



**ADDIS ABABA UNIVERSITY**  
**COLLEGE OF BUSINESS AND ECONOMICS**  
**DEPARTMENT OF ACCOUNTING AND FINANCE**  
**DETERMINANTES OF DIVIDEND PAYOUT IN ETHIOPIAN**  
**PRIVATE COMMERCIAL BANKS**

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**A thesis submitted to the Department of Accounting and Finance for the Partial fulfillment of the degree of Master of Science in Accounting and Finance.**

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### **Statement of Declaration**

I, Mahider Germew, hereby declare this thesis on the topic entitled: determinants of dividend payout in Ethiopian private commercial banks submitted in partial fulfillment of the requirement of degree of masters of Science program in accounting and finance with the guidance and support of the research advisor

This is my original and that has not been presented for any degree or diploma program in any other university/institution that all source of material used for the thesis has been duly acknowledged.

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Date \_\_\_\_\_

## Statement of certification

This is to certify that the thesis prepared by Mahider Geremew, topic entitled: determinants of dividend payout in Ethiopian private commercial banks and submitted in partial fulfillment of the requirements for the degree of masters of science in Accounting and Finance compiled with the regulation of the university and meets the accepted standards with respect to originality and quality.

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## **Abstract**

Even though a lot of researches regarding dividend payout ratio have been conducted, there is no uniform answer to the question: what are the determinants of the companies' dividend payout ratio? Therefore, the researcher of this study decided to conduct a study regarding the determinants of dividend payout ratio of Ethiopian private banks using bank specific factors and macroeconomic variables. The main objective of this study was to identify the determinants of dividend payout ratio of Ethiopian private banks. To answer the objective of the study, explanatory and descriptive study used and the data covered the period from 2010-2019 for the sample of twelve Ethiopian private banks and used secondary data. Both bank specific and macroeconomic variables were analyzed by employing the balanced panel fixed effect regression model and the study used dividend payout ratio as a dependent variable and eight independent variables, namely; profit, leverage, liquidity, age, lagged dividend payout, GDP, inflation rate and exchange rate. The result of the study revealed that Profit, liquidity, age and foreign exchange have positive and statistically significant effect on dividend payout ratio significant, and, lagged dividend, inflation. Leverage and GDP have negative and statistically insignificant effect on dividend payout ratio, except for Leverage, which has statistically significant effect.

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## **List of Acronyms and Abbreviations**

CBE – commercial bank of Ethiopia

CLRM – Classical linear regression model

CSA – Central statistical agency

DVPO – Dividend payout

DW – Durbin-Watson

ECOG – Economic growth

FEM – Fixed Effect Model

GDP – Gross domestic product

INF - Inflation

LDVP – Lagged dividend payment

LEV – Leverage

LIQ – Liquidity

M&M – Miller and Modigliani

NBE – National bank of Ethiopia

OLS- ordinary list square

NPV – Net present Value

RER- Retained earnings

PRO – Profitability

REM – Random Effect Model

ROE – Return on equity

# CHAPTER ONE

## I. INTRODUCTION

Dividends can be explained as compensation made by a company to its shareholders, either preference shareholders or common shareholders from profit generated in current or previous financial periods. Forms of dividend payment include cash dividend, stock dividend and property dividend (Denis and Osobov, 2008). Dividend payout ratio computes the portion of financial gain once tax that's issued to shareholders as dividends. This quantitative relation signifies proportion of profits the organization decides to retain to finance operations and also the percentage of net profits that is distributed to its shareholders (Imran, 2011). Dividend payout ratio computes the portion of financial gain once tax that's issued to shareholders as dividends. This quantitative relation signifies proportion profits the organization decides to retain to finance operations and also the percentage of net profits that is distributed to its shareholders. Payment of dividends by companies sends a powerful message concerning future prospects and growth. A firm's capability to pay dividends consistently over time and its ability to increase the dividends sends positive signal to the market about its future outlook as a going concern (Jensen, 2007).

According to (Brigham, 2013), manager's makes dividend decision on which managers decides what percentage of current earnings must be paid out to shareholder's rather than retaining for farther operation. In general; the decision made by the financial managers aiming to maximize the wealth of shareholder's depends on dividend decision; (like; how much amount of incomes should be distributed to shareholders and how many portions of earning must be retained for farther operation) is made to pay back direct cash return to the shareholder's for their investment (Brigham, 2013 and Al Malkawi et. al, 2010).

Dividend payments decreases retained earnings for investments and affects the liquidity of the company which leads to need for external financing. Farther, the payment influences the overall capital structure of the firm. Dividend pay-out conjointly absolutely influences market value of (Watson and Head 2004). Therefore, dividend policy ought to be set in such a fashion that fulfills shareholders similarly as firm's desires.

The issue of dividend has attracted the attention of academicians and researchers. Brealey and Myers (2003) listed dividend issue as one of the top ten important unresolved issues in the field of advanced corporate finance. Scholars developed a number of theoretical models describing the factors that corporate managers should consider when setting dividend payout decisions which caused to be the center of debate in the financial literature. Black (1976) argues that the harder we look at the dividends picture, the more it seems like a puzzle, with pieces that do not fit together. To help explain this puzzle, academicians developed various theories; signaling, tax preference, agency costs, and bird-in-the-hand explanations. These theories led Ang (1987) to observe, "Thus, we have moved from a position of not enough good reasons to explain why dividends are paid to one of too many." Advocates of behavioral finance, such as Shefrin and Statman (1984), introduced concepts such as prospect theory and mental accounting to explain why investors like dividends. Statman (1997) contends that solving the dividend puzzle is impossible while ignoring the patterns of normal investor behavior. Today, corporate managers are left with a vast and often conflicting body of research about dividends. One way to enhance our understanding of why corporations pay dividends is to examine the factors determine dividend payout decisions.

Past researches have provided important insights into the different factors affecting dividend payout. Most of the factors assessed were internal factors like: Bank size, Leverage, previous year dividend, Liquidity, profitability, Growth, Risk, Age, Regulation, and inflation. Based on the research conducted by (Tadele ,2017); disclosed leverage, profitability, inflation and lagged dividend have positive effect the pattern of dividend payment. According to (Temesgen and Dr. Venkati,2016); profitability, liquidity and age of the company are the main factors which positively and significantly affect the payment of dividend. (Chekole,2016); also conducted similar research and revealed the growth of the company as main factor; on the other hand he depicts profitable and highly leveraged firms pays less dividend than others. (Elias, 2015); disclosed the size, growth, risk and previous year dividend has positive and significant effect on current payment of dividend. The research conducted by (Oppong Kennedy, 2015); showed that the more the size, risk, age and growth of the firm will lead to have better dividend payment. Farther more, when ( Simegn,2013) says the age of the firm and previous year dividend have positive and significant effect on the current years dividend but liquidity leads the firms to pay

less dividend. Whereas (Ebenezer, 2013) indicate that the dividend payment pattern of a firm is influenced by liquidity and age of the firm.

Even though a lot of research in this area has been conducted using internal factor's (Tesfaye 2017), (Temesgen yohannes and Dr. Venkati Ponnala and Chekole, 2016), (Elias, and Opong Kennedy, 2015), ( Simegn and Ebenezer 2013) but, none of them explained the effect of macroeconomic factors like GDP, exchange rate and inflation on dividend payment except Tesfaye 2017. On the other hand; the findings of those studies are not consistent and this phenomenon is not clear enough to make generalization about the exact effect of the factors on DPR. Farther more; the timing and data used by previous studies are very old and outdated; and there are a lot of changes in banking sector specific and macroeconomic factors, the area of study is still needs to be researched again and again. This study will contribute to existing knowledge in several ways. This paper is one of the first studies in the area of dividends of financial firms in Ethiopia, where bank is important and growing sector in Ethiopian economy.

To knowledge of the researcher, Most of the studies conducted on determinants of dividend payout ratio of Ethiopian firms are on company perspective, where they focus on factors which are within the control of the firms. So there is a need to investigate whether bank specific factors and macroeconomics variables are determinant factors of dividend payout ratio of Ethiopian private banks. Thus, the researcher of this paper intends to fill this academic literature gap and to give a new insight to the prospective investors on the ever growing banking sector.

### **1.1.Statement of the Problem**

Ethiopia is in the track of continuous economic growth registering double digit annual GDP growth which resulted from the development of different sectors; service, agriculture, and industry. Corporate investments as an option of investment for individual as well as institutions and numbers of participants are depicting meaning full growth from time to time. Eventually, this augments the need to identify the driving elements of dividend payment policy in Ethiopia through empirical analysis. Therefore, a study on the determinants of dividend payout ratio shall be a relevant decision in view of these phenomena.

Many theories and models have been put forth to examine numerous facets of dividend study. The first empirical study of dividend policy was performed by Lintner (1956). He discovered that firms have long-run target dividend payout ratios and place their attention more on dividend changes than on absolute dividend levels. He also found that dividend changes follow shifts in long-run sustainable and managers are hesitant to make dividend changes that may later need to be reversed. Managers also try to stabilize dividends and avoid dividend cuts. The article by Miller and Modigliani is also groundbreaking in the theoretical modeling of dividends, which proposed dividend irrelevance. On the other hand, theories which support dividend relevance include tax preference, signaling, and agency explanations.

Dividend payment has been discussed at different levels by various researchers and it continues to be a puzzle (Nissim & Ziv, 2011). Researchers have wondered why organizations pay dividends and why investors are interested in payment of dividends. Perhaps companies pay dividends as a reward to their existing shareholders and to persuade potential investors to invest in their shares. In addition to that, firms that does not pay any dividends demonstrates confidence it has lucrative investment opportunities which might be untapped if it issued dividends (Norhayati, Wee, Normah, Rashidah, Nor'azam, Maz & Sazelina, 2010). Furthermore, if it is engaged in the investments it might increase the investments or value of shares by greater than the gain of the lost dividends. The investors might end up with appreciation of capital more than the dividends they could have missed out on (Lie, 2005). And researchers have developed and empirically tested various models to explain dividend behavior. Some conducted surveys of corporate managers to learn the most important determinants of corporate dividend payouts.

Among a number of researchers, (Tadele,2017), (Chekole,2016), (Elias, and Opong Kennedy, 2015); found dividend payout is the function of firm size, Growth and profitability. (Temesgen yohannes and Dr. Venkati Ponnala, 2016), ( Simegn H/Mariam and Ebenezer Agyemang 2013); indicated that firms with high liquid asset and long life distributed a higher amount of their net profit as cash dividend.

Some research studies have been done in relation to determinants of dividend pay-out ratio of commercial banks in Ethiopia: (Tadele, 2017); studied the Determinants of dividend policy in Ethiopian private banks. His study employed six bank specific (profit, leverage, liquidity,

retained earnings, loan loss provision, and lagged dividend) and two macroeconomic variables (economic growth and inflation); (Chekole, 2016); studied Internal Determinants of Dividend Payout in Private Commercial Banks in Ethiopia considering profit, leverage, liquidity, size, growth, and last year's dividend as independent variables. (Elias 2015); determinants of dividend Payout in Ethiopian Private Banks. The independent variables included in the study are profit, liquidity, leverage, lagged dividend, growth, size and risk.

Several studies conducted in different countries, indicates that a number of macroeconomic and bank specific variables explained as a factor of dividend payout. In this respect, as per knowledge of the researcher, only one study i.e. (Tsfaye, 2017); considered macroeconomic determinant variables in similar studies conducted on private commercial banks in Ethiopia so far. The findings of the different studies conducted on the determinant of dividend payout are inconsistent each other depend on the economic condition and the general situation in which the banks operate. Farther more; the very nature of Ethiopian commercial banks 'have their own unique nature such as high dominance of state bank, infancy of banking industry, restriction of foreign bank and unavailability of capital markets'. The usage or application of internationally accepted dividend theories such as entropy, balance sheet, signaling and so on; is very difficult and challenging.

Therefore, it is better to find out the existing situation of private commercial banks applications those dividend theories using both industry specific and macroeconomic variables that are not yet been fully considered in Ethiopian context and empirically examine their effect on dividend payout ratio of private commercial banks in Ethiopia.

## **1.2.Objectives**

### **1.2.1. General objectives**

The general objective of this study is to investigate the determinants of dividend payout ratio; empirical evidence from private commercial banks in Ethiopia.

### **1.2.2. Specific objectives**

- To examine whether profit has an impact on the dividend payout ratio of private commercial banks in Ethiopia.
- To investigate whether leverage has an impact on the dividend payout ratio of private commercial banks in Ethiopia.
- To investigate whether age has an impact on the dividend payout ratio of private commercial banks in Ethiopia.
- To investigate whether liquidity has an impact on dividend payout ratio of private commercial banks in Ethiopia.
- To evaluate the impact of previous year's dividends (lagged dividend) on the dividend payout ratio of private commercial banks in Ethiopia.
- To evaluate whether inflation rate has an impact on dividend policy in Ethiopian private commercial banks.
- To evaluate whether GDP has an impact on dividend policy in Ethiopian private commercial banks.

### **1.3. Research Hypothesis**

The following hypotheses are developed based on the research objectives and previous empirical studies. Therefore, this study attempted to test the following hypotheses in the case of private commercial banks in Ethiopia.

H1. Profitability has positive and significant impact on Dividend Payout Ratio of Ethiopian Commercial Banks.

H2. Leverage has a negative and significant impact on Dividend Payout Ratio of Ethiopian Commercial Banks.

H3. Age has a positive and significant impact on Dividend Payout Ratio of Ethiopian Commercial Banks.

H4. Liquidity has a positive relationship with Dividend Payout Ratio of Ethiopian Commercial Banks.

H5. Lagged Dividend Paid has a positive relationship with Dividend Payout Ratio of Ethiopian Commercial Banks.

H6. Inflation has a negative and significant impact on Dividend Payout Ratio of Ethiopian Commercial Banks.

H7. GDP has a positive and significant impact on Dividend Payout Ratio of Ethiopian Commercial Banks.

H8. Exchange rate has a negative and significant impact on Dividend Payout Ratio of Ethiopian Commercial Banks.

#### **1.4.Scope of the study**

The main aim of the study is to find out the main determinants of dividend payout ratio of private commercial banks in Ethiopia. Since panel data (both cross section and time serious) requires large number of observation; the study used 120 (one hundreds ten) observations for CLRM applied; i.e. 10 (ten) years financial statement data collected from 12 (twelve) private commercial banks operating from 2010 GC up to 2019 GC. Finally the study applied both firm specific and macro determinants as independent variables and the ratio of total dividend to net profit after legal reserve deducted as measure of the dependent variable i.e. dividend payout ratio.

#### **1.5.Significance of the study**

A number of researches has conducted on the issues of dividend and different empirical results across countries as well as among industries were witnessed as to the factors that corporate managers should account while deciding dividend payment. Besides, those research results have had immense importance to managers' decision of dividend distribution or otherwise in the eye of different episode; tax, investors' preference, firm value, etc. But, in Ethiopian case, to the best knowledge of the researcher, not enough and all the relevant factor inclusive empirical analysis has been conducted on the issue. Therefore, bank sector has been chosen for study purpose

because it is important sector of Ethiopian economy which is one of the fast growing industries and relatively the sector has better data and documents which are important for the purpose. Hence, this study shall offer empirical result as to the determinant explanatory variables of dividend payout ratio, as for the management of the banks, it gives a new insight in their dividend decision through identifying significant determinant of dividend payout ratio, the study also have a great importance for external stakeholders such as prospective investors in their investment decision in the banking sector, the community for which the financial service is provided, and the government which regulate the sector for the sake of the safety of the public resource and sustainable economic development and trigger the interest of researchers to conduct similar study but in a broad observation.

### **1.6. Limitations of the Study**

The quality of the output of this study will be dependent the genuine data acquired from the selected representative companies. This implies that, the finding and the analysis of this paper will depend up on companies' authentic data. So that, lack of willingness, for various reasons like suspect of miss use of the companies confidential information for nonacademic purpose will limits the reliability of the research paper to achieve its objectives. In addition, small number of firms with long dividend history, very limited number of corporations, shortage of pervious similar researches in Ethiopian case, and limited resource may affect the qualities of the study output. Finally, the findings of this study can only generalized to firms similar to those who participated in the research.

### **1.7. Organization of the Paper**

The research was organized in five chapters. Chapter one is the introduction part that addresses; background of the study, statement of the problem, significant of the study, objective of the study scope and limitation of the study. Chapter two presents theoretical and empirical review of the literature related to the issue of determinants of dividend payout. Chapter three provides research design and methodology employed for the research. Chapter four was contained data presentation, analysis and interpretation. The last chapter concludes the total work of the research and gives relevant recommendations based on the findings. At the end reference of related literature referred while writing the paper and appendixes were presented.

## CHAPTER TWO

### 2. LITERATURE REVIEW

This chapter deals with to review the literature in the area of dividend policy and mainly focused on the determinants of dividend payout ratio in Ethiopia private commercial banks. This review of literature establishes a framework, which can guide the study.

#### 2.1.Theoretical literature review

Scholars presented various theories regarding dividend policy from those theories, Bird-Hand, by (Gordon, 1963), tax preference theories by (Bernnan, 1970), theories of agency by (Jensen and Meckling 1976), signaling theory of (Aharony and Swary 1982) and transaction cost and residual theory of (Muller 1967), are the most influential theories of dividend policy after (Miller and Modigliani,1961) theories of dividend irrelevant

##### 2.1.1. Dividend Irrelevance Theory

The theories of dividend irrelevant is developed in (1961), by Miller and Modiglian. In their theories they state that, “the firm’s value not depends on mixture of debt and equity, demonstrating capital structure is irrelevancy. The capital structure and dividend policy are closely linked. Cash paid as dividend leaves the firms with less equity and potentially a greater have to raise additional stock or debt in future.” Therefore, the result of the capital structure MM is so fundamental that dividends are irrelevant. The investment decision was liable for a profitability company within the future and, therefore, the sole decision determines the value (miller and Modigliani, 1961).

Irrelevance theory of MM argues that paying dividend to shareholder reducing the firm’s equity and at the same time the firm has to raise reduced equity which is paid as dividend to the firm’s shareholder by sailing share or debt. In irrelevance theory of MM they argued that the firm value is depends on their profitability rather than the payment of dividend from their profit. When shareholder in need of dividend but the firm is not paying dividend the shareholder can trade his share in contrast if the firm is not in need of dividend he can buy additional share so according to MM theories they can make dividend by their dividend policy without additional cost because of

this dividend policy is irrelevant to the firm's value when Miller and Modigliani state these theories they developed much assumption

There is no transaction cost associated with converting shares into cash by selling them.

- ✓ Firms can issue shares without incurring flotation or transaction cost
- ✓ There is tax at either a corporate or personal level.
- ✓ Capital markets are perfect and efficient.

Miller and Modigliani, have also not quarreled, as it is often assumed that the investor is concerned about whether or not they received dividends, rather they argue that shareholders were indifferent when the dividends were paid. If the firm is not paying dividends and put it on investments this is a good hope for shareholder because they expect better dividends in future or it may increase the firm's value

### **2.1.2. Dividend Relevant Theories**

From the assumptions of Miller and Modigliani is the assumption of perfect market in fact in the real world there is no perfect market because of this wrong assumption many scholars began to develop many theories against the theories of dividend irrelevance which is developed by (Miller and Modigliani, 1961). Those scholars who develop dividend relevant theories are discussed in the following section

### **2.1.3. The "Bird-in the Hand" Theory**

This theory is based on the expression that instead of investing in stocks that retain profits and pay dividends in the next time. As noted by (Al-Malkawi et al. 2010) and (Gustav and Gairatjon, 2012), "a bird in the hand is worth more than two in the bush".

The bird in hand theory is obtained by (Gordon 1959), who state that "a bird in the hand is worth more than two in the bush." The theory argued that the shareholders prefer the firm that pay dividends on a timely basis rather than the firm that extends to future this is because of uncertainty about the future (Al-Malkawi, 2010). In a real world when there is no perfect market and there is always risk related to firm's current dividend is preferable than investing on other alternatives.

Payment in current dividend is a good indicator of future payment of dividend by the firm this increase the believes of shareholder on the firm's ability to pay dividend in future and increase the firms value because the stock price is higher than thus firms who do not pay on regular base. Also when it make dividend payment the company get higher rating from the rating agency compared to a company that do not make any dividend payment (Al- Malkawiet al.2010). Also, when it makes dividend payments, the company gets a higher rating from the rating agencies compared to a company that does not make any dividend payments.

#### **2.1.4. Signaling Theory**

The information asymmetric is another hypothesis why the theory of the dividend irrelevance is insufficient. According to the irrelevance of dividend theory they develop the assumption that there is no asymmetric information between internal and external users of the information. However in the real world the truth is the reverse of the assumption developed by M &M dividend irrelevance theory. The internal user of the information which is managers and directors has more information about the firm's present and future performance than external user which is the stockholder. Because of this information gap between the internal and external user we cannot measure the firm's value by stock price.

In this theory dividend is most important methods to address the information gap because dividend is information content. Since the management has more information about the firm's performance than the shareholder to reduce this information gap the manager has to communicate the shareholder about the firm's performance through dividend. According to the signaling theory which is developed by (Lintter,1956|), dividend is a way of commutating with insider (manager) and outsider (stockholder) about the firm's performance. So that they can better understand the real value of the business (al-Malkawi, 2010).

Bhattachrya (1979), investigate the studies on signaling theory by relaying on two important assumption the first one is the external user have information gap about the firms performance and the second one is dividend are taxed at higher than capital gain. Even if there is tax disadvantage on dividend payment the firms prefer to pay dividend because it is a signal for shareholder at the same time to the new investor.

Signaling theories state that the shareholder can understand the firm's performance through signals from dividend in terms of its payment stability or payment change. But the manager has the responsibility for willingness to forward the information and the truth of the signal. There for the signal send to the market must be on the reliable base (Al-Malkawiet 2010).

Lintner (1956), argued that the decision of paying dividend or increasing the dividend rate is made by the managers when they are sure about they have the ability to pay even if the future ability this prediction is called "Dividend smoothing hypothesis".

### **2.1.5. Agency Theory**

Today Management and ownership is separated from the business operation the ownership employee competent person who manage their business rather than managing their business as a manger ( Habbash, 2010).This theory trays to state the relationship between ownership and managers.

Agent is who has skill, competence, ethical, integrity and professional which is legally employed person by the owner to manage the business operation. Managers are the drivers of the business because of this there is conflict between the agent and principal (Habbash, 2010). To address this conflict the principal incurs the controlling cost which is called agency cost (Easterbrook, 1984). The agency theory focus on since the management is not the owner they only possess the operation by controlling, directing, planning and executing in effective and efficient way and the owner incurs agency cost to control the conflict of interest how to manage minimum agency cost and conflict of interest between the agency and the principal (Habbash, 2010).

Easterbrook, (1984), notes managers always interested to fulfill their need in doing their work rather than satisfying the maximum profit need of the shareholder at the same time the shareholders are not near to the business performance as the managers this situation create conflict of interest between mangers and shareholders this conflict of interest is very dangers for the healthy operation of business to reduce this stress the principals incurred agency cost in addition to this solution the manager and shareholder create dividend to control the conflict of interest.

Easterbook (2010), also state that two factor that affect the agency cost. The first one is the cost of monitoring the cost incurred to able the management to process the wealth maximization rather than their interest the second one is to risk dislike preference investors reduce unsystematic risk by diversifying their investment when the company is going to lose the shareholders can survive with their diversified business but the management is affected by the loss of the company because of this the management perform their responsibility more carefully to reduce risk than the shareholder

### **2.1.6. Tax Preference Theory**

Theory of tax preference state that tax affects the shareholder wiliness to receive dividend and also state that if the company pay low dividend to the shareholder it reduce the cost of capital as well as increase the firms value.

According to Brigham and Houston (2004), because of the tax effects the shareholders prefers to hold after tax income which is available to shareholder as dividend for alternative investment rather than receiving dividend. In general the tax preference theory argued that through paying low dividend to shareholder the firm can maximize wealth. This theory is true with the assumption of the tax paid for dividend is greater than the tax paid for capital gain.

## **2.2. Empirical Literature**

As noted by the study of Ayodeji and Lukmon (2014), in Nigerian banking industry from 2006 up to 2008 using profitability, liquidity, tax, revenues growth, market to book value, loan deposit ratio, loan loss provision, capital adequacy, size, cost income ratio, market power, debt to equity and retained earnings are used as independent variable to determine the factor that affect the dividend payout ratio and they conclude that other than revenue growth, debt to equity debt ratio, retained earnings, loan deposit ratio loan loss provision negatively positively influence dividend payout ratio.

Examined the determinants dividend payout police for the period of 2005- 2009 by Agvemang (2013), in Ghana using profitability, liquidity, collateral capital, growth and age were used as independent variable they conclude that other than age and liquidity have negative insignificant impact on dividend payment police.

The study of Alzomain and Al-Khadiri (2013), for the period of 2004 and 2010 conduct the factor that affect the dividend payout ratio on non-financial firms using previous year dividend, growth, debt to equity ratio and capital size as the determinants of dividend payment policy and the study found that growth, leverage have insignificant negative impact on dividend policy in contrast earning per share, size and pervious dividend per share have significant positively affect dividend payout ratio.

The result of study conducted on the determinants of dividend payment police from the period 2003 up to 2009 by Zameer et al (2013), show that liquidity, size, profitability, agency cost, growth, last year dividend, risk and ownership structure shows positive significance effect on dividend payout ratio. Whereas except for liquidity size, leverage, agency cost, growth and risk has insignificant relationship with dividend payment police.

The study conducted in Ethiopia on the determinants of dividend payment ratio for five commercial banks from the period 2002 up to 2011. The finding of Hailemariam (2013), indicate that except for liquidity other variable which used as determinant variable such as current earning, previous year dividend, age and loan loss provision have positive and significant relationship with dividend payout ratio.

The other study conducted on the determinants of dividend payment police in Ethiopia is the study of Mitiku (2015), from 2009-2013 his finding shows that lagged dividend payout, growth, size and risk has positive significant relationship with dividend payout ratio in contrast to this the regression result show rate of inflation and liquidity ratio has insignificant negative impact on dividend payment police.

The study of Kazmierska-Jozwiak (2014), used leverage, liquidity, return on equity, size, risk as independent variable to determinants of dividend payment police and he found in his study return on equity and leverage have negative significant impact on dividend payment police and liquidity, size and risk has insignificant relationship with dividend payment police.

Alzomaia and Al-Khadhiri (2013), conduct on the study on the factor that affect the dividend payment police. The study employed six variables as independent such as profit, lagged dividend, growth, debt to equity, capital size for the period of 2004 – 2010. in their investigation

they fund profit, lagged dividend have positive and significant relationship with dividend payment ratio

The study of Maladjian and El-khoury (2014), shows that there is positive effect of size, risk and former year dividend on dividend payout ratio from the variables taken as independent such as profit, liquidity, age, growth. The study also state the firm pay dividend to shareholder to reduce conflict of interest between agencies and shareholder.

Wasike and Amborse (2015), examined the effects of profit, risk, cash flow, tax, institutional ownership and market book value on dividend payment police from 2004 up to 2014 in Nairobi and they conclude except for profitability cash flow and tax have negative relationship with dividend payout ratio of 60 companies that are selected.

Awad (2015), found in his study positive relation with leverage, profit and company size for the year 2011-2014. The study used only three variables as independent in Kuwait exchange market to determine the factors that affect the firm's dividend payment police.

The other study conducted on the determinants of dividend payout ratio is the study of Nohu (2014) for the year between 2000-2009 in Ghana the study used seven factors as the determinants of dividend payout ratio among the variables he found tax and size have no any significant relationship with dividend payment police but the other variables has positive significant impact on dividend payment police. the variables taken as independent are profitability, investment chance, taxation, leverage, firm size, board size board independence and audit sort were taken as independent variable.

Inflation, lagged dividend, and earning shows positive and significant relationship with dividend payout ratio in Iran's stock exchange on the study conducted by Mirbagherjam (2014) on the determinants of dividend payout ratio for the period of 2005-2011 and inflation, previous dividend and dividend where taken as independent variable.

The finding of Dunican and Wairimu (2013) shows the negative impact of inflation on on dividend payout ratio in his study under the title of the relationship between inflation and dividend payout ratio in case of Nairobi from the year 2002 up to 2011. The study also states that

when reaching on dividend payment decision the firm need to carefully deliberate the effect of inflation.

The study in Pakistani from the year 1966 up to 2010 using ARDL approach was conducted by Ghafoor (2014), shows except for inflation other variables has positive effect on dividend payout ratio. The study used only three independent variables namely inflation, return on equity and real growth but the study pointed out that there is also macro-economic factors which is not included in his study.

Chekol Demile (2016), study on the determinants of dividend payout ratio in case of Ethiopia from 2009-2014. In his study employed only bank specific variable as independent variable. The conclusion of the study is lagged dividend, size and growth are positively affecting the dividend payout ratio whereas profitability and leverage have negative effect on dividend payout ratio but the remaining variable which is liquidity do not have significant relation with dividend payout ratio.

The other study on the determinants of dividend payment policy which is conducted in Ethiopia is the study of Tadele Tesfaye (2017), in his study employed both bank specific and macroeconomic variables. Profit, leverage, liquidity, retain earing, loan loss provision, growth rate and lagged dividend and inflation where taken as bank specific and macroeconomic determinants of dividend payout ratio. The study found that except retain earning, loan loss provision and inflation other variables have positive and significant relation with dividend payout ratio however liquidity and growth rate have significant relation with dividend payment police.

Tesmsgen Y. and Dr Venkatip (2016), investigated the determinant of dividend payout ratio in case of Ethiopian corporate private share company from 2001-2012. The result of the study indicate earning per share, liquidity, age and tax has positive and significant effect on the dividend payout ratio whereas lagged dividend, growth, size and profitability have insignificant relationship with dividend payout ratio.

Opong Fous (2015), is another study conducted on the factor that affect dividend payment police and found that return on equity and dividend police are positively related and bank size,

age, capital adequacy and growth have significant influence dividend payment policy however inflation and leverage have no significant influence on dividend payment policy in Ghana.

**Table2.1. Summary of empirical literature review .**

<b>AUTHOR</b>	<b>PERIOD</b>	<b>VARIABLE AND METHOD</b>	<b>CONCLUSION</b>
Tadele Tesfaye (2017)	200 -2015	Profit, leverage, liquidity, retain earning, loan loss provision, lagged dividend ,economic growth rate and inflation rate	The result of the study revealed that profit, leverage, and lagged dividend payment have positive and statistically significant impacts on dividend policy of Ethiopian private banks while retained earnings, loan loss provision, inflation have negative and statistically significant impact on dividend policy of Ethiopian private banks whereas liquidity and economic growth rate were found to be statistically insignificant and have no any impact on dividend policy of Ethiopian private banks.
Temesgen yohannes and Dr. Venkti (2016)	2001-2012	Last year's dividend payout, growth in sales, earnings per share, size, return on asset, liquidity, leverage, age, investment opportunity and regulation	Earnings per share, liquidity, age of company in its life cycle and regulation on dividend taxation have positive and statistically significant relation with the dividend. Last year dividend, return on asset, leverage and opportunity have insignificant relation with the dividend payout
Elias Mitiku (2015)	2009-2013	Profitability, liquidity, leverage, lagged dividend payout, growth, size and risk.	lagged dividend payout, growth, size and risk have statistically significant impact on dividend payout profitability, liquidity and leverage have no statistical significant impact on dividend payout
Abenzer, Agyemang and Badu (2013)	2005-2009	Age, liquidity, profitability and collateral	Statistically significant and positive relationship between Age and liquidity but saw statistically insignificant relationship between profitability, collateral and dividend payment.
Chekole Demilie Yimam (2016)	2009-2014	profitability, liquidity, leverage, growth, size and previous year's dividend	Last year's dividend, bank size and growth have statistically significant and positive relationship with banks' dividend payout. On the other hand, variables profitability and leverage have negative and statistically significant relationship with dividend payout
Oppong Fosu Kennedy (2015)	2013-2014	Bank size, banks age, capital adequacy, growth, leverage and inflation	The results further reveal that bank size, banks age, capital adequacy and growth in sales revenue are significant determinants of banks performance in Ghana. inflation and leverage proved insignificant in determining banks performance for the present study

### **2.3. Literatures Gap**

It was possible to understand from empirical literature review that there are mixed results that indicate some factors of dividend policy of companies in a given country with secondary market and without, they have significant impact on dividend policy of companies in a given country, the same variable has no significant effect on dividend policy of firms in other countries. As result of this, the researcher of this study decided to examine determinants of dividend policy of Ethiopian private banks.

Most of previous studies conducted on the determinants of dividend policy of Ethiopian share companies, they have not considered the effect of GDP, Inflation and Exchange Rate from macro-economic factors perspective and loan loss provision, cash flow and retained earnings from bank specific factors on dividend payout decision. Therefore, this study aimed to tackle and tries to fill the gap observed in the previous study

## **CHAPTER THREE**

### **3. RESEARCH METHODOLOGY**

This chapter deals the methodology that is used in this study. It involved a blueprint for the gathering, measurement and analysis of information. Specifically, the following subsections are included; research design, target population and sample, data collection and analysis.

#### **3.1. Type of Study**

According to Saunders et al. (2009) there basically exist three different types of studies which aim to answer the research objective and questions in different ways; these are exploratory, descriptive and explanatory. The main focus of an exploratory study is to examine problems in new ways and it is a very good method to increase the understanding of a specific topic. The most common data collection methods are interviews in order to get an in depth understanding of the subject being investigated. The second type of study is according to Saunders et al. (2009) a descriptive study and it is usually used as a forerunner to the two other types of studies. The main aim of the descriptive study is to get an accurate picture of the situation that is being studied. The third type of study is explanatory which aims to examine the cause and effect relationships between dependent and independent variables in order to detect a certain patterns. As noted by Saunders et al. (2009), explanatory research design examines the cause and effect relationships between dependent and independent variable. Thus, this research is to establish the cause and effect relationships between dividend payout ratio and its determinants; the explanatory approach is the most appropriate. On the other hand, before testing the cause and effect relationship among variables included in the study have to be identified and presented in descriptive form. Therefore, this research combines the explanatory and the descriptive type of studies to answer the objective of the study.

#### **3.2 Research approach**

There are basically two main types of research approaches which describe the relationship between theory and the research process, deductive and inductive. The main difference between the two approaches is that the deductive tests already existing theories while the inductive approach tries to generate new theories based on the empirical data (Saunders et al.2009). This

study is going to base research on already existing theories therefore, the deductive approach is most appropriate in this case since it tests the different theories against formulated hypothesis.

### **3.3. Research Method**

The qualitative, the quantitative, and mixed methods are the most common research methods used in academic studies. The quantitative method focuses on numbers and it is the systematic and scientific investigation of quantitative properties and phenomena and their relationships. If research problem is to identifying the factors that influence an outcome then the quantitative approach is best (Creswell, 2002). On the other hand the qualitative method focuses on words and involves studies that do not attempt to quantify their results through statistical summary or analysis it is more appropriate if the researcher's goal is to create an in-depth understanding of the subject that is being studied. The mixed method has both features quantitative & qualitative method. Using mixed method provides a better understanding of research problems than using one method alone (Creswell, 2002). Thus, for this study mixed method is used so as to achieve the objective of the study.

### **3.4. Sampling method**

Tashakkori and Teddlie (2003) defined Purposive sampling techniques are primary used in quantitative studies and may be defined as selecting units based on specific purposes associated with answering a research questions. Maxwell (2003) further defined purposive sampling as a type of sampling in which particular settings or events are deliberately selected for the important of information they can provide that cannot be gotten as well from other choices. Accordingly, in order to test the determinant factors of dividend payouts of banking sector numerical data representing characteristics of the firms need to be collected. The data have the dimensions of both time series and cross sections, multiple Ordinary Least Squares (OLS) Regression method is used to analyze and test the determinant variables of dividend payouts. The variables of the study are taken and calculated from the audited financial reports of twelve banks out of the sixteen private banks for the period of 2010 to 2019 the criteria of relatively long period dividend payment record to smooth out variable fluctuations are satisfied. Therefore, the matrix for the frame is 10\*12 that includes 120 observations.

### **3.5 Type of Data**

Numerical (secondary) data which represent the firms' characteristics are collected from the financial report of the sample selected bank. The data is a panel type of data is used because it has the two dimensions, time series and cross-sections, and the Panel Least Squares (OLS) regression method is used since it is suitable for panel data. To analysis panel data the Least square method has two alternatives techniques; the fixed and random effect technique. From the two techniques the fixed effect model is used since this model control all time invariant difference between the individuals the estimated coefficient of the fixed-effect models and omitted time-invariant characteristics (Brooks,2008).

### **3.6 Data Source and Collection**

This study used secondary data annual reports of Private Banks financial report, such as income statements, cash flow statement and balance sheets of banks listed by NBE and annual macro-economic variables reported by MOFED and CSA for the period from 2010 to 2019, journals, and books.

### **3.7 Data analysis Method**

In this study to analysis the data, descriptive statistics and inferential statistics analysis were used. Descriptive statistics is used to measure the central value of the observations, Maximum and minimum to indicate the highest and lowest values respectively. The standard deviation also is used to measure the dispersion the values of all the dependent and independent variables.

Inferential statistics is used to measure the degree of association between the dependent and independent variable since it indicates the direction and the strength of association between independent and dependent variables and infer about the population (Kothari, 2014).To estimate the causal relationship between dependent and independent variables, the Ordinary Least Square (OLS) Regression analysis method is used by statistical software E-views 8.

### **3.8 Model Specifications**

Panel data involves the pooling of observations on a cross-section of units over several time periods and provides results that are simply not detectable in pure cross-sections or pure time-series studies. The panel regression equation differs from a regular time-series or cross-section

regression by the double subscript attached to each variable. The general form of the panel data model can be specified more compactly as follow:

$$Y_{i,t} = \alpha + \beta X_{i,t} + \epsilon_{i,t}$$

With the subscript  $i$  denote the cross-sectional dimension and  $t$  representing the time-series dimension. In this equation,  $Y_{i,t}$  represents the dependent variable in the model, which is the firm's dividend payout ratio;  $X_{i,t}$  contains the set of explanatory variables in the estimation model; and  $\alpha$  is constant term over time  $t$  and cross-sectional unit  $i$   $\alpha$  is taken to be the same across units  $\epsilon_{i,t}$  represents error term over time  $t$  and cross-sectional unit which are not observable in the regression.

In the light of the above model and on the bases of the selected variables, the current study used the below econometric model:

**Model: DVPR = f (PRO, LIQ, LEV, LAGD, AGE, INF, GDP, EXR)**

$$DVPR_{i,t} = \alpha_i + \beta_1 PRO_{i,t} + \beta_2 LIQ_{i,t} + \beta_3 LEV_{i,t} + \beta_4 LAGD_{i,t} + \beta_5 AGE_{i,t} + \beta_6 INF_{i,t} + \beta_7 GDP_{i,t} + \beta_8 EXR_{i,t} + \epsilon_{i,t}$$

Where,

**DVPR = Dividend payout Ratio**

**PRO = Profitability**

**LIQ = Liquidity**

**LEV = Leverage**

**LAGD= Lagged Dividend Payout**

**AGE= Age**

**INF = Inflation**

**GDP= Gross Domestic Product**

**EXR= Exchange Rate**

### **3.9. Variable Description (Dependent and Independent variables)**

Dividend payout ratio is the dependent variable of the study while the independent variables are profitability, liquidity, leverage, size, cash flow, lagged dividend paid, gross domestic product,

inflation, and exchange rate. The study was used Ordinary least squared (OLS) model to test the statistical significance of variables.

### **3.9.1. Definition of variables and their measurement**

The operational definition of dependent and freelance variable's conferred under this section.

**Profitability:** is the net earnings of the firm that is available for retain earnings and dividend to shareholder the firms decision on the rate of dividend is based on their to contemplate profit as a threshold issue, and also the level of profit together. Profitability can be defined as the ability of the firm to create profit (Badu, 2013). Will guidance the dividend police

**Liquidity:** Liquidity is the firm's ability to meet its current obligation by its current assets the positive result of liquidity indicates the firm is doing will in meeting its obligation and has influence on dividend police. Liquidity is measured by dividing current asset with current liability

**Cash Flow:** Cash flow is another variable that affect the dividend police. As noted by La Porta et al. (2000) "when a firm has free cash flow, its managers will engage in wasteful practices, even when the protection for investors improves." however there is a lot of study that indicate when there is high cash flow they obligated to pay dividend to cut back the agency cost

**Leverage:** The term leverage is used to show firms capital structure, mix of debt and equity financing. A firm relies on debt financing in order to minimize agency problem, to tap the tax advantages (interest deduction on income), as a result the use of debt financing can lever-up shareholders" come back on equity (Al-Malkawi, 2008). (Al-Malkawi, 2008).

**Lagged Dividends Paid:** According to signaling theory dividend is the signal or the way to communicate the financial performance to the shareholder with the assumption that mangers access much more information about the financial operation than shareholders. Previous year dividend is the signal for current as well as future dividend police if the firm pay dividend consistently or by increasing rate is the signal for shareholder to expect future dividend and there investment is going well.

**Bank Size:** According to Fama and French (2001) the shareholder have more reliance on the

firm with large size because they can easily access the market and make profit also pay dividend in frequently than small size firms. Because of this bank size can positively influence the dividend decision.

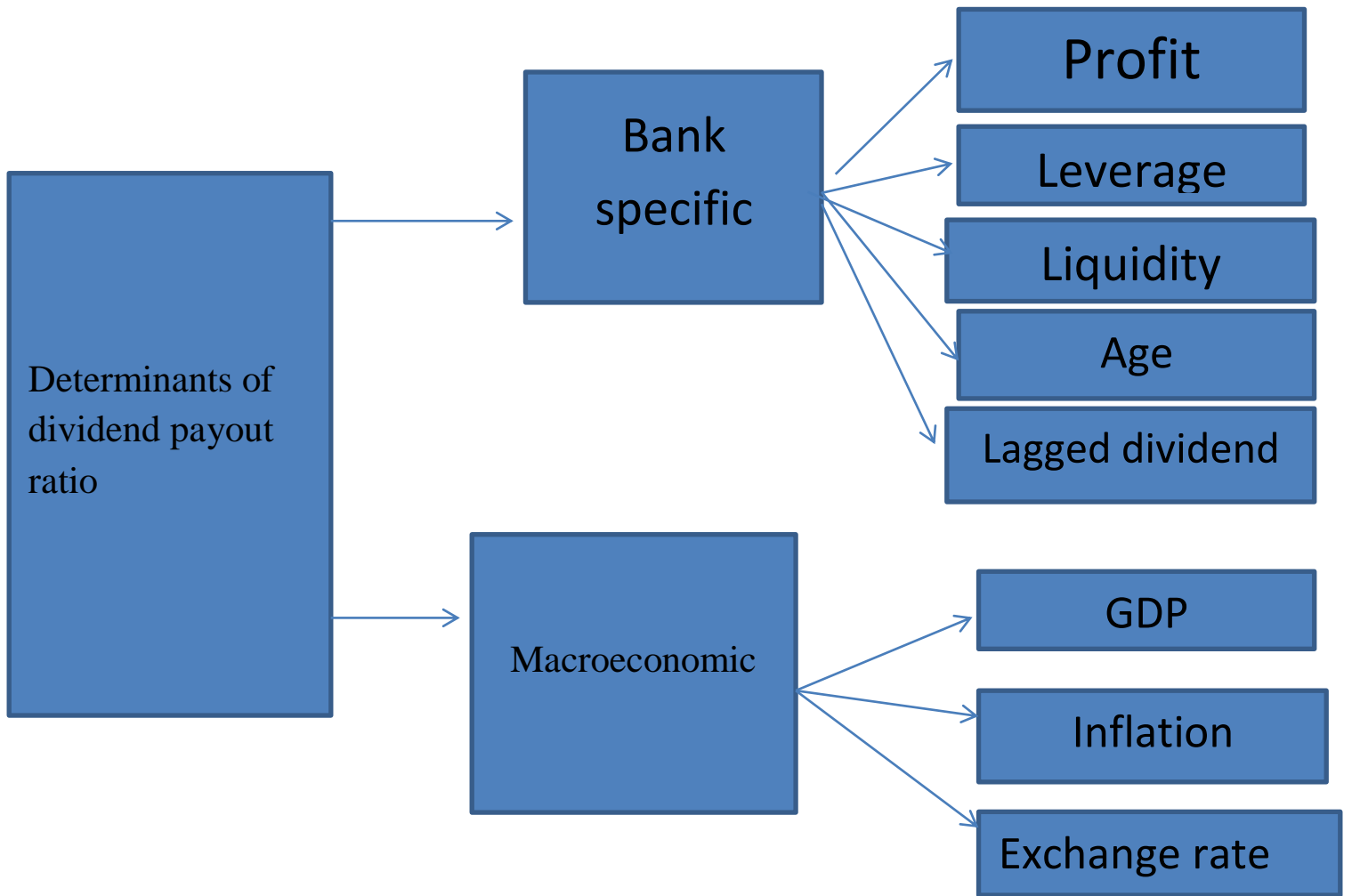
**GDP:** Annual GDP rate is used for measure of economic growth of the country.

**Inflation:.** At the time of inflation the shareholder wants dividend at the same time the firms prefer to retain rather than paying dividend to shareholder in order to reward to the inflation. This inflation is measured by consumer price index

### **Exchange Rate**

Exchange rate is defined as the rate at which one country currency can be converted to another. It may fluctuate daily with the changing market force of supply and demand of currencies from one country to another. The exchange rate is important because it identifies the value between two or more nations good and service. It paves the way for international trade by spending a signal to the market the valuation of each good (paul boyce 2020).

### Conceptual Frame Work



Source: developed by researcher

## CHAPTER FOUR

This chapter deals with the data presentation, analysis and interpretation. It is organized in three parts; first descriptive statistics, then correlation analysis and finally CLRM regression results were presented with their OLS assumptions.

To investigate the determinants of dividend payout ratio of private commercial banks and achieve objectives stated; banks with 10 years of operation (service) since 2010 were included. Accordingly; banks who satisfy the above criteria were only 12 (twelve) out of 16 (sixteen). These banks are Dashen Bank S.C (DB), Awash International Bank S.C (AIB), Wegagen Bank S.C (WB), United Bank S.C (UB), Nib International Bank S.C (NIB), and Bank of Abyssinia S.C (BOA), Zemen Bank (ZB), Oromia International Bank (OIB), Buna International Bank (BIB), Cooperative Bank of Oromia (CBO), Birehan Bank and Lion International Bank (LIB). Thus it is possible to describe, forecast and draw conclusion using 110 observations (10 years X 11 Banks). The output of both correlation and regression analysis were measured in terms of 1, 5, and 10 % significance level of confidence interval.

### **4.1 Descriptive analysis**

The main idea of descriptive statistics for a given study is calculating (measuring) the variability and location. Variability is measured by standard deviation to the variation of each observation from the mean and the mean of the observation is used to measure the location. (Brooks, 2014); stated that; if the number of observation is the same for all observation; the result is identical for both ‘common sample and individual sample’. According; (Brooks, 2014) in order to describe the series describing only ‘mean and standard deviation’ is sufficient enough if the information for a given data follow a normal distribution. For the sake of elaboration the researcher included the ‘min and max’ value of the observation in addition to the aforementioned ‘mean and standard deviation

**Table 4.1.: Summary of descriptive statistics for dependent and independent variables**

	<b>Mean</b>	<b>Median</b>	<b>Maximum</b>	<b>Minimum</b>	<b>Std. Dev.</b>
<b>DPR</b>	0.3228	0.2534	1.0000	-0.4941	0.2958
<b>PROF</b>	21.6036	21.2652	42.4303	-8.2120	8.0052
<b>LIQ</b>	0.4919	0.4025	1.6376	0.1474	0.3050
<b>LEV</b>	5.7916	5.7879	10.9949	1.4208	1.6832
<b>LAGDPR</b>	0.3112	0.2532	1.0000	-0.7836	0.3104
<b>AGE</b>	12.3333	12.5000	25.0000	0.0000	6.6146
<b>GENERAL_INFLATION</b>	12.8600	11.1500	34.1000	2.8000	8.2343
<b>REAL_GDP_PER_CAPITA_GROW</b>	10.4153	6.1000	96.1100	3.4000	15.6346
<b>AVERAGE_MARGINAL_EXCHAG</b>	20.1310	19.5852	28.0543	12.8909	4.3348

Table 4.1 shows a mean value of 32.28% for dividend payout indicating that the private banks in Ethiopia have paid on average 32.28% of their net income as dividend with 29.58% variability ups and downs for the period from year 2010 to 2019. The figure indicated that Ethiopian banking industry is a high dividend paying industry. On average, they distribute 32.28% of their profit to their shareholders.

Profit measured by return on equity shows the banks productivity to generate income using the available asset. The figure shows that Ethiopian private banks have generated on average 21.6% profit for a one-birr investment on equity, the most profitable banks have generated 42.43% profit and the least profitable banks have generated -8.2% profits for each birr investment. The variability is about 8 percent.

In the leverage ratio which is the debt to total equity shows how much the debt has a share from the capital. As we can see from the above table debt has a composition of 94.21% of the total asset on average and the owner's equity has only a share of 5.79%, with variability of ups and down 11% and 1.42% respectively; and with 1.68% standard deviation.

Ethiopian private banks have on average 49.19% liquidity position measured by current asset divided by current liability. This means that for a one-birr current liability there is an available

49.19 cents on average on current assets, a maximum liquidity position of 163% and minimum of 14% with a dispersion of 30.5% ups and downs.

Based on National bank of Ethiopia liquidity requirement of a minimum of 15% shows Ethiopian private banks have maintained a liquidity position of 3 times above the minimum requirement and it can be said they are solvent.

Lagged dividend payout ratio is calculated and computed on Eviews software by generating on the 'quick menu'. Based on the result of the analysis; the average lagged variable value of selected private commercial banks is 31.33%. The maximum and minimum of this observation is 100% and -78.36% with variability of 31.14% from the mean value.

The mean age of all selected private commercial banks were 12.33 year. The bank with long life has 25 years and the most recently established bank was established on 2010 year. The age of the banks is varied from the mean value with 6.61 years.

GDP measures the real economic growth of the country. The average value of GDP growth rate is 10.41% with 96.1% and 3.4% up and downs respectively; for the last ten years from year 2010 to 2019. Which means the average value of GDP indicates the average real economic growth of the country this shows that Ethiopia is registering good economic growth and from this result Ethiopian private bank are exploiting this good opportunity because as there is more deposits, it is possible to grant more loan and this results in more profit and leads to more dividend payout to shareholders.

Inflation rate is a variable which measures the variability of the price level in the economy. The average CPI rate 12.86% of the country over the last ten years from year 2010 to 2019 was more than the average Real Gross Domestic Products growth rate (GDP). The rate of inflation was highly dispersed over the periods under study towards its mean with standard deviation of 8.23%. The maximum and minimum inflation rate was 34.1% and 2.8% respectively.

Similar to inflation rate; foreign exchange rate (USD in respect of ETB) variable has a mean value of 20.13 in the study period. The maximum foreign exchange rate 28.05 was registered in the last year of this study (2019) and minimum 12.89 in the early days of this study (2010).

**Table 4.2. Correlation matrix**

	DP R	PRO F	LIQ	LEV	LAGDP R	AG E	INFLATIO N	GDP	EXCHAN G
DPR	1	0.21	-0.05	-0.03	0.49	0.26	0.02	-0.11	-0.03

**Source: Developed by the researcher through Eviews 9.**

The correlation between the dependent variable and independent variable showed in the above table. Accordingly; from the bank specific variables profitability, lagged dividend payout ratio, age of the banks and inflation has a positive correlation with the dependent variable. Dividend payout ratio has strongest positive correlation with the previous year dividend (lagged dividend payout ratio) and has weak positive correlation. But liquidity and leverage has negative and weak correlation with dividend payout ratio on the study period.

From macro variables only inflation has a positive correlation with dividend payout ratio of private commercial banks in Ethiopia. The other included macro variables; GDP and exchange rate has negative and weak correlation with the dependent variable.

#### **4.2. Results of OLS tests**

To maintain data validity and robustness of the regressed result of the research under the classical linear regression model (CLRM) there are five basic assumptions required to be satisfied. According to Brooks (2008) when the assumptions are satisfied, it means that we have used all the information available from the patterns. But if there is assumption violation of that data usually means that there is a pattern of data that we have not included in our model, and we could actually find a model that fits the data better. Given that limitation of enough data (the sector has short dividend history and infant industry) diagnosis of data in line to all the assumption is not appropriate or applicable. But before testing significance of the slopes and analyzing the regressed result, multi-collinearity, autocorrelation, homoscedasticity, and normality tests are made for identifying and correcting when there are miss specifications of data so as to augment research quality.

#### **4.2.1. Test for homoscedasticity**

The assumption of homoscedasticity is that the residuals are approximately equal for all predicted dependent variable scores- the variance of errors is constant, if the assumption are met the pattern of the residuals will have about the same spread on either side of a horizontal line drawn through the average residual wooldridge (2005). Otherwise if the errors do not have a constant variance, they are said to be heteroscedastic. Data are homoscedastic if the residuals plot is the same width for all values of the predicted. Heteroscedasticity is usually shown by a cluster of points that is wider as the values for the predicted dependent variable get larger.

#### **4.2.2. Test for multicollinearity**

This assumption of multicollinearity is that explanatory variables are not correlated with one another over time or cross sectional - they are said to be orthogonal to one another. But, if the variables are not uncorrelated with one another, it will be the violation of the CLRM assumption of autocorrelation among the independent variables and it would be stated that the data has multicollinearity problem. Thus, Multicollinearity refers to the situation in which the independent variables are highly correlated. When independent variables are multi collinear, there is overlap or sharing of predictive power. This may lead to the paradoxical effect, whereby the regression model fits the data well, but none of the explanatory variables (individually) has a significant impact in predicting the dependent variable Gujarati (2004). This is because when the predictor variables are highly correlated with one another, they share essentially the same information. Thus, together, they may explain a great deal of the dependent variable, but may not individually contribute significantly to the model. Thus, the impact of multicollinearity is to reduce any individual explanatory variable's predictive power by the extent to which it is associated with the other explanatory variables. That is, none of the predictor variables may contribute uniquely and significantly to the prediction model after the other independent variables is included. Among several ways of multicollinearity tests person correlation and Variance Inflation Factor (VIF) are used for this purpose. The Pearson product-moment correlation matrix is another important technique of testing multicollinearity of explanatory variables by investigating the relationship of bivariate variables. The correlation matrix is also useful to measure the propensity of how much the independent influences the dependent variable wooldridge (2005).

**Table 4.2.2 the correlation matrix between explanatory variables**

	DPR	PROF	LIQ	LEV	LAGDPR	AGE	GENERAL_I...	REAL_GDP_...	AVERAGE_M...
DPR	1.000000								
PROF	0.209116	1.000000							
LIQ	-0.054925	-0.031716	1.000000						
LEV	-0.029305	0.406969	-0.243190	1.000000					
LAGDPR	0.494914	0.102812	-0.077402	-0.057197	1.000000				
AGE	0.261947	0.195651	-0.540662	0.437067	0.186650	1.000000			
GENERAL_I...	0.016449	0.189005	0.024648	-0.021765	0.135369	-0.070336	1.000000		
REAL_GDP_...	-0.114553	0.002216	-0.077571	0.003373	-0.137122	-0.073870	-0.107117	1.000000	
AVERAGE_M...	-0.034263	-0.042548	-0.664316	0.302827	-0.075462	0.439105	-0.053702	0.112772	1.000000

**Source: Developed by the researcher through Eviews 9**

The cutoff point of near multicollinearity between variable is very controversial; but the minimum tolerable matrix by a number of scholars is 0.70 (Kennedy, 2008) and (Malhotra, 2007). According to the result in the above table; the largest correlation matrix value is -0.66; which is between liquidity and Foreign exchange; and most of the time those two variables has strong relationship. Thus the result shows that there is no even near collinearity between any two explanatory variables included in the research.

#### 4.2.3. Heteroscedasticity Assumption

According to (Brooks, 2014); the error terms are termed as ‘homoscedastic’ if they don’t have constant variance and heteroscedasticity if they have constant variance. There are a number of methods to test this assumption: like graphical method, (Goldfeld Quandt, 1965) and (White’s, 1980) are the common ones. Because of the subjectivity of the decision on the graphical method and the difficulty of the choice where to split on Goldfeld Quandt method; this research used White’s 1980 method.

**Table 4.2.3 Heteroscedasticity; White’s test**

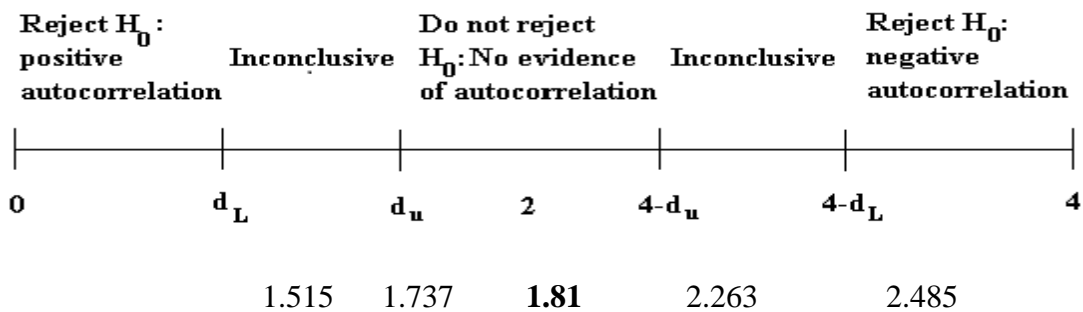
Heteroskedasticity Test: White			
F-statistic	2.175832	Prob. F(8,110)	0.3466
Obs*R-squared	16.25811	Prob. Chi-Square(8)	0.3883
Scaled explained SS	21.10998	Prob. Chi-Square(8)	0.1686

Source: Developed by the researcher through Eviews 9.

From the above table we can understand that; there is no evidence for the presence of heteroscedasticity because the probability of both F-statistics and chi-square are considerably above 10%

#### 4.2.4. Autocorrelation Assumption

The errors are called auto-correlated (Serially correlated); if the errors are uncorrelated each other (Brooks, 2014). DW and BG tests are the common and widely used methods of testing the existence of autocorrelation. Accordingly both methods were applied in this study. The DW test statistics value from the regression result is 1.81. The relevant critical values for the test even based on 150 observations (T) and 8 explanatory variables (K'); Lower and upper 1% critical values for Durbin–Watson statistic were  $d_L = 1.515$ ,  $d_U = 1.737$ , so  $4 - d_U = 2.263$  and  $4 - d_L = 2.485$  (Brooks, 2014) and (Gudjrati, 2009).



The result shows that the DW result is presented between the upper critical value and four minus critical value; thus the hypothesis of no autocorrelation is not rejected.

According to (Brooks, 2014) DW assumption regressors are not stochastic; which is mostly applied for the fixed values in a repeated sampling. Unless the result is not valid for other type of samples; infinite of small or large group.

To avoid the shortages of DW this study uses BG test as a method to find out the existence of autocorrelation; since it is the more general test up to the  $r^{\text{th}}$  order.

**Table 4.2.4. BG test; serial correlation LM test**

Breusch-Godfrey Serial Correlation LM Test			
F-statistic	1.000788	Prob. F(2,108)	0.3710
Obs*R-squared	2.165311	Prob. Chi-Square(2)	0.3387

Source: Developed by the researcher through Eviews 9.

Thus from the table number 4.3 of BG test we can understand that, the null hypothesis of no autocorrelation is not rejected both from chi square ( $X^2$ ) and F-statistics; since the p-values are 0.33 and 0.37 respectively and they are greater than 0.05; and the result is same with DW.

#### 4.2.5. Normality Assumption

BJ test is the common and widely accepted type of method to test the normality of a given data like in this research. According to (Bera-Jarque, 1981) a normal distribution is not skewed and has a coefficient of excess kurtosis is zero (kurtosis of 3).

(Brooks, 2014) states that “ the probability of the test would be insignificant of must have greater than 5%; if and only if, the histogram becomes bell shaped; if and only if the residuals are normally distributed”

**Table 4.2.5. Histogram of BJ test.**

Series: Residuals

Sample 2 120

Observations 119

Mean	1.96e-16
Median	-0.036820
Maximum	0.702002
Minimum	-0.713005
Std. Dev.	0.230655
Skewness	0.158184
Kurtosis	3.814358
Jarque-Bera	3.784540
Probability	0.150729

Form the above table we can understand that residuals distribution included in the study seems symmetrically distributed. Since the skewness of the BJ test is 0.15; and the excess kurtosis is 0.81; close to Zero; farther more the histogram is ‘bell shaped’. The probability of the BJ tests clearly the normality of the residuals distribution above all; since it has 15 percent greater than 5

percent. Therefore; we do not reject the null hypothesis that the error terms are symmetrically distributed even with the maximum tolerable rate 10 percent.

### 4.3. Regression results

**Table 4.3: Regression result**

Dependent Variable: DPR  
Method: Least Squares  
Date: 01/29/21 Time: 21:43  
Sample (adjusted): 2 120  
Included observations: 119 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PROF	0.007523	0.003294	2.283768	0.0243
LIQ	0.075294	0.108656	0.692956	0.4898
LEV	-0.031768	0.016812	-1.889632	0.0414
LAGDPR	0.400634	0.078560	5.099734	0.0000
AGE	0.011249	0.004626	2.431856	0.0166
GENERAL_INFLATION	-0.002565	0.002902	-0.883883	0.0379
REAL_GDP_PER_CAPITA_GRO...	-0.000725	0.001501	-0.483008	0.6301
AVERAGE_MARGINAL_EXCHAN...	0.000205	0.007513	0.027295	0.9783
C	0.076133	0.209268	0.363807	0.7167
R-squared	0.325335	Mean dependent var		0.317767
Adjusted R-squared	0.276269	S.D. dependent var		0.291772
S.E. of regression	0.248217	Akaike info criterion		0.123592
Sum squared resid	6.777297	Schwarz criterion		0.333778
Log likelihood	1.646249	Hannan-Quinn criter.		0.208942
F-statistic	6.630493	Durbin-Watson stat		1.875916
Prob(F-statistic)	0.000000			

Source: Developed by the researcher through Eviews 9

### 4.3. Discussions of the Regression Results

#### 1. Profitability:

Obviously, higher levels of earning ability should allow banks to pay more dividend other than improving their capital and economic performance. Accordingly; based on the table above, a unit increase in ROE brings an increase in DPR of Ethiopian private commercial banks by 0.7% on average and their relationship is statistically insignificant even at 10% significant level.

The result is consistent with (Elias Mitiku, 2015) and (Abenzer Agymange 2013) who found that their relationship is statistically insignificant. But result is contradicts (against) with the previous researches done by (Tadel Tesfaye, 2017) and (Chekole Damile,2016) they found out their relationship significant. The researcher believes that the result

presented insignificant is because of most private banks needs to re-invest or lend the amount of profit to get some better return; than distributing it the shareholders.

## **2. Liquidity:**

It was measured by TLTD and has positive and insignificant relationship with DPR of Ethiopian private commercial banks. Accordingly, DPR of selected private commercial banks increases by 0.075 units on average as a result of a unit increase in TLTD and their relationship is statistically insignificant even at 10% significant level. (Tadel Tesfaye, 2017) and (Elias Metiku, 2015) Finding consistent with the insignificant relationship between TLTD and current period dividend payout ratio but the study contradict against the insignificant relationship (Temesgen yohannes and Dr. Venkti, 2016) they find out their relationship significant.

The researcher believes the result presented insignificant is the main income of commercial banks is the deposit by deferent types of customer so they can withdraw at any time because of different reason due to this the bank must have high liquidity to meet any withdrawal of their customer or in order to reduce insolvency.

## **3. Leverage:**

As shown in table 4.6, the effect of leverage on DPR with a coefficient of -0.031768 and P-value of 0.0414 this implies that when private commercial banks increases their leverage amount by one dollar leads to the decrease of DPR by 0.031 on average; and their relationship is statistically significant at 5% significant level.

The study of (chechol damile, 2016) and (Tadele Tesfaye 2017) is consistence with the significant relationship between leverage and current period dividend payment ratio in contrast the study of (Temsgen Yohannes and Dr. Venkti, 2016), (Elias Metiku, 2015) and (Oppong Fosu, 2015) show insignificant relation hip between leverage and current year dividend payment ratio

## **4. Lagged dividend payout ratio:**

The other bank specific variable which is abbreviated as LAGDPR, affects the current year DPR positively and significantly. This means; ceteris paribus, a one percent increase in LAGDPR (previous year DPR) causes 40% increase this year dividend payout

ratio of Ethiopian private commercial bank; and their relationship is statistically significant even at 1% significant level.

The result is consistency with (Tadele Tesfaye, 2017), (Elias Mitiku, 2015) and (Checol Damile, 2016) who find that significant relationship between lagged dividend and current period dividend payment. But the study of (Temsgen Yohannes and Dr. Venkti, 2016) contradicts the result of previous researcher they found that relationship insignificant. The reason behind the significant relationship between lagged dividend and current period dividend payout ratio is the last year dividend payment creates a good image about the firm's ability to pay future dividend and the shareholder expects more for the future.

#### **5. Age**

The other bank-specific variable is age of the banks, the effects are clearly shown on the regression result above and that can be analyzed as follows: Holding other things constant when the life of the banks increases by one year; their ability to pay dividend for the shareholders will increase by 1.12%; and their relationship is statistically significant at 5% significant level.

The result affects the current year DPR positively and significantly. This means; *ceteris paribus*, a one percent increase in LAGDPR (previous year DPR) causes 40% increase in this year's dividend payout ratio of Ethiopian private commercial bank; and their relationship is statistically significant even at 1% significant level. There is no inconsistency on the significant relationship of age and current period dividend payment ratio (Temsgen Yohannes and Dr. Venkti, 2016), (Oppong Fosu, 2015) and (Abenzer Agymange 2013). The researcher believes that the significance of age is because when the bank experiences more and more they increase their ability to pay dividend and this creates good thinking for shareholders on the bank's performance to pay dividend.

## **Macroeconomic variables**

### **1. Inflation**

One of the three macro variables hypothesized in this research is inflation measured by CPI. From the above table we can easily understand that; the effect on dividend payout ratio is negative and statistically significant. That means; holding other things remain constant, when there is increase on CPI by one percent the amount of dividend payment will decrease on average by 0.25 percent; their relationship is statistically significant even at 5% significant level. The result is consistence with the finding of (Tadele Tesfaye, 2017) significant relationship between inflation and current period dividend payment but the study of (Oppong Fosu, 2015) contradicts against the privies researcher result. The reason for the significant relationship of inflation and dividend could be during the inflation period they invest much more of their earning in fixed asset in order to stabilize inflation across the country therefore the inflation has significance relationship with dividend payout.

### **2. GDP**

The second macroeconomic factor used is GDP; which is previously hypothesized and tested to see the effect on dividend payout ratio of private commercial banks in Ethiopia. Accordingly the result shows that GDP has insignificant relationship with the payment of dividend. To explain the coefficient and probability of the regression results; citrus paribus; when the economy of the country in terms of real GDP per capita by one percent; the amount of dividend payment by private commercial banks in Ethiopia will decrease on average by 0.07 percent and their relationship is statistically insignificant even at 10% significant level. The result is inconsistence with the study of (Tadele Tesfaye, 2017) who found that significant relation with dividend payout ratio.

### **3. Foreign exchange**

The third and exclusive macro variable used in this study is the effect of FX on the payment of dividend for the shareholders of private commercial banks. According to the regression result presented above shows that; keeping other things constant when there is increase of foreign exchange rate of USD in respect of ETB leads to the increase on the

payment of dividend for the private commercial banks; but their relationship is statistically insignificant even at 10% significant level.

**Table 4.4: Summary of independent variables and expected sign on DPR**

Variables	Description/Measure (Formula)	Expected sine	Final result
		DPR	DPR
Profit	Return on equity	Positive	Positive
Leverage	Income – interest	Negative	Negative
Age	Year	Positive	Positive
Liquidity	Current asset/ current liability	Positive	Positive
Lagged dividend	Previous year dividend	Positive	Positive
GDP	Real Gross Domestic Product	Positive	Negative
Inflation	Consumer Price Index (CPI)	Negative	Negative
FX	USD	Negative	Positive

## **CHAPTER FIVE**

### **5. CONCLUSION AND RECOMMENDATION**

#### **Introduction**

The objective of this study is to find out the determinants of dividend payout ratio of private commercial banks in Ethiopia. In order to achieve the objective; the researcher used panel data for the period of 2010 up to 2019; and included all private banks who's have been operating with this time periods (i.e. 12 private commercial banks out of 16). Based on the descriptive, correlation, and regression analysis made on the fourth chapter; the following conclusions and recommendations are made. Accordingly this chapter depicts first the conclusion about the research and then recommendations related with the findings.

#### **5.1 Conclusion:**

The study investigates the impact of micro as well as macro factors on the dependent variable over the period of six years from 2000 to 2019. Accordingly; profitability, liquidity, leverage, lagged dividend and age are firm-level characteristics, and from macro factors GDP growth rate, inflation and exchange rate are selected as explanatory variables while dividend payout ratio is taken as dependent variable.

#### **PROFITABILITY**

The finding of the study indicate that profitability which is measured in terms ROE has positive significant effect on dividend payout ratio of private commercial bank in Ethiopia. This implies that Ethiopian private banks more dividends for the shareholder if there profit increase. The finding is consistence with signaling theory that assumes managers use dividend change to communicate to the shareholder about the financial situation of the company and state that the profitable firm can pay more dividends to shareholder than less profitable firms.

#### **Liquidity**

Liquidity has positive and insignificant relationship with dividend payout ratio of Ethiopian private commercial banks. This implies that a firm with high liquidity ratio can have the ability

to pay dividend which support Agency theory state that in order to solve insolvency problem the firm required to maintain high liquidity

### **Leverage**

The studies indicate negative effect on and significant relationship with dividend payout ratio of private commercial bank of Ethiopia. This implies that the firm with external financing pay dividend than firm with internal finance. The researcher beives the negative significant result is when the private bank use internal finance the deposit is garneted for loan which cause decrease in dividend payout ratio

### **Lagged dividend:**

Lagged dividend has positive significant effect on the dividend payout ratio of private commercial bank of the Ethiopia. The result of the study support the theory of signaling which state that the company that pays dividend this year also expected to pay in the coming year. This indicates that last year dividend use as signal that the firms are performing will.

### **Age:**

The study results indicate that age has positive effect on dividend payout ratio and significant relationship between age of the firm and dividend payout ratio of the private commercial bank of Ethiopia. The researcher believes that the significance of age is because when the bank experiences more and more they increase their ability to pay dividend and this crate good thinking for shareholder on the banks performance to pay dividend.

### **GDP:**

The finding of the study indicate that GDP affect dividend payout ratio negatively and their relationship is insignificant this implies economic growth of the country is not considered by the private commercial bank of Ethiopia when deciding the dividend payout.

**Inflation:**

Inflation has negative effect on the dividend payout ratio and significant relationship between inflation and dividend payout ratio. The reason for the significant relationship of inflation and dividend could be during the inflation period they invest much more of their earning in fixed asset in order to stabilize inflation across the country therefore the inflation has significance relationship with dividend payout.

**Foreign exchange:**

FX on the payment of dividend for the shareholders of private commercial banks result shows that; keeping other things constant when there is increase of foreign exchange rate of USD in respect of ETB leads to the increase on the payment of dividend for the private commercial banks; but their relationship is statistically insignificant even at 10% significant level.

**In general:** The Ethiopian private commercial banks do not pay dividend frequently and they do not disclose the paid for the shareholders for users this may cause losing confidence by the shareholder on the banks.

**5.2.Recommendation**

The private commercial banks should pay dividend more or less regularly and the proportion of the payment should more or less be constant, their existing investors excited and attract more prospective investors and this in return gives them a competitive advantage. Therefore, private commercial banks should give a grate attention in deciding their dividend payout ratio by carefully examining the factors that affect it, such as profitability, leverage, lagged dividend and inflation because they have significant effect on the dividend payout ratio. Board of directors of banks need to consider lagged dividend paid to set future dividend payout because shareholders their dividend payout policies.

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## Appendices

### Appendix –I: Tests for the autocorrelation: Breusch-Godfrey

Dependent Variable: DPR				
Method: Least Squares				
Date: 01/29/21 Time: 21:43				
Sample (adjusted): 2 120				
Included observations: 119 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
PROF	0.007523	0.003294	2.283768	0.0243
LIQ	0.075294	0.108656	0.692956	0.4898
LEV	-0.031768	0.016812	-1.889632	0.0414
LAGDPR	0.400634	0.078560	5.099734	0.0000
AGE	0.011249	0.004626	2.431856	0.0166
GENERAL_INFLATION	-0.002565	0.002902	-0.883883	0.0379
REAL_GDP_PER_CAPITA_GRO...	-0.000725	0.001501	-0.483008	0.6301
AVERAGE_MARGINAL_EXCHAN...	0.000205	0.007513	0.027295	0.9783
C	0.076133	0.209268	0.363807	0.7167
R-squared	0.325335	Mean dependent var		0.317767
Adjusted R-squared	0.276269	S.D. dependent var		0.291772
S.E. of regression	0.248217	Akaike info criterion		0.123592
Sum squared resid	6.777297	Schwarz criterion		0.333778
Log likelihood	1.646249	Hannan-Quinn criter.		0.208942
F-statistic	6.630493	Durbin-Watson stat		1.875916
Prob(F-statistic)	0.000000			

	Mean	Median	Maximum	Minimum	Std. Dev.
<b>DPR</b>	0.3228	0.2534	1.0000	-0.4941	0.2958
<b>PROF</b>	21.6036	21.2652	42.4303	-8.2120	8.0052
<b>LIQ</b>	0.4919	0.4025	1.6376	0.1474	0.3050
<b>LEV</b>	5.7916	5.7879	10.9949	1.4208	1.6832
<b>LAGDPR</b>	0.3112	0.2532	1.0000	-0.7836	0.3104
<b>AGE</b>	12.3333	12.5000	25.0000	0.0000	6.6146
<b>GENERAL_INFLATION</b>	12.8600	11.1500	34.1000	2.8000	8.2343
<b>REAL_GDP_PER_CAPITA_GROW</b>	10.4153	6.1000	96.1100	3.4000	15.6346
<b>AVERAGE_MARGINAL_EXCHANG</b>	20.1310	19.5852	28.0543	12.8909	4.3348

**Appendix –II: Tests for multicollinearity: correlation matrix**

	DPR	PROF	LIQ	LEV	LAGDP	AGE	INFLATI	GDP	EXCHANG RA
<b>DPR</b>	1.000								
<b>PROF</b>	0.209	1.000							
<b>LIQ</b>	-0.055	-0.032	1.000						
<b>LEV</b>	-0.029	0.407	-0.243	1.000					
<b>LAGDP</b>	0.495	0.103	-0.077	-0.057	1.000				
<b>AGE</b>	0.262	0.196	-0.541	0.437	0.187	1.000			
<b>GENERAL</b>	0.016	0.189	0.025	-0.022	0.135	-0.070	1.000		
<b>REAL_C</b>	-0.115	0.002	-0.078	0.003	-0.137	-0.074	-0.107	1.000	
<b>AVERA</b>	-0.034	-0.043	-0.664	0.303	-0.075	0.439	-0.054	0.113	1

**Appendix –III: Tests for the Heteroskedasticity Test: ARCH**

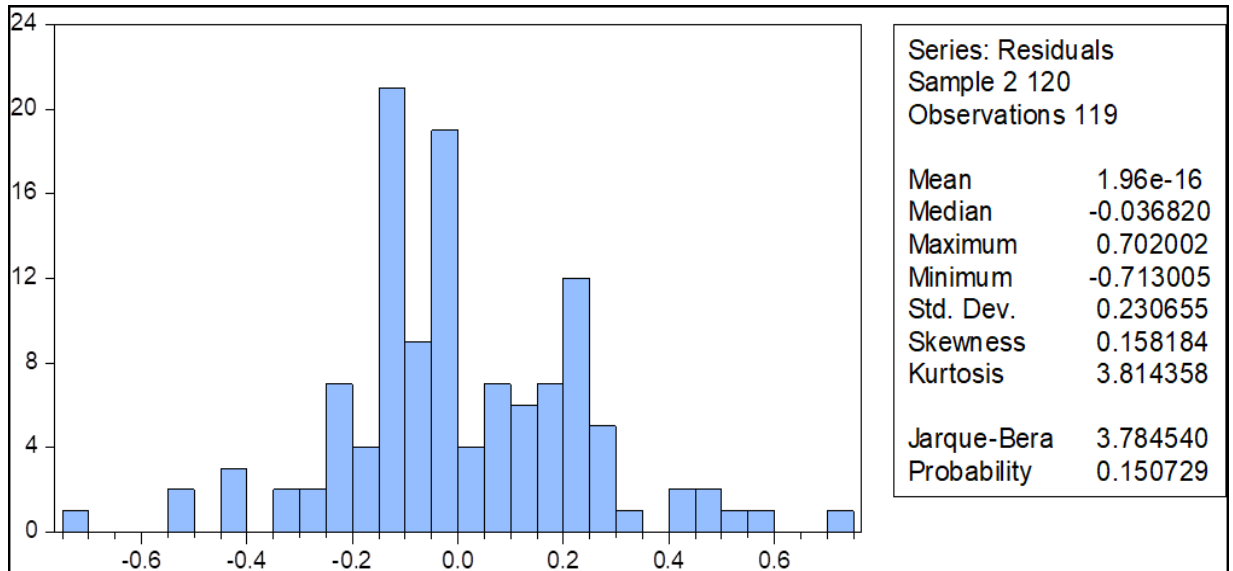
Heteroskedasticity Test: White				
F-statistic	2.175832	Prob. F(8,110)	0.3466	
Obs*R-squared	16.25811	Prob. Chi-Square(8)	0.3883	
Scaled explained SS	21.10998	Prob. Chi-Square(8)	0.1686	
Test Equation:				
Dependent Variable: RESID^2				
Method: Least Squares				
Date: 01/29/21 Time: 22:03				
Sample: 2 120				
Included observations: 119				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.036484	0.036451	1.000904	0.3191
PROF^2	-3.87E-05	2.65E-05	-1.460986	0.1469
LIQ^2	0.059262	0.021609	2.742545	0.0071
LEV^2	0.000298	0.000480	0.621153	0.5358
LAGDPR^2	0.078675	0.035552	2.212993	0.0290
AGE^2	3.12E-05	6.62E-05	0.471158	0.6385
GENERAL_INFLATION^2	-3.19E-05	2.85E-05	-1.118013	0.2660
REAL_GDP_PER_CAPITA_GROW^...	-1.47E-06	6.68E-06	-0.220612	0.8258
AVERAGE_MARGINAL_EXCHANG^...	-6.89E-06	6.31E-05	-0.109231	0.9132
R-squared	0.136623	Mean dependent var	0.056952	
Adjusted R-squared	0.073832	S.D. dependent var	0.099706	
S.E. of regression	0.095954	Akaike info criterion	-1.777269	
Sum squared resid	1.012798	Schwarz criterion	-1.567083	
Log likelihood	114.7475	Hannan-Quinn criter.	-1.691919	
F-statistic	2.175832	Durbin-Watson stat	1.765465	
Prob(F-statistic)	0.034656			

Heteroskedasticity Test: White			
F-statistic	2.175832	Prob. F(8,110)	0.3466
Obs*R-squared	16.25811	Prob. Chi-Square(8)	0.3883
Scaled explained SS	21.10998	Prob. Chi-Square(8)	0.1686

#### Appendix –IV:BG test; serial correlation LM test

Breusch-Godfrey Serial Correlation LM Test:				
F-statistic	1.000788	Prob. F(2,108)	0.3710	
Obs*R-squared	2.165311	Prob. Chi-Square(2)	0.3387	
Test Equation: Dependent Variable: RESID Method: Least Squares Date: 01/29/21 Time: 22:07 Sample: 2 120 Included observations: 119 Presample missing value lagged residuals set to zero.				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
PROF	0.000792	0.003343	0.236882	0.8132
LIQ	-0.001260	0.108795	-0.011578	0.9908
LEV	-0.004526	0.017206	-0.263054	0.7930
LAGDPR	-0.138183	0.129444	-1.067513	0.2881
AGE	0.002142	0.004910	0.436220	0.6635
GENERAL_INFLATION	-0.000111	0.002904	-0.038377	0.9695
REAL_GDP_PER_CAPITA_GRO...	3.29E-06	0.001504	0.002189	0.9983
AVERAGE_MARGINAL_EXCHAN...	-0.001797	0.007644	-0.235100	0.8146
C	0.063908	0.214993	0.297256	0.7668
RESID(-1)	0.176538	0.150263	1.174858	0.2426
RESID(-2)	0.118394	0.107392	1.102452	0.2727
R-squared	0.018196	Mean dependent var	1.43E-16	
Adjusted R-squared	-0.072712	S.D. dependent var	0.239655	
S.E. of regression	0.248215	Akaike info criterion	0.138842	
Sum squared resid	6.653978	Schwarz criterion	0.395736	
Log likelihood	2.738876	Hannan-Quinn criter.	0.243159	
F-statistic	0.200158	Durbin-Watson stat	1.954401	
Prob(F-statistic)	0.995893			

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.000788	Prob. F(2,108)	0.3710
Obs*R-squared	2.165311	Prob. Chi-Square(2)	0.3387



Series: Residuals  
Sample 2 120  
Observations 119

Mean 1.96E-16  
Median -0.0368  
Maximum 0.702  
Minimum -0.713  
Std. Dev. 0.23066  
Skewness 0.15818  
Kurtosis 3.81436

Jarque-Bera 3.78454  
Probability 0.15073