billion Kyat and its Paid-up Capital is 24.72 Billion Kyats on 615th August 2016. Total branches of FPB are 32 banks in Myanmar. In January 2017, the bank was listed on the Yangon Stock Exchange. FPB's mission is to (1) provide loans and financial advice to private-sector companies, (2) contribute to the development of the economy and society, (3) specialize in the low tax bracket and contribute to the reduction of poverty, and (4) make it possible for all people to possess access to financing.

In its corporate activities, the bank gives due remuneration to transparency and trustworthiness, and it is identified as a clean bank domestically and abroad. Its loan-to-deposit ratio is higher than average, making it reasonable to mention that funds are getting used efficiently. With reference to loans, the bad loan ratio is close to zero due to strict credit assessments. In its attempts to improve business efficiency and job performance the bank is installing computer systems while accounting for the risk of cyber-attacks, hiring experienced foreign staff, and dealing to enhance skills through employee knowledge and education. These efforts are often expected to contribute to further earnings growth.

As of March 2016, First Private Bank had 32 branches and about 610 employees. FPB is currently completing its digital transformation and modernization program. Digital transformation projects offer exciting career opportunities to both graduates and experienced professionals. During this opportunity to figure with latest information technologies, find out how to run a bank and develop your management and leadership capabilities by performing on challenging assignments. Its financial year ends in March. About 90% of its lending consists of overdrafts, and general loans come to about 10%. Between 2010 and 2015, overdrafts grew by yearly average of 29.15% and common loans by 23.18%. Of First Private Bank's borrowers, 17% are in manufacturing, 58% in wholesaling and retailing, and 25% in services. FPB's loans are secured by collateral. Of such collateral, 99.8% are fixed assets, like land and buildings. Other collateral involves gold, jewelry, and deposits, but their percentage shares are extremely small. Lending is accompanied with strict credit assessments, and monitoring continues after loans are made. The upper limit for new loans is 30% of the worth of collateral, and therefore the credit limit is raised in accordance with subsequent conditions. As a result, the bad loan ratio is extremely low and was less than 0.1% as of March 2016.

In Myanmar, the loan-to-deposit ratio may be a low 70% approximately. Funds aren't used efficiently, and profitability is poor for several banks. However, First Private Bank's loan-to-deposit ratio has risen for the foremost part year by year. This is often a positive development from the attitude of the efficient use of funds. FPB's main efforts to market growth include (1) computerizing bank operations, (2) modernizing operations through the study of foreign cases, (3) improving the talents of personnel through staff education, (4) diversification of monetary products, and (5) increasing the number of branches.

3.4 Myanmar Citizens Bank (MCB)

Myanmar Citizens Bank (MCB) may be a public bank established in 1991 by Myanmar Special Company Act 1950. MCB started its business on 2nd June 1992 at Kyauktada, Yangon. Authorized capital of Myanmar Citizens Bank is 75 Billion Kyats and its Paid-up capital is 52 Billion Kyats. MCB is one among the primary banks to require initiative to be listed in Yangon Stock Exchange in August and conducts trading starting on 26th August, 2016. To date, the bank has 24 branches and about 650 employees. MCB possess Authorized Dealer License and it's currently conducting

International Banking services since 2003. MCB has experienced over 25 years of in banking services in Myanmar. MCB provides efficient banking services to individual customers as well as business clients. At the guts of our business, MCB offers a variety of deposit products and services.

MCB's current principal activities are retail and corporate banking, during which the bank features a competitive edge over peers. As it is one among the government's banking arms with the Ministry of Commerce being one among the bank's major shareholders, this greatly enhances the bank's business opportunities and profitability. Especially, MCB has been appointed to facilitate the ministry's push forward increasing export/import activities in Myanmar and has in partnership with the Ministry of Commerce, established an e-payment system to facilitate the payment of export/import license fees to the Ministry of Commerce.

MCB mission is to (1) create value for his or her investors sound financial performance and good governance, (2) Support and develop a customer base within the Commercial, SME, HP and Consumer segment, (3) Enhance financial inclusiveness through a network delivering accessibility and availability, (4) Recruit and develop talent to make sustainable future workforce of dedicated employees. (5) Build a secure, robust IT infrastructure and roadmap to support the bank in managing its business effectively and efficiently (6) build efficient and innovative technology to deliver to customer's convenient and secure products and services and (7) Build, develop and incorporate operational and risk practices and methodologies into the bank's operations.

As of March 2016, MCB has provided loans to businesses within the following fields. Wholesale & retail trade hold the most important share at 35.9%, while the service industry stands at 26.5%, and industry is at 22.5%. MCB provides many loans for the aim of buying agricultural machinery and equipment. Other fields which have often made use of MCB's services, such as loans within the sort of installment sales, are automobile purchase, housing purchase, and mobile purchase.

3.5 Ayeyarwady Bank (AYA)

AYA Bank received a new banking license from the Central Bank of Myanmar on 2 July 2010 to operate as an investment and development banking business and commenced operations on 11 August 2010 with the opening of the branch at the Nay Pyi Taw Registered Office. The founder and main shareholder of AYA Bank is U Zaw Zaw. At the end of March 31st 2017, AYA Bank has 220 branches and total deposits of

3.95 trillion MMK. Nowadays, AYA Bank had 258 branches as of August 2019. AYA Bank offers retail and commercial banking products and services. AYA Bank is concentrated at the development of human resources by providing training and job opportunities to the youth within the country and 5242 staff are employed as at March 31st 2017. Their mission is to be recognized because the leading bank in Myanmar through pursuit of excellence and long-term sustainable growth for the bank and its stakeholders.

AYA Bank is the second largest private bank with nationwide influence preparing a full suite of corporate, retail and commercial banking products and solutions for both local and international customers, through the extensive branch network present in every state and division of the country. Leveraging on technology and distinguish customer service has to rapidly growing the customer base. In less than 7 years, AYA Bank branches has opened in 2016 and 541 ATMs has installed around the country since April 2017. AYA Bank is the first bank in Myanmar to instrument Centralized Core Banking System, and continuously strives to provide the best financial services and products in the market. In extending beyond the local banking services, AYA Bank is supporting International Banking Services to offer the clients to implement their projects and plans.

3.6 United Amara Bank (UAB)

United Amara Bank (UAB) may be a private commercial bank in Myanmar. It was one among four private banks to commence operations in August 2010, the primary new financial institutions in the world since the establishment of Innwa Bank since 1997. UAB bank is a leading bank in Myanmar. UAB founded in 2010, which is now serving to their customers from a growing network of over 78 branches and over 2000 employees in 47 townships across Myanmar. UAB's paid-up capital is 54 billion MMK.

UAB provides a good range of monetary services including consumer banking, premier banking, SME banking, corporate banking, trade finance and treasury services. Through our subsidiary UAB securities, UAB bank also support brokerage services, corporate and financial advisory, investment banking and capital market activities. At the UAB bank, consider leading the way towards a far improve Myanmar, humanizing banking, connecting people, creating jobs/opportunities and changing lives. In December 2017, UAB launched "Be the Change Myanmar" initiative that represents

our commitment to driving change for a better Myanmar, specifically that specialize in empowering women and children.

UAB is committed to upholding good corporate governance which is integral to the Bank's growth and success. The Bank's corporate governance practices are guided by the Bank's Corporate Governance Framework and therefore the Basle Committee's Guidelines on Corporate Governance Principles for Banks. In implementing Good Corporate Governance principles, the Board has established four (4) committees: (1) Board Advisory & Strategy Committee (2) Board Risk Committee (3) Board Credit Committee and (4) Board Audit Committee.

3.7 Asia Green Development (AGD)

Asia Green Development (AGD) Bank may be a private commercial bank in Myanmar. Established in 2010, it's grown to become a serious driver of Myanmar's economic development and has earned the trust of its customers as a support and responsible partner. With presently 72 branches, AGD Bank is expanding its services and presence across Myanmar and intent to open its 80th Branch in 2018. AGD Bank has over 2,500 employees and total assets of 366 billion Kyat. The bank was founded by Tayza and therefore the Htoo Group of Companies.

CHAPTER 4

ANALYSIS OF CAMEL FACTORS AND FIRM PERFORMANCE OF THE SELECTED BANKS IN MYANMAR

In this section, the research methodology adopted for this study weakened into the subsequent sections: research design & methodology, research method adopted, data collection, data analysis profitability measure, target population and study variables. These chapter criticize the data analysis and explanation of results. The descriptive analysis for the dependent variables and independent variables is fully presented. The correlation matrix for the variables is reported so as to look at the correlation that exists among variables. The regression results for the panel data for each of the performance measures for the period 2013 to 2018 are displayed and fully discussed. The analyses are used to test the sooner formulated hypotheses to determine the connection which can exists among the variables expressed.

4.1 Research Design and Methodology

The study will adopt panel data regression, fixed effect and random effect and ordinary least square (OLS) method research design to satisfy its research objectives. A panel data set is one that follows a given sample of people over time and thus provides multiple observations of each individual within the sample. One amount the most advantages of Panel data is that it enables the researcher to regulate for unobserved heterogeneity, and secondly since panel data have both cross-sectional and time series dimensions. The preceding chapter presented the review of the prevailing evidence on the CAMEL model. The results from a review of the literature are used to establish expectations for the evaluation & ranking of Selected Banks Financial Performance using CAMEL model and testing whether there is an impact of CAMEL model variable and performance as measured by Return on Asset (ROA) and Return on Equity (ROE).

4.1.1 Research Method Adopted

The study uses a descriptive financial analysis to describe, measure, compare and classify the financial performance of Selected Banks in Myanmar and as well as applies an econometric multivariate regression model to test the significance of variable on performance of Selected Bank in Myanmar. The Profitability ratios (ROA & ROE) are supposed as dependent variable while Capital Adequacy, Asset Quality, Management, Earning and liquidity ratios are as independent variable.

4.1.2 Sample Design

The sample involves selected banks in operation as at the end of 2012 except for those banks that started their operations as selected banks in between the study period, and those that were under statutory management during an equivalent period. The sample size of the study includes two listed banks such as First Private Bank and Myanmar Citizens Bank and three unlisted banks such as Ayeyarwady Bank, United Amara Bank and Asia Green Development Bank in Myanmar according to CBM bank categorization. These banks were considered adequate due to limitation of time and cost involved in data collection and analysis.

4.2 Data Collection

Data to be applied was mainly secondary data and answerers to self-administered questionnaire. The study uses secondary data constituting the income statements and balance sheet sourced from the banks audited annual reports and financial statements for the six years period, between 2013-2018, available from the CBM and websites. This period is chosen because it offers recent time series observations and it constitutes a period of major developments within the Myanmar Banking industry.

4.2.1 Primary Sources

The research to conduct the measurement of firm performance (ROE and ROA) and measurement of CAMEL factors got to be collected. These ratios might be retrieved from the financial statement of banks.

4.2.2 Secondary Sources

The researcher used secondary data extensively therefore the scientific databases like Science Direct, Google Scholar, Google Books, and Investopedia were employed. Additionally, to those sources, the publications and research journals from international institutions were also used.

4.2.3 Data Analysis

To comply with the objective, the paper was primarily based on panel data, fixed effect and random effect and OLS which was collected through structured document review. The collected panel data was analyzed applying descriptive statistics,

correlations and the linear regression analysis. Mean values and standard deviations were used to analyze the general trends of the data from 2013-2018. So as to urge an image of the performance of the banks, the researcher employed ROE which may be a measure of profitability. ROE reflects the power of a bank's management to get profits from the bank's assets and was calculated as net profit after tax divided by stakeholders' equity. Findings and results were presented in graphical form. Conclusions were made supported analysis of relationship between the variables. Simple linear regression analysis tool was used to assess the relationship between the variables and financial performance.

4.3 Profitability Measures

A profitability ratio may be a measure of profitability, which is a method to measure a bank's performance and functions. Profitability is just the capacity to form a profit, and a profit is what's left over from income earned after you've got deducted all costs and expenses associated with earning the income. The formulas you're close to learn can be used to judge a company's performance and to match its performance against other similarly-situated companies.

Common profitability ratios utilized in analyzing a company's performance include gross profit margin (GPM), operating margin (OM), return on assets (ROA), return on equity (ROE), return on sales (ROS) and return on investment (ROI). In the paper, the researcher used only two ratios, these are ROA and ROE.

4.3.1 Return on Asset

Return on assets (ROA) measures how effectively the bank produces income from its assets. The higher the firm's ROA the better. ROA is a measure that is commonly used to measure the profitability of a firm's operations. ROA measures how profitable the firm is in terms of its assets. As mentioned above, it also indicates the general financial health of a firm. Moreover, a report by the European Central Bank (2010) explains that ROA is a better measurement when the market conditions are not stable and when the environment is volatile.

ROA is a good measure to use to evaluate a firm's financial performance. Additionally, it's a measure that has been employed by many other researchers when evaluating the effect of capital structure on a firm's performance. Hence, ROA is chosen as a measure of profitability and calculated because the net income divided by the book

value of total assets. Furthermore, using the net income is significant since it accounts for the debt tax benefits of debt. Assets remain fairly stable, so an increasing ROA indicates greater profitability, while a decreasing ROA indicated less profitability.

Formula:
$$\text{Return on Asset (ROA)} = \frac{\text{Net Profit After Tax}}{\text{Total Asset}}$$

4.3.2 Return on Equity

Return on equity measures what proportion a company makes for each dollar that investors put into it. It's a ratio that's employed by analysts to gauge the performance of a firm. ROE shows the income generated for the shareholders by the equity, which is the financing provided by the shareholders. The ROE measures the return earned on the stockholders' investment in the firm. It's a basic test of how effectively a company's management system applies investors' money. ROE shows whether management is growing the company's value at a suitable rate. In this ratio, tells whether the company is a good investment. As of the ROE increases, the company becomes more tempting to potential investors. Generally, improving net income will also improve shareholders' equity because the profit will become retained earnings. ROE is calculated as:

$$\text{Return on Equity (ROE)} = \frac{\text{Net Profit After Tax}}{\text{Total Equity Capital}}$$

4.4 Panel Data Model

Five Banks are taken during this study such as 111,222,333,444 and 555 and there have two dependent variables and two independent variables. This study wants to check the relationship between dependent variables and two independent variables. This data is from 2013 to 2018. So, this observation would be 30. Panel Data are often developed by using following methods.

1. Pooled OLS Regression Model

All 30 observations are pooled together and run the regression model, neglecting the cross section and time series nature of data. The main problem with this model is that it does not distinguish between the various banks.

2. Fixed Effect or LSDV Model

The fixed Effect or LSDV Model allows for heterogeneity or individuality among five banks by allowing having its own intercept value. The term fixed effect is due to the fact that although the intercept may differ across banks, but intercept does vary over time, that is it is time invariant.

3. Random Effect Model

Five banks have a standard mean value for the intercept. Hausman Test is applied to check which model (Fixed Effect or Random Effect) is suitable to simply accept.

4. Hausman Test

Null Hypothesis: Random effects model appropriate

Alternative Hypothesis: Fixed effect is appropriate

5. Breusch and Pagan LM Test

Null Hypothesis: Pooled regression model is appropriate

Alternative Hypothesis: Random effect model is appropriate

4.5 Description and Measurement of Variables

The aim of this thesis is to empirically investigate relationships between CAMEL factors and financial performance of selected banks during the period 2013-2018. Since, it wants to seek out the effect of CAMEL factors and bank's performance. Therefore, the variables divided into two groups, which are dependent and independent variables. Consistent with research questions, the measurements of bank performance are dependent variables and measurements of CAMEL factors are independent variables.

4.5.1 Dependent Variables

In this literature, there are two major alternatives measures of profitability, namely "ROA" and "ROE". ROA reflects the ability of banks management to get profits from the bank's assets, although it may be biased due to off-balance-sheet activities. ROE shows the return to shareholders on equity. All profitability measures involved in the study are described below;

Return on Asset (ROA)

The ROA returns the ability of a bank's management to generate profits from the bank's assets. It shows the profits earned per birr of assets and indicates how effectively the bank's assets are managed to generate revenues, although it'd be biased due to off-balance-sheet activities. Average assets were used in this study, in order to capture any differences that occurred in assets during the fiscal year. ROA are often calculated as:

$$\text{Return on Asset (ROA)} = \frac{\text{Net Profit After Tax}}{\text{Total Asset}}$$

This is probably the foremost important single ratio in comparing the efficiency and operating performance of banks because it indicates the returns generated from the assets that bank owns.

Return on Equity (ROE)

The Return on Equity (ROE) measures the Profitability of equity funds invested in the bank that it shows the profit earned per birr of capital invested. It considered a really important measure because it returns the productivity of the ownership or risk) capital employed in the bank. ROE are often calculated as:

$$\text{Return on Equity (ROE)} = \frac{\text{Net Profit After Tax}}{\text{Total Equity Capital}}$$

4.5.2 Independent Variables

The main independent variables (determinants) or factors of the CAMEL model were Capital adequacy, Asset quality, Management efficiency and Liquidity status which shall be proxies by bank particular factors in reference to performance.

These variables are often measured by the subsequent formulas:

- ❖ “Capital adequacy”: the study applied gross capital to total asset ratio to measure Capital adequacy.

$$\text{Capital Adequacy} = \frac{\text{Gross Capital}}{\text{Total Assetes}}$$

Gross Capital involves paid up capital, retained earnings and other reserves of the bank

- ❖ “Asset quality”: the study measures by the ratio of Provision for loan Loss to total loans.

$$\text{Asset Quality} = \frac{\text{Provision for loan}}{\text{Total Loan}}$$

- ❖ “Managerial efficiency”: the ratio used Non-interest expense to Net Interest income plus non-Interest Income.

$$\text{Managerial Efficiency} = \frac{\text{Non-interest Expense}}{\text{Net Interest Income Plus Non Interest Income/ Loan}}$$

- ❖ “Earnings ratio”: the study used the ratio of net interest income to total interest Income (NIM).

$$\text{Earnings ratio} = \frac{\text{Net Interest Income}}{\text{Total Interest Income}}$$

- ❖ “Liquidity ratio”: the ratio of total loans to total Deposits was use.

$$\text{Liquidity ratio} = \frac{\text{Total Loan}}{\text{Total Deposit}}$$

4.5.3 Capital Adequacy Analysis

Capital adequacy may be a reflection of the inner strength of banks, which might stand it in good stead during the days of crisis. Capital adequacy is that the capital to take care of the balance with the risk exposure of the financial institution such as credit risk, market risk and operational risk, so as to soak up the potential loss and protect the financial institution’s debt holder additionally to the present meeting a minimum level of statutory requirement is also a key factor. In this capital adequacy ratio measured by the ratio of total capital to total asset.

4.5.4 Asset Quality Analysis

Asset quality determines the healthiness of financial institutions against loss useful in asset as asset impairment risks the solvency of financial institutions. The Asset quality indicators highlight the utilization of non-performing loans ratios (NPLs) which are the proxy of asset quality and the allowance or provision to loan loss reserve. The bank is formulated to back up the bad debts by providing adequate provisions for loan loss risks. The ratio of provision for loan loss to total loans takes in to account to measure the quality of loan portfolio. With this framework, the asset quality is measured by taking the ratio of loan loss provision to total loan. The lower the loan loss provision to total loan ratio indicate the quality of the asset of the bank is comparatively better than the other banks.

4.5.5 Management Efficiency Analysis

Management quality is essentially the potential of the board of directors and management, to identify, measure and control the risks of an institution's activities and to ensure the safe, strong and efficient operation in consent with applicable laws and regulations. During this research the management efficiency is measured by taking the ratio of Non-Interest expense to Net Interest Income Plus Non-Interest Income. The lower this ratio indicates the management capability to control or minimize cost per unit of revenue generated is comparatively better than other banks.

The performance of Management capacity is typically qualitative and can be understood through the subjective evaluation of Management systems, organization culture and control mechanisms and so on. Nevertheless, the capacity of the management of a bank also can be gauged with the help of actual ratios of off-site evaluation of a bank. Such can include the power of the management to deploy its resources, aggressively to maximise the income, utilize the facilities in the bank productively and reduce costs etc.

4.5.6 Earnings Analysis

The 'Earning' may be a Conventional Parameter of measuring financial performance. The quality of earning represents the sustainability and growth of future earnings, value of a banks lucrativeness and its competency to maintain quality consistently. The net interest margin measures how large the spread between interest revenues and the interest cost over earning assets and therefore the pursuit of the most cost-effective source of funding.

4.5.7 Liquidity Ratio

Liquidity management is one of the foremost important functions of a bank. If funds tapped aren't properly utilized, the institution will suffer loss. Idle cash balance in hand has no yield. On the opposite hand, if the bank doesn't keep balanced liquid cash in hand, it cannot be able to pay the demand withdrawal of depositors, also as, installment of creditors and ultimately payment for other contingent liabilities. These will lead over trading position to the institution and make problems to borrow funds at high rate. Suitable balanced liquidity should be controlled by avoiding inadequate cash position, or excess cash position.

4.6 Analysis of Correlation between CAMEL Factors and Firm Performance

Correlation analysis measures the strength of a relationship between 2 variables. In statistics, the worth of the coefficient of correlation varies between +1 and -1. When the worth of the coefficient of correlation lies around ± 1 , then it is said to be a perfect degree of relationship between the two variables. As the correlation coefficient value goes towards 0, the relationship between the two variables is going to be a weaker. Usually, in statistics, the researcher's measures three sorts of correlations: Pearson correlation, Kendall rank correlation and Spearman correlation.

Pearson correlation is widely parametric test utilized in statistics to measure the degree of the relationship between linear related variables. In this the Pearson correlation, both variables should be generally distributed. Other assumptions include linearity and homoscedasticity. Linearity supposes a straight-line relationship between each of the variables in the analysis and homoscedasticity presumes that the data is generally distributed about the regression curve.

In contrast, Kendall rank correlation may be a non-parametric test that measures the strength of dependence between two variables. Also, Spearman rank correlation is a non-parametric test that is used to measure the degree of association between two variables. It was developed by Spearman correlation; therefore, it is called the Spearman rank correlation. Spearman rank correlation test does not intend any assumptions about the distribution of the data and it's the appropriate correlation analysis when the variables are measured on a scale that's a minimum of ordinal.

During this study the coefficient of correlation analysis is under taken to seek out the relationship between capital adequacy, asset quality, management efficiency, earning ratio, liquidity ratio and return on equity and return on assets.

Table (4.1) Pearson Correlation Matrix among the Variables

Independent Variables	Return on Asset
Capital Adequacy	0.414*
Asset Quality	-0.494**
Management Efficiency	-0.970**
Earnings	0.903**
Liquidity	0.407*

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

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

Source: STATA Outputs Appendix (A)

Table 4.1, shows that six interval-level variables and estimates the relationship among all of them. In this study, firm performance (ROA) and CAMEL factors (CA, ER and LR) are positive significant correlation (correlation = 0.414, p-value = 0.023; correlation = 0.903, p-value = 0.000 and correlation = 0.407, p-value = 0.026). Firm performance (ROA) and CAMEL (AQ and ME) are negative significant correlation (correlation = -0.494, p-value = 0.005 and correlation = -0.970, p-value = 0.000). These results indicate that if CAMEL factors (Capital adequacy, asset quality, managerial efficiency, earning ratio and liquidity ratio) increase, firm performance (ROA) would decrease. If firm performance (ROA) increase, CAMEL (Capital adequacy, asset quality, managerial efficiency, earning ratio and liquidity ratio) would decrease.

Table (4.2) Pearson Correlation Matrix among the Variables

Independent Variables	Return on Equity
Capital Adequacy	0.081
Asset Quality	-0.505**
Management Efficiency	-0.733**
Earnings	0.498**
Liquidity	0.184

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

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

Source: STATA Outputs Appendix (B)

Table 4.2, shows that six interval-level variables and estimates the relationship among all of them. During this study, firm performance (ROE) and CAMEL factors (CA, ER and LR) are positive significant correlation (correlation = 0.081, p-value = 0.670; correlation = 0.498, p-value = 0.005 and correlation = 0.184, p-value = 0.332). Firm performance (ROE) and CAMEL factors (AQ and ME) are negative significant correlation (correlation = -0.505, p-value = 0.004 and correlation = -0.733, p-value = 0.000). These results indicate that if CAMEL factors (Capital adequacy, asset quality, managerial efficiency, earning ratio and liquidity ratio) increase, firm performance (ROE) would decrease. If firm performance (ROE) increase, CAMEL (Capital adequacy, asset quality, managerial efficiency, earning ratio and liquidity ratio) would decrease. In general, the correlations between variables appear to be too high because

the study has carefully adopted the use of alternative variables to resolve the challenge of omitted variables.

4.7 Analysis of Regression between CAMEL Factors and Firm Performance

Regression is one among the foremost popular and customary statistical techniques in social sciences. In this multiple regression model, researchers can inquire the relationship between a response variable and more than one explanatory variables. This study employs Ordinary least squares (OLS) regression analysis. OLS investigate the relationship between a dependent variable and a collection of independent variables as a multiple regression do. During the foremost general terms, OLS estimation is intended at minimizing the sum of squared deviations of the observed values for the dependent variable from those predicted by the model.

The value of a dependent variable is eliminated as a linear combination of the independent variables plus an error term as in the model below:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \varepsilon_i$$

The relationship between capital structure and a firm's performance was tested by the observing regressions models:

$$\text{Model 1: Performance} = \beta_0 + \beta_1 CA + \beta_2 AQ + \beta_3 ME + \beta_4 E + \beta_5 L + \dots + \beta_n X_n + \varepsilon_i$$

$$\text{Model 2: Performance} = \beta_0 + \beta_1 CA + \beta_2 AQ + \beta_3 ME + \beta_4 E + \beta_5 L + \dots + \beta_n X_n + \varepsilon_i$$

Where: Performance = ROA and ROE

CA = Capital Adequacy

AQ = Asset Quality

ME = Managerial Efficiency

ER = Earnings Ratio

LR = Liquidity Ratio

β_0 = Intercept (the value of y when x = 0)

β_1 = Coefficient (slope of the line)

ε = Error

In addition, it is worthwhile to offer a short explanation about terms of regression model. Regression coefficient, β_1 shows the contribution of each independent variable to prediction and provides the degree of influence. Therefore, higher value of β shows that independent variable has more influence. In addition, sign of regression coefficient (positive or negative) shows nature of relationship and

direction of variables. In other words, the regression coefficient indicates that if the independent increases one unit, what percentage points' dependent variable increases or decreases in average amount when other independents are held constant.

R^2 Measures the proportion of the variation during a data set. It shows how well a dependent variable is explained and predicted by independent variables. Moreover, forecasts of intercepts are given by constant, which it shows value the dependent variable when all of the explanatory variables take on the value zero. These models will be used to understand the relations between dependents and independents variables for the market as an entire, for every segment supported the dimensions, and for every sector within the market.

Table (4.3) OLS Regression for ROA

Model I	ROA	
Variables	β	Sig
Constant	2.596172	0.000
CA	0.0011819	0.700
AQ	0.077291*	0.070
ME	-0.0362712***	0.000
ER	0.0235866***	0.009
LR	0.0009939	0.654
R ² / Sig	0.9678	0.000
F(5,24)	144.15	
Root MSE	0.24216	

Source: STATA Outputs Appendix (A)

Statistical significance indicates ***at 1% level, ** at 5%level and *at 10% level

According to the results presented by table 4.3, it is concluded from model 1 that the variations of the five independent variables, CA, AQ, ME, ER and LR, can explain 96.78% of the variation of the dependent variable ROA. The overall model is significant at the 0.01 level as presented by table 4.3 where the model level of significance is 0.000 which is less than 0.05.

Furthermore, examining the model and analyzing the coefficients of the independent variables, as presented by table 4.3, it is observed that the independent variable (AQ) is significant in explaining the variation of the dependent variable (ROA). The independent variable (ME) is significant in explaining the variation of the dependent variable (ROA). The independent variable (ER) is significant in explaining

the variation of the dependent variable (ROA). The result indicates a positive relationship between AQ, ER and ROA. The result indicates a negative relationship between ME and ROA. And then, the independent variable (CA) is no significant in explaining the variation of the dependent variable (ROA). The independent variable (LR) is no significant in explaining the variation of the dependent variable (ROA). The result indicates a positive relationship between CA, LR and ROA.

Table (4.4) OLS Regression for ROE

Model II	ROE	
Variables	β	Sig
Constant	34.1086	0.222
CA	-0.057259	0.822
AQ	-0.1402284***	0.001
ME	-0.2456712	0.181
ER	-0.1717604	0.119
LR	-0.0533864***	0.000
R ² / Sig	0.6519	0.0001
F(5,24)	8.99	
Root MSE	3.6552	

Source: STATA Outputs Appendix (B)

Statistical significance indicate *** at 1% level, ** at 5% level and * at 10% level

According to the results presented by table 4.4, it is concluded from model II that the variations of the five independent variables, CA, AQ, ME, ER and LR, can explain 65.19 percent of the variation of the dependent variable ROE. The overall model is significant at the 0.01 level as presented by table 4.4 where the model level of significance is 0.000 which is less than 0.05.

Furthermore, examining the model and analyzing the coefficients of the independent variables, as presented by table 4.4, it is observed that the independent variable (AQ) is significant in explaining the variation of the dependent variable (ROE). The independent variable (LR) is significant in explaining the variation of the dependent variable (ROE). The result indicates a negative relationship between AQ, LR and ROE. And then, the independent variable (CA) is no significant in explaining the variation of the dependent variable (ROE). The independent variable (ME) is no significant in explaining the variation of the dependent variable (ROE). The independent variable

(ER) is no significant in explaining the variation of the dependent variable (ROE). The result points out a negative relationship between CA, LR and ROA.

4.8 Panel Data Analysis: Fixed and Random Effect Model

This is often an introduction to panel data analysis on an applied level using Stata software. Panel data repeated measures of 1 or more variables on one or more persons (repeated cross-sectional time-series). Panel data offer information on the time-ordering of events. Panel data allow to control for individual unobserved heterogeneity. Since unobserved heterogeneity is that the problem of non-experimental research.

The Hausman (1978) test is presently recommended by numerous textbooks in panel data analysis to decide a decision whether fixed effects are needed for management of unit heterogeneity or whether more efficient random effects are often used instead. The analysis of time series cross section (Panel data) is complicated by the potential presence of unmodelled unit heterogeneity. These complications involve bias in forecasted the effect sizes and artificially deflated uncertainty. Random or fixed effects model can mitigate these problems, but whether it's best to settle on a random or fixed effects model depends on facts unknown to the researcher. A "group" effect random if can think of the levels observe therein group to be samples from a bigger population. Example: if collecting data from different medical center, "center" could be thought of as random.

If there are not any omitted variables, and these variables are uncorrelated with the explanatory variables that are within the model-then a random effects model is perhaps best. It'll produce unbiased estimates of the coefficients, use all the data available, and produce the smallest standard errors. More likely, however, is that omitted variables will produce a minimum of some bias in the estimates. Random effects models will often have lesser standard errors. But the trade-off is that their coefficients are more likely to be biased. Random effects models will estimate the consequences of effects of time-invariant variables, but the estimates may be biased are not controlling for omitted variables.

If there are omitted variables, and these variables are correlated with the variables in the model, then fixed effects models may provide a means for controlling for omitted variable bias. In a fixed effects model, subjects obey as their own controls. In order for this to be true, the omitted variables must have time-invariant values with time-invariant effects. By time-invariant values, mean that the value of the variable does

not change across time. By time-invariant effects, mean that the variable has the same effect across time. If subjects modify little, or not at all, across time, a fixed effects model may not effort very well or even at all. There needs to be within-subject variability in the variables if are to use subjects as their own controls. If there is little variability within subjects then the standard errors from fixed effects models may be too large to tolerate. With fixed effects models, do not estimate the effects of variables whose values do not change across time. Rather, control for them or “partial them out”.

Intuitively, Hausman’s approach is to match the behavior of an inefficient. If there is no correlation between regressors and effects, then fixed effect and random effect are both consistent, but fixed effect is inefficient. If there’s correlation, fixed effect is consistent and random effect is inconsistent.

In order to choose between the fixed effect and random effect models for the model 1(ROA), the Hausman test was used. Hausman test reported a chi-square value of 15.32 with a p-value of 0.0091 implying that at 5 percent level. Hence the researcher can reject the null hypothesis that fixed- effect model was preferred to random effects model for ROA. Thus, the researchers applied the models using fixed- effect model.

Finally, so as to settle on between fixed effect and random effect model for model 2(ROE), Hausman test was used. The null hypothesis of the Hausman test was that the fixed effects model was preferred to random effects model. For ROE model, Hausman test reported a chi-square of -30.80 with a p-value is littler than 5 percent level close to zero. The researcher therefore did reject the null hypothesis that was preferred fixed-effect model to random effects model for ROE. Thus, the researchers applied the models using fixed-effect model.

4.9 Regression Analysis (Hausman Specification Test)

It’s vital to know that this study used a panel data approach for regression. As a the result, the likelihood that some uncertain variables that are time invariant (Fixed in time) and entity specific may influence our predictor and thus misrepresent the coefficient estimated using the panel approach. A fixed effect model test was thus conducted to control fixed effect factors. A random effect test was also run to check whether the above –mentioned error terms are not correlated across each other.

In this analysis for ROA:

Null Hypothesis: Random Effect Model is appropriate

Alternative Hypothesis: Fixed Effect Model is appropriate

If the probability value is more than 5% meaning, which cannot reject the null hypothesis and can accept the null hypothesis. If the probability value is less than 5% meaning that can reject the null hypothesis and can accept the alternative hypothesis for ROA.

Thus, the probability value is 0.0091(0.91%) in this regression which is less than 5% meaning, which can reject null hypothesis rather accept alternative hypothesis that means Fixed Effect Model is appropriate that is the better for ROA.

Table (4.5) Return on Asset with all the Independent Variables

Variables	Coefficient	Standard error	t-statistics
Constant	1.888989	0.6942772	2.72
CA	0.006498	0.0042444	1.53
AQ	0.0032098	0.0612044	0.05
ME	-0.0250439	0.0051906	-4.82
ER	0.0359074	0.0100496	3.57
LR	-0.0034809	0.0048597	-0.72
R-squared	0.9317		
F(5,20)	33.93		

Source: STATA Outputs Appendix (A)

Regression analysis is employed to check the impact of CAMEL factors on the financial performance of listed and non-listed banks during period under review. From a regression of the independent and dependent variables, the subsequent relationships were found.

Table 4.5 shows that there's a positive relationship between independent variables (CA, AQ and ER) and Return on Assets. If CA, AQ and ER increase 1%, ROA will increase 0.65%, 0.32% and 3.59%. And there is a weak negative relationship between independent variables (ME and LR) and Return on Assets. An increase in ME and LR by 1% will reduce ROA by 2.50 % and 0.35%. The independent variables were significantly related with ROA supported R-square of 93% which suggests that approximately 93% of variation in the ROA could be explained by the independent variables.

And then, in this also analysis for ROE:

Null Hypothesis: Random Effect Model is appropriate

Alternative Hypothesis: Fixed Effect Model is appropriate

If the probability value is more than 5% meaning that cannot reject the null hypothesis and can accept the null hypothesis. If the probability value is less than 5% meaning that can reject the null hypothesis and can accept the alternative hypothesis for ROE.

Thus, the probability value is what proportion 0 right almost 0 which is less than 5% meaning that can reject null hypothesis rather accept alternative hypothesis that means Fixed Effect Model is appropriate that is the foremost better for ROE.

Table (4.6) Return on Equity with all the Independent Variables

Variables	Coefficient	Standard error	t-statistics
Constant	28.63875	6.809266	4.21
CA	-0.0312345	0.0416282	-0.75
AQ	1.615334	0.6002749	2.69
ME	-0.4241318	0.0509082	-8.33
ER	0.0178585	0.0985633	0.18
LR	0.0313923	0.0476623	0.66
R-squared	0.4905		
F(5,20)	26.33		

Source: STATA Outputs Appendix (B)

Table 4.6 shows that there is a positive relationship between Return on Equity and AQ, ER and LR. If AQ, ER and LR increase 1%, ROE will increase 161.53%, 1.79% and 3.14%. And there is a weak negative relationship between ROE and CA and ME. An increase in CA and ME by 1% will reduce ROE by 3.12 % and 42.41%. The independent variables are significantly related with ROE based on R-square of 49% which suggests that approximately 49% of variation in the ROE could be explained by the independent variables.

4.9.1 Breusch and Pagan Lagrangian Multiplier Test (ROA)

In this test for ROA:

Null hypothesis: Pooled Regressions is appropriate.

Alternative hypothesis: Random Effect Model is appropriate.

If the probability value is more than 5% meaning, which cannot reject the null hypothesis and can accept the null hypothesis meaning that Pooled regression model is appropriate for ROA and if the probability value is less than 5% meaning, which can reject the null hypothesis and can accept the alternative hypothesis meaning that random effect model is appropriate for ROA.

Table (4.7) Breusch and Pagan LM Test (ROA)

Variable	Variance	Standard deviation=sqrt(Var)
Return on Asset	1.505993	1.227189
E	.0429032	.2071309
U	0	0
Chi2 (1)	0.30	
Prob>Chi 2	0.5818	

Source: STATA Outputs Appendix (A)

According to the Breusch and Pagan LM test for ROA, $\chi^2 = 0.5818$ that is more than 5 % level. Hence the researcher cannot reject the null hypothesis that Pooled regression model is preferred to random effects model for ROA. Thus the research is applied the models using Pooled regression model for ROA.

4.9.2 Breusch and Pagan Lagrangian Multiplier Test (ROE)

In this test for ROE:

Null hypothesis: Pooled Regressions is appropriate.

Alternative hypothesis: Random Effect Model is appropriate.

If the probability value is more than 5% meaning, which cannot reject the null hypothesis and can accept the null hypothesis meaning that Pooled regression model is appropriate for ROE and if the probability value is less than 5% meaning, which can reject the null hypothesis and can accept the alternative hypothesis meaning that random effect model is appropriate for ROE.

Table (4.8) Breusch and Pagan LM Test (ROE)

Variable	Variance	Standard deviation=sqrt(Var)
Return on Equity	31.7652	5.636062
E	4.126905	2.031479
u	0	0
Chi2 (1)	0.44	
Prob>Chi 2	0.5049	

Source: STATA Outputs Appendix (B)

According to the Breusch and Pagan LM test for ROA, $\chi^2 = 0.5049$ that is more than 5 % level. Hence the researcher cannot reject the null hypothesis that Pooled regression model is preferred to random effects model for ROE. Thus, the research is applied the models using Pooled regression model for ROE.

CHAPTER 5

CONCLUSION

This chapter provides the summary of findings and discussion, suggestions and recommendation and need for further studies were based on the objective of the study (i.e., to determine the effect of bank specific factors as represented by the CAMEL factors and financial performance of commercial banks in Myanmar). Our findings as expected, based on the panel data in 2013-2018 of the five commercial banks. The study used secondary data from published financial statements during the period 2013-2018. First, focus is placed on the summary of the findings and discussion of the study questions confirmation as derived from this study. Additionally, policy and further study recommendations. Suggestion for further study also are captured as a way of filling the gaps identified in the study. This study has inherent limitations in the sense that it is limited to only listed banks and non-listed banks in Myanmar. Additionally, all the banks that were considered for this study have different reporting dates and accounting policies. Unlike in many other studies, this study has combined listed and non-listed banks.

5.1 Findings and Discussion

In this finding, the main objective of this study is to investigate the performance for commercial banks of Myanmar based on CAMEL approach and their performance as well as to investigate the relationship between CAMEL variables with profitability measure Return on Asset or Return on Equity. Panel data of thirty observations in 2013-2018 of five commercial banks was analyzed using multiple liner regressions method.

Return on asset ratio 3.48% was highest in First Private Bank in financial year 2013-2018. Average of this ratio was lowest in United Amara Bank and Asia Green Development Bank i.e., 0.62 % and 0.21 %.

Return on equity ratio 16.45% was highest in First Private Bank in financial year from 2013 to 2018. Average of this ratio was lowest in Asia Green Development Bank i.e. 2.74 %. Different banks achieved highest return on equity that Myanmar Citizen Bank (MCB) with 8.85 %, Ayeyarwady Bank (AYA) with 11.40 % and United Amara Bank (UAB) with 6.29 % in 2012-2013, MCB with 11.54 %, AYA Bank with 17.06 % and UAB with 4.18 % in 2013-2014, MCB with 8.40%, AYA Bank with the12.09% and UAB with 9.43% in 2014-2015, , MCB with 8.63%, AYA Bank with 7.94% and UAB with 0.77% in 2015-2016, , MCB with 8.76%, AYA Bank with the

11.50% and UAB with 1.9% in 2016-2017 and MCB with 4.55%, AYA Bank with 8.03% and UAB with 8.86% in 2017-2018.

According to the Pearson Correlation Matrix, firm performance (ROA) and CAMEL factors (CA, ER and LR) are positive significant correlation (correlation = 0.414, p-value = 0.023; correlation = 0.903, p-value = 0.000 and correlation = 0.407, p-value = 0.026). Firm performance (ROA) and CAMEL (AQ and ME) are negative significant correlation (correlation = -0.494, p-value = 0.005 and correlation = -0.970, p-value = 0.000). And then, firm performance (ROE) and CAMEL factors (CA, ER and LR) are positive significant correlation (correlation = 0.081, p-value = 0.670; correlation = 0.498, p-value = 0.005 and correlation = 0.184, p-value = 0.332). Firm performance (ROE) and CAMEL factors (AQ and ME) are negative significant correlation (correlation = -0.505, p-value = 0.004 and correlation = -0.733, p-value = 0.000). This result indicated that if CAMEL factors (Capital Adequacy, Asset Quality, Managerial Efficiency, Earning Ratio and Liquidity Ratio) increase, firm performance (ROA and ROE) will decrease. If firm performance (ROA and ROE) increase, CAMEL factors (Capital Adequacy, Asset Quality, Managerial Efficiency, Earning Ratio and Liquidity Ratio) will decrease.

According to the Ordinary Least Squares (OLS) regression analysis, the association with between the firm performance (ROA) and CAMEL factors measure that Return on Asset (ROA) and management efficiency (ME) had negative relation with the return on asset of the commercial banks and positive relation with capital adequacy ratio (CA), Asset quality ratio (AQ), Earning ratio (ER) and Liquidity ratio (LR). This indicates that management efficiency (ME) ratio had inverse relation with the ROA. Asset quality (AQ) is significant (0.070) at 10% level whereas management efficiency (ME) ratio and earning ratio (ER) was significant (0.000 and 0.009) at 1% level. Addition, the association between the firm performance (ROE) and CAMEL factors measures that Return on Equity and Capital adequacy ratio (CA), Asset quality ratio (AQ), Management efficiency ratio (ME), Earning ratio (ER) and Liquidity Ratio (LR) had negative relation and there is no positive relation with the ROE. This indicates that Capital adequacy ratio (CA), Asset quality ratio (AQ), Management efficiency ratio (ME), Earning ratio (ER) and Liquidity Ratio (LR) had inverse relation with the ROE. Asset quality (AQ) and Liquidity ratio (LR) is significant (0.001 and 0.000) at 1% level whereas Capital adequacy ratio, Management efficiency (ME) ratio and earning ratio (ER) is not significant. As to the explanatory power of the regression output 96% of the

change in the Return on Asset can be explained by the selected CAMEL model variable while 65% of the change on the Return on Equity.

In Hausman Specification Test, Null Hypothesis: Random Effect Model is appropriate, Alternative Hypothesis: Fixed Effect Model is appropriate and if the probability value is more than 5% meaning, which cannot reject the null hypothesis and can accept the null hypothesis. If the probability value is less than 5% meaning, which can reject the null hypothesis and can accept the alternative hypothesis. For ROA, the probability value is 0.0091(0.91%) in this regression which is less than 5% meaning, which can reject null hypothesis rather accept alternative hypothesis. This means that Fixed Effect Model is appropriate that it is the most for ROA. For ROE, the probability value is how much 0 right almost 0 which is less than 5% meaning that can reject null hypothesis rather accept alternative hypothesis. This means that Fixed Effect Model is appropriate that it is the most for ROE.

In Breusch and Pagan LM Test, null hypothesis: Pooled Regression is appropriate, alternative hypothesis: Random Effect Model is appropriate and if the probability value is more than 5% meaning that cannot reject the null hypothesis and can accept the null hypothesis. If the probability value is less than 5% meaning that can reject the null hypothesis and can accept the alternative hypothesis. According to the Breusch and Pagan LM test for ROA, $\text{prob}>\chi^2 = 0.5818$ that is more than 5% level. Hence the researcher cannot reject the null hypothesis that Pooled regression model is preferred to Random Effect Model for ROA. Thus, the research is applied the models using Pooled regression model for ROA. According to the Breusch and Pagan LM test for ROE, $\text{prob}>\chi^2 = 0.5049$ that is more than 5% level. Hence the researcher cannot reject the null hypothesis that Pooled regression model was preferred to Random Effect Model for ROE. Thus, the research is applied the models using Pooled regression model for ROE.

5.2 Suggestions and Recommendations

Based on the findings of the study the subsequent suggestions and recommendations were forwarded. The study informs Asset quality ratio, Management efficiency, Earning ability and Liquidity are the key drivers of Return on Asset of selected banks in Myanmar and similarly the study also distinguishes Capital strength, Management efficiency, Earning ability and Liquidity as the key drivers of Return on Equity of selected banks in Myanmar. Hence, bank managers are recommended to offer

due attention to the Capital Adequacy, Asset Quality, Managerial Efficiency, Earnings and Liquidity to enhance firm performance ROA and ROE.

The study recommends that the regulatory authorities and bank management should engage with one another, and appear with optimal regulatory policies on Capital Adequacy ratio, Asset Quality ratio, Management efficiency ratio, Earning ratio and Liquidity ratio. The outcomes of the regression analyses showing Management Efficiency and Liquidity to possess the best effect on bank efficiency should be a symbol, that banks should also strive to initiate the simplest management quality available and pay them also as they are that people who determine its operation through decisions, ensure the bank's smooth business, handles risks and exercises control and banks should be able to finance its obligations to depositors that this aspect of bank management is called liquidity management and it involves the bank acquiring sufficient quick assets to satisfy the stress from deposit withdrawals and depositors and ultimately determine the earnings the bank will eventually get in any accounting period.

If banks are more careful about the performance on ROA, a bank should maintain its shareholders' risk-weighted capital adequacy ratio and reach high capital adequacy position, should decrease its non-performing loan to enhance its asset quality, should manage the cost of the bank to be rationally utilized, should improve its net interest margin and maximize the income of loan product. When the bank should try to get more deposits, there is increase its liquidity. If the banks are more careful about the performance on ROE, the management of the bank should pay more attention on its cost, and make sure the costs of the bank are utilized in the rational way. At the equivalent time, banks should decrease its operating expenses to keep its efficiency, bank's liquidity are also quite important for ROE performance. Thus, a bank should improve its liquidity through absorbing more deposits and limiting the loan outstanding.

The study suggests that firstly, this business environment of banking is very unstable and undetermined. It's highly competitive and each bank is finding difficult to serve grow, stabilize and better in banking system. Further, bank performance management must be kept mind on the emerging trends in business environment. The right and timely strategies must be adopted to enhance efficiency of the banking performance.

Secondly, capital adequacy management should determine the decision making about the amount of capital of the bank and the way it should be accessed. If banks should invest more capital in foreign, it will increase asset earnings and will lead to

higher Returns on Equity. Banks should require to invest in assets that have a reasonably low level of risk associated with them. Banks should provide services to their bank's clients; it will get income and will increase in Return on Asset of Bank. Banks have to adopt the form of portfolio investment against losses.

Finally, banks should compare with foreign banking performances and they should adopt suitable rules, regulation, procedures and management quality. Banks faced with competition from public, private, foreign and cooperative banks. Moreover, performance is one of the management functions that are available on list but actually these functions are not performed or performed partially. Transactions and other banking formalities take the expensive time of customers. Especially management of banks should specialize in prompt response and reduce the waste your time of customers and that they should effort to urge their objectives. Therefore, the Central Bank of Myanmar should determine the same rule system for each bank in Myanmar.

5.3 Needs for Further Study

The present study focused on affecting between financial performance and CAMEL factors of selected banks in Myanmar, further studies could also be done to seek out why the model isn't popular in some of the developed countries. Further research may also be done to assess the inter-affecting between the CAMEL factors to reinforce policy formulation. Additionally to the sensitivity to market risk another component recently added to the CAMEL framework for banks evaluation are often included within the model to measure its effects on the efficiency ratio. Investigate the influence of tax rates, interest rates, GDP and inflation on corporate financial performance. Examine the effect of ownership structure on firm's financial performance. Compare the financial performance of banking sector and other service sectors.

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Sampling Characteristics and Data transformation

APEPDIX-All the Models and their Hausman Test by Ys

1. Return on Asset with all the Xs

1.1 Pooled OLS Regression

```
. regress roacaaq me erlr
```

Source	SS	df	MS	Number of obs =	30
Model	42.2664229	5	8.45328458	F(5, 24) =	144.15
Residual	1.40737669	24	.058640695	Prob> F =	0.0000
Total	43.6737996	29	1.50599309	R-squared =	0.9678
				Adj R-squared =	0.9611
				Root MSE =	.24216

roa	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
ca	.0011819	.0030282	0.39	0.700	-.0050681	.0074319
aq	.077291	.0407504	1.90	0.070	-.0068136	.1613956
me	-.0362712	.004175	-8.69	0.000	-.044888	-.0276545
er	.0235866	.008257	2.86	0.009	.006545	.0406282
lr	.0009939	.002189	0.45	0.654	-.003524	.0055117
_cons	2.596172	.4534235	5.73	0.000	1.660352	3.531992

1.2 Fixed Effect Model

```
. xtregroacaaq me erlr, fe
```

Fixed-effects (within) regression	Number of obs =	30
Group variable: bankcode	Number of groups =	5
R-sq: within = 0.8945	Obs per group: min =	6
between = 0.9411	avg =	6.0
overall = 0.9317	max =	6
corr(u_i, xb) = 0.2357	F(5,20) =	33.93
	Prob> F =	0.0000

roa	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
ca	.006498	.0042444	1.53	0.141	-.0023558	.0153517
aq	.0032098	.0612044	0.05	0.959	-.1244604	.13088
me	-.0250439	.0051906	-4.82	0.000	-.0358713	-.0142164
er	.0359074	.0100496	3.57	0.002	.0149444	.0568705
lr	-.0034809	.0048597	-0.72	0.482	-.013618	.0066562
_cons	1.888989	.6942772	2.72	0.013	.4407524	3.337226

sigma_u	.30603964
sigma_e	.20713088
rho	.68583691 (fraction of variance due to u_i)

F test that all u_i=0: F(4, 20) = 3.20 Prob> F = 0.0348

1.3 Random Effect Model

```
. xtregroacaq me erlr, re
```

```
Random-effects GLS regression           Number of obs   =       30
Group variable: bankcode                Number of groups =        5

R-sq:  within = 0.8470                  Obs per group:  min =        6
        between = 0.9955                  avg =           6.0
        overall = 0.9678                  max =           6

Random effects u_i ~ Gaussian           Wald chi2(5)    =    720.77
corr(u_i, X) = 0 (assumed)              Prob> chi2     =     0.0000
```

roa	Coef.	Std. Err.	Z	P> z	[95% Conf. Interval]	
ca	.0011819	.0030282	0.39	0.696	-.0047533	.0071172
aq	.077291	.0407504	1.90	0.058	-.0025782	.1571602
me	-.0362712	.004175	-8.69	0.000	-.044454	-.0280884
er	.0235866	.008257	2.86	0.004	.0074032	.0397701
lr	.0009939	.002189	0.45	0.650	-.0032964	.0052841
_cons	2.596172	.4534235	5.73	0.000	1.707478	3.484866
sigma_u	0					
sigma_e	.20713088					
rho	0 (fraction of variance due to u_i)					

1.4 Hausman Specification Test

```
. hausman Fixed .
```

---- Coefficients ----					
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))	
	Fixed	Random	Difference	S.E.	
ca	.006498	.0011819	.0053161	.0029741	
aq	.0032098	.077291	-.0740812	.0456661	
me	-.0250439	-.0362712	.0112273	.0030842	
er	.0359074	.0235866	.0123208	.0057285	
lr	-.0034809	.0009939	-.0044748	.0043388	

b = consistent under Ho and Ha; obtained from xtreg
 B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\begin{aligned} \text{chi2}(5) &= (b-B)'[(V_b-V_B)^{-1}](b-B) \\ &= 15.32 \end{aligned}$$

Prob>chi2 = 0.0091
 (V_b-V_B is not positive definite)

1.5 Breusch and Pagan LM Test

Breusch and Pagan Lagrangian multiplier test for random effects

$$\text{roa}[\text{bankcode},t] = Xb + u[\text{bankcode}] + e[\text{bankcode},t]$$

Estimated results:

			Varsd = sqrt(Var)
roa	1.505993	1.227189	
		e	.0429032 .2071309
		u	0 0

Test: Var(u) = 0

chi2(1) = 0.30

Prob> chi2 = 0.5818

2. Return on Equity with all the Xs

2.1 Pooled OLS Regression Model

. regress roe caaq me erlr

Source	SS	df	MS	Number of obs = 30		
Model	600.533656	5	120.106731	F(5, 24) = 8.99	Prob> F = 0.0001	
Residual	320.657041	24	13.36071	R-squared = 0.6519	Adj R-squared = 0.5794	
Total	921.190697	29	31.7651964	Root MSE = 3.6552		

	roe	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
ca		-.057259	.0457094	-1.25	0.222	-.1515986 .0370806
aq		-.1402284	.6151012	-0.23	0.822	-1.409735 1.129278
me		-.2456712	.0630188	-3.90	0.001	-.3757356 -.1156069
er		-.1717604	.1246344	-1.38	0.181	-.4289932 .0854725
lr		-.0533864	.0330411	-1.62	0.119	-.1215798 .014807
_cons		34.1086	6.844146	4.98	0.000	19.98297 48.23422

2.2 Fixed Effect Model

. xtreg roe caaq me erlr, fe

Fixed-effects (within) regression	Number of obs = 30
Group variable: bankcode	Number of groups = 5
R-sq: within = 0.8681	Obs per group: min = 6
between = 0.5659	avg = 6.0
overall = 0.4905	max = 6
	F(5,20) = 26.33
corr(u_i, xb) = -0.8794	Prob> F = 0.0000

	roe	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
ca		-.0312345	.0416282	-0.75	0.462	-.1180694 .0556005
aq		1.615334	.6002749	2.69	0.014	.3631827 2.867486
me		-.4241318	.0509082	-8.33	0.000	-.5303244 -.3179392
er		.0178585	.0985633	0.18	0.858	-.187741 .2234581
lr		.0313923	.0476623	0.66	0.518	-.0680296 .1308141
_cons		28.63875	6.809266	4.21	0.000	14.43487 42.84263

sigma_u		8.4306724
sigma_e		2.0314785
rho		.94512324 (fraction of variance due to u_i)

F test that all u_i=0:	F(4, 20) = 14.42	Prob> F = 0.0000
------------------------	------------------	------------------

2.3 Random Effect Model

```
. xtreg roe caaq me erlr, re
```

```
Random-effects GLS regression              Number of obs   =       30
Group variable: bankcode                  Number of groups =        5

R-sq:  within = 0.6993                    Obs per group:  min =        6
        between = 0.8316                    avg =           6.0
        overall = 0.6519                    max =           6

Random effects u_i ~ Gaussian             Wald chi2(5)     =       44.95
corr(u_i, X) = 0 (assumed)                Prob> chi2       =       0.0000
```

```
-----+-----
           roe |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-----+-----
ca |   -.057259   .0457094    -1.25   0.210   -.1468478   .0323298
aq |  -.1402284   .6151012    -0.23   0.820   -1.345805   1.065348
   me |  -.2456712   .0630188    -3.90   0.000   -.3691858  -.1221567
er |  -.1717604   .1246344    -1.38   0.168   -.4160394   .0725186
lr |  -.0533864   .0330411    -1.62   0.106   -.1181457   .0113729
   _cons |   34.1086    6.844146     4.98   0.000   20.69431   47.52288
-----+-----
sigma_u |           0
sigma_e |   2.0314785
      rho |           0   (fraction of variance due to u_i)
-----+-----
```

2.4 Hausman Specification Test

```
. hausman Fixed .
```

```
-----+-----
          ---- Coefficients ----
          |      (b)      (B)      (b-B)      sqrt(diag(V_b-V_B))
          |      Fixed      .      Difference      S.E.
-----+-----
ca |   .006498   -.057259   .063757      .
aq |   .0032098  -.1402284   .1434382      .
   me |  -.0250439  -.2456712   .2206274      .
er |   .0359074  -.1717604   .2076678      .
lr |  -.0034809  -.0533864   .0499055      .
-----+-----
```

```
b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg
```

```
Test: Ho: difference in coefficients not systematic
```

```
chi2(5) = (b-B)'[(V_b-V_B)^(-1)](b-B)
         =  -30.80   chi2<0 ==> model fitted on these
                    data fails to meet the asymptotic
                    assumptions of the Hausman test;
                    see suest for a generalized test
```

2.5 Breusch and Pagan LM Test

Breusch and Pagan Lagrangian multiplier test for random effects

$$\text{roe}[\text{bankcode},t] = x\text{b} + u[\text{bankcode}] + e[\text{bankcode},t]$$

Estimated results:

	Varsd = sqrt(Var)	
	-----+-----	
roe	31.7652	5.636062
e	4.126905	2.031479
u	0	0

Test: Var(u) = 0

chi2(1) = 0.44

Prob> chi2 = 0.5049

First Private Bank (FPB)

Year	Profit After Tax	Total Asset	Total Equity
2013	4,636,462,892	133,047,463,883	28,189,463,569
2014	6,037,809,060	160,247,662,319	36,364,413,368
2015	6,573,050,823	185,518,310,530	41,812,770,143
2016	6,412,138,961	207,451,427,721	52,019,306,780
2017	6,474,786,817	233,742,595,817	57,572,476,588
2018	6,240,869,538	251,003,614,594	58,665,645,270

Myanmar Citizen Bank (MCB)

Year	Profit After Tax	Total Asset	Total Equity
2013	1,804,698	81,656,691	20,389,525
2014	2,512,938	105,297,273	21,784,476
2015	3,770,210	164,203,978	44,899,291
2016	5,307,287	229,812,819	61,466,792
2017	5,833,101	259,095,042	66,574,392
2018	3,171,369	310,149,960	69,696,365

Ayeyawady Bank (AYA)

Year	Profit After Tax	Total Asset	Total Equity
2013	5,984	490,470	52,487
2014	9,770	927,249	57,257
2015	7,845	1,751,051	64,902
2016	7,859	2,911,549	98,961
2017	14,815	4,168,713	128,776
2018	12,998	4,965,169	161,774

United Amara Bank (UAB)

Year	Profit After Tax	Total Asset	Total Equity
2013	2,381	385,443	37,828
2014	1,872	570,197	44,700
2015	4,243	661,876	44,983
2016	378	853,974	49,355
2017	960	1,012,279	50,301
2018	5807	1,047,209	65526

Asia Green Development Bank (AGD)

Year	Profit After Tax	Total Asset	Total Equity
2013	786,532,712	366,499,256,093	28,717,934,442
2014	7,202,800,522	463,116,139,403	34,160,034,964
2015	84,433,146	457,487,122,048	32,365,013,344
2016	197,892,200	446,572,716,435	32,562,905,544
2017	691,126,146	557,636,255,010	32,024,978,033
2018	1084	661054	32125

Capital Adequacy Ratio Analysis

Bank	2013	2014	2015	2016	2017	2018
FPB	37.98%	32.33%	30.66%	25.64%	25.87%	23.42%
MCB	82%	54%	70%	74%	30.09%	25.68%
AYA	30.37%	16.42%	11.17%	31.93%	30.58%	31.78%
UAB	16.2%	14.4%	11.0%	8.2%	6.1%	11.85%
AGD	39.96%	30.72%	21.43%	29.52%	27.62%	27.52%

Asset Quality Ratio Analysis

Bank	2013	2014	2015	2016	2017	2018
FPB	3.41%	2%	2%	1.99%	1.99%	1.99%
MCB	1.6%	1.4%	2.2%	2.1%	2.89%	4.45%
AYA	0.17%	0.8%	0.58%	3.17%	1.68%	2%
UAB	4%	4.02%	4.23%	4.48%	4.65%	4.83%
AGD	4%	4.3%	4.5%	4.8%	5.1%	5.72%

Management Efficiency Ratio Analysis

Bank	2013	2014	2015	2016	2017	2018
FPB	19.42%	18.25%	18.67%	21.31%	21.69%	25.65%
MCB	40%	42.41%	38.06%	45.12%	43.59%	69.97%
AYA	53.57%	53.26%	71.19%	79.97%	74.99%	81%
UAB	75%	82.61%	72.24%	97.23%	90.89%	58.18%
AGD	89.18%	54.48%	99.23%	97.97%	94.59%	94.92%

Earnings Ratio Analysis

Bank	2013	2014	2015	2016	2017	2018
FPB	47.69%	46.25%	43.27%	37.48%	35.05%	34.22%
MCB	39.5%	42.45%	39.63%	44.21%	45%	39.80%
AYA	35.41%	27%	15.02%	10.39%	11.44%	16.14%
UAB	16.5%	17%	17.5%	18%	19.34%	26.57%
AGD	21.50%	31.22%	17.45%	12.21%	16.13%	18.98%

Liquidity Ratio Analysis

Bank	2013	2014	2015	2016	2017	2018
FPB	84%	94%	88%	94.73%	95%	95%
MCB	42%	30%	33%	50%	60%	75%
AYA	60.99%	52.64%	66.98%	61.43%	59.46%	54..82%
UAB	38.4%	43.8%	37.8%	28.5%	25.8%	33.45%
AGD	57.49%	65.14%	64.56%	64.36%	65.5%	66.30%

First Private Bank (FPB)

Year	ROA (%)	ROE (%)
2013	3.48	16.45
2014	3.77	16.60
2015	3.54	15.72
2016	3.09	12.33
2017	2.77	11.25
2018	2.49	10.64

Myanmar Citizen Bank (MCB)

Year	ROA (%)	ROE (%)
2013	2.21	8.85
2014	2.39	11.54
2015	2.30	8.40
2016	2.31	8.63
2017	2.25	8.76
2018	1.01	4.55

Ayeyawady Bank (AYA)

Year	ROA (%)	ROE (%)
2013	1.99	11.40
2014	0.85	17.06
2015	0.45	12.09
2016	0.27	7.94
2017	0.36	11.50
2018	0.26	8.03

United Amara Bank (UAB)

Year	ROA (%)	ROE (%)
2013	0.62	6.29
2014	0.33	4.18
2015	0.64	9.43
2016	0.04	0.77
2017	0.09	1.91
2018	0.55	8.86

Asia Green Development Bank (AGD)

Year	ROA (%)	ROE (%)
2013	0.21	2.74
2014	1.56	21.09
2015	0.02	0.263
2016	0.04	0.61
2017	0.12	2.16
2018	0.16	3.37