



ST.MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES
DEPARTMENT OF ACCOUNTING AND FINANCE

**DETERMINANT FACTORS OF BANK CREDIT IN THE
CASE OF PRIVATE COMMERCIAL BANKS IN
ETHIOPIA**

BY
RAHEL G/SILASSIE

JUNE 2017
SMU
ADDIS ABABA, ETHIOPIA

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THE CASE OF PRIVATE COMMERCIAL BANKS IN
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BY

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I.D MBAAF/0363/2008A

**A THESIS SUBMITTED TO ST.MARY'S UNIVERSITY, SCHOOL OF
GRADUATE STUDIES IN PARTIAL FULFILLMENT OF THE
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DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of Ass. Prof. Asmamaw Getie. All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

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June 2017

ENDORSEMENT

This thesis has been submitted to St. Mary's University College, School of Graduate Studies for examination with my approval as a university advisor.

Advisor

St. Mary's University College, Addis Ababa

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June, 2017

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LIST OF ACRONYMS

AIB: Awash International Bank S.C
BOA: - Bank of Abyssinia S.C
BP: - Bill Purchase
CAP: - Capital Adequacy
CBO: - Cooperative Bank of Oromia S.C
CRLM: - Classical Regression Linear Model
DB: - Dashen Bank S.C
DEP: - Volume of Deposit
FEM: - Fixed Effect Model
G.C:- Gregorian calendar
GDP: - Gross Domestic Product
LB: - Lion Bank S.C
LIQ: - Liquidity
LOA: - Loan and Advance
NBE: - National Bank of Ethiopia
NIB: - Nib International Bank S.C
NPL: - Non-Performing Loan
REM: - Random Effect Model
RR: - Reserve and Requirement
SIZE: - Bank Size
UB: - United Bank S.C
WB: - Wegagen Bank S.C

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ABSTRACT

The study examined factors affecting bank credit in private commercial banks in Ethiopia. It tested by the relationship between the banks' lending and some determinant factors that affect credit facilities. As per the research problem, the research methodology was more of explanatory or causal research design to show the causal relationship between dependent and independent variables and quantitative research approach used to gather data. The study included private commercial banks that have at least ten years data from year 2007 - 2016 G.C. The researcher employed non-probability sampling design purposive sampling technique used from the selected eight private commercial banks. The collected data analyzed by using descriptive statics and regression analysis. To address the objective of the study secondary source of data was used in the form of ten years data from annual reports of selected private commercial banks. The results of panel data regression analysis showed that bill purchase, liquidity and reserve requirement had negative and significant impact on loan and advance. Deposit, capital adequacy and non-performing loan had positive and significant impact on loan and advance. However, gross domestic product had positive but insignificant effect on loan and advance. The study suggests banks might increase their deposit mobilization by giving different incentive to depositors, increase capital adequacy by increasing shareholders equity, decrease turnover of bill purchase rate by giving long term loan and decrease reserve requirement rate by NBE. Also, banks increase illiquid asset to increase loan and advance rather to hold more liquid asset being long term loans increase the illiquid asset of the bank.

KeyWord: Bank Credit, Loan and Advance

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CHAPTER ONE

1. INTRODUCTION

1.1. Background of the Study

Lending is the main function of commercial banks that constitute larger portion of banks assets and it is the principal business for most commercial banks (Mitiku, 2014). The success and progress of the commercial banking sector depend on several dimensions including in particular profitability growth and lending behavior (Touny, 2014).

A bank is a type of financial institution which deals in financial instrument. Banks get major of its revenues from interest incomes. As per annual report of Dashen Bank S.C, for the fiscal period 2015/2016, total loans and advance cover 43.7% of total asset and interest income contribute 99.2% to total revenue of the company (Dashen Bank S.C annual report, 2016). Also, Awash International Bank S.C annual report for the year ended 2015/2016, shows total loan and advance cover 48.8% of total asset and interest income contribute 68% to total revenue of the bank (Awash International Bank S.C annual report, 2016). As per Abyssinia Bank S.C annual report dated on 2016, total contribution of loan and advance to total asset shows 47.6% and income generated from interest income contribute 92.9 % to total revenue generate by the company (Bank of Abyssinia annual report, 2016).

Bank accept customer deposits and use the fund to grant loans to borrowers or invest in other assets that will yield a return higher than the amount bank pays the depositor (McCarthy et al., 2010). It is understandable that, the main source of lending is deposit or money accepted from the depositor but the amount that would have to be lent is a certain percentage of the total deposited amount and the remaining is kept as a reserve for the purpose of maintaining its liquidity.

No matter the sources of the generation of income or the economic policies of the country, commercial banks would be interested in giving out loans and advances to their numerous customers bearing in mind, the three principles guiding their operations which are, profitability, liquidity and solvency. However, commercial banks decisions to lend out loans are influenced by a lot of other factors such as volume of deposits, interest rate, and cash reserve requirement and liquidity ratio to mention a few (Olokoyo, 2011).

There is a relation between bank lending and bank performance. By extending more loan banks can earn better profit or record better performance in the form of interest. On the other hand, limiting lending may have a negative impact on banks and borrower's performance. In most banks the loan performance is very important to its profits (Rauf, 2016). That's means if the loans that provide by banks performed well, their profit also will be increased, however, when the loan performance is not well their profit becomes low.

According to Rasiah (2010) banks granted loan to their customers and generate revenue in the forms of interest income. But, banks have to be courteous in offering more loans because as they offer more loans to customers they expose themselves to liquidity and default risks which negatively affect banks' profits and survival. Due to this, banks have to balance between generating a certain amount of profit and managing the risk from their lending activities.

Granting credit facilities to customers have areas of banking sector to generate profit. Therefore, banks focus on the factors that hinder to grant credit facilities. There are internal and external factors that affect to grant loans to their customers.

1.2. Statement of the Problem

Lending is the major service that Ethiopia commercial banks generate significant amount of profit and the largest portion of asset and dominant source of income of any bank is granting of credit facilities to their customers. As per annual report of National Bank of Ethiopia, interest income contributes the major portion of revenue to all commercial banks (NBE annual report, 2016). Commercial banks in Ethiopia granting loans to their customers for the purpose of manufacturing, building and construction, personal consumption, domestic trade and service, import, export, agriculture and so on.

Banks face a problem related to granting of credit facilities. There are factors that hinder granting of credit facilities and literature divide these factors in to two major categories that are internal (microeconomic or bank specific) and external factor (macroeconomic) factors. In relation to this, Kishan & Opiela (2000), the internal determinants are termed as micro or bank-specific determinants of bank lending, while the external determinants are macroeconomic variables that are not related to bank management but reflects the monetary, economic and legal environment that affect the operation and performance of financial institutions. Some of the internal factors that affect granting of credit facilities are volume of deposit, liquidity, cash reserve requirement, asset quality (non-performing loan) and some of external factors are gross domestic product, government rule and regulation, lending rate, inflation and like.

In view of the above fact, a lot of studies are conducted in the area of factors that affecting granting of credit facilities in commercial banks. Al-rawashdeh et.al (2013) evaluates factors affecting the credit facilities with banks' branches in Aqaba in connection with borrowers, policies, management of the loan and environmental condition of the country's economy. According to the research study all the variables are necessary for the selected sample.

Mitiku (2014) investigated that the relationship between commercial banks' lending with internal and external variables that determine granting of credit facilities for the period

covering 2005-2011 and suggested that there is significant relationship between commercial bank lending and its variables like credit risk, gross domestic product, and liquidity. However, deposit, investment, cash reserve requirement and interest rate does not affect lending in commercial banks in Ethiopia (Ibid).

According to Amano (2014) volume of deposit bank size, cash reserve requirement, inflation had significant and positive impact on loan and advances. However, liquidity and interest rate had negative and significant impact on loan and advance.

Also, Rabab'ah (2015) showed that bank size and economic growth have a positive and significant impact on credit facilities. However, the ratio of non-performing loans, liquidity ratio and window rate have a negative and significant impact on the ratio of credit facilities credit facilities granted by commercial banks in Jordan.

Moussa (2016) indicated that among the internal factors, only the return on assets, net interest margin, liquidity has a significant impact on bank loans. In relation with external factors only the inflation rate has a significant impact on bank loans.

Based on the above researcher's study, there was inconsistency or irregularity between the results of study findings. So, the area needs to be further researched. Here in this study as to the researcher knowledge, there is no research conducted which is published and unpublished related to internal and external factors that affect credit facilities in private commercial banks in Ethiopia by using empirical data for the period covering 2007-2016 G.C with explanatory research design.

So, the research study needs to be conduct to examine some internal and external factors that affect credit facilities on private commercial banks in Ethiopia. The study focused on the selected private commercial banks in Ethiopia due to private commercial banks provides homogeneous products to their customers in relation to credit.

1.3. Objective of the Study

1.3.1. General Objective

The main objective of this study was to examine internal and external factors that hinder to banks from granting loans.

1.3.2 Specific objective

In addition to the general objective, the study had its own specific objectives.

- ✓ To identify some internal factors that affect granting credit facility.
- ✓ To identify some external factors that affect lending problem.

1.4 Hypothesis

To achieve the study objective the researcher developed the following research hypothesis.

H1= Volume of deposit has positive effect on banks credit.

H2= Liquidity has positive effect on banks credit.

H3= Non-performing loan has negative effect on banks credit.

H4= Capital adequacy has positive effect on banks credit.

H5= Cash reserve requirement has negative effect on banks credit.

H6= Gross domestic product has positive effect on banks credit.

H7= Bill purchase has negative effect on banks credit.

1.5 Significance of the Study

Lending is important function of commercial banks. Its contribution to asset and income portfolio is very high in banking industry. Therefore, reducing or restricting lending by banks has negative impact on both banks and borrowers in particular and on the growth of the country's economy in general.

The findings of this study identified factors that affect bank credit in private commercial banks and this helps private commercial banks and bank supervisory agency (NBE) to formulate appropriate policies and procedures that enhance effective administration and management of loan and advances.

The bank supervisory agency (National Bank of Ethiopia) should always assess its policies and economic conditions that hinder the lending process and take corrective measures to stabilize the economy. Management of banks also make themselves aware about the factors that affect lending when lending reduction occurs for different reasons.

Also, the study provided mechanism to overcome the lending problem by suggesting some recommendation to private commercial banks in the country.

Finally, it will contribute to other researcher who wants to conduct further research works in the area of lending decision of private commercial banks in Ethiopia that will needs to explore on some other concerns which was not covered in this study.

1.6 Delimitation of the Study

The scope or delimitation of the study was limited to examine some internal and external factors that affecting granting of credit facilities in private commercial banks by using ten years (2007-2016 G.C) audited financial statements of each private commercial bank. It includes the eighth leading private commercial banks in the country in terms of their

establishment date. Those selected private commercial banks whose establishment date before year 2007 G.C are Awash International Bank S.C (AIB), Dashen Bank S.C (DB), Wegagen Bank S.C (WB), Bank of Abiysinia S.C (BOA), United Bank S.C (UB), Nib International Bank S.C (NIB), Cooperative Bank of Oromia S.C (CBO) and Lion Bank S.C (LB).

1.7 Limitation of the Study

Although the research has reached its aims, there were some unavoidable limitations. First, because of the time limit, this research was conducted only on a small size of population that is private commercial banks with establishment period before the year 2007 G.C and only six independent variables conducted in the study. Second, results of this study may not be completely generalizable because the study focuses on demand side not on the supply side of the loan and advance. Finally, the research material was not sufficient to cover more independent variables in the study.

CHAPTER TWO

2. REVIEW OF RELATED LITERATURE

This chapter was focused on the review of relevant theoretical and empirical literatures on the determinants factor that affect bank credit. This review of literature established the framework for the study and clearly identified the gap in the literature that helps to formulate the research hypotheses for the study.

2.1. Theoretical Frameworks

2.1.1. Banking Environment in Ethiopia

The history of modern banking in the Ethiopia traced back to 1905, when the Bank of Abyssinia established based on a fifty year franchise given to the British-owned National Bank of Egypt (Alemayehu, 2006). During the Italian invasion, Bank of Italy was formed a legal tender in Ethiopia. In 1943, after Ethiopia regains its independence from fascist Italy, the State Bank of Ethiopia was established, with two departments performing the separate functions of an issuing bank and a commercial bank. In 1963, these functions were formally separated and the National Bank of Ethiopia (the central and issuing bank) and the Commercial Bank of Ethiopia are formed (Berhanu, 2015).

In the period up to 1974, several other financial institutions emerged including the state owned as well as private financial institution. In the pre-1974 era, the banking industry was dominated largely by a single government owned bank, State Bank of Ethiopia. During the Derge regime, there was one commercial bank, whose overriding objective was to accelerate development so as to improve the standard of living of the broad masses rather than maximization of profit. Following this, from the period (1975-1991) all the banks emerge in the second phase was merged and the government left with only three banks namely: the

National Bank of Ethiopia (NBE), the Commercial Bank of Ethiopia, and Agricultural and Industrial Development Bank. (Berehanu, 2015).

2.1.2. Private Commercial Banks in Ethiopia

Since the year 1992 to date, private commercial banks have been allowed to operate in Ethiopia. Awash International Bank S.C is the first private bank of Ethiopia established on 1994 G.C. After the period of one year Dashen Bank S.C join to the bank industry. The rest fourteen private commercial banks established between the years 1996 to 2012 G.C.

At the beginning, to establish a new private commercial bank, the 1994 proclamation provision requires only a minimum capital requirement of ten million birr, though it changed to 75 million in 1999 and 500 million in 2011 respectively (Berehanu, 2015). Accordingly, from the period of 1994 to date, sixteen private commercial banks have gone operational. Those sixteen private commercial banks operate their business by expanding their branch size with in Addis Ababa area and regional areas. The head quarter of all private commercial banks located at Addis Ababa to smoothly operate their banking activity. The following table indicates the established private commercial banks including their establishment years.

2.1.3. Bank Credit

The bank credit is considered the important functions carried out by banks, where it contributes to the provision of the necessary funding for all the sectors in the country, including the sectors of the household, business and government. The credit granted to each economic center is considered important for exercising their tasks in business, operations and investments, which helps them to achieve a real growth in output and it will reflect positively on the economy as a whole (Rabab'ah, 2015).

Loan or credit facility is a type of debt and like all debt instruments a loan entails the redistribution of financial assets over time, between the lender and the borrower. The

borrower initially receives money called principal and pay back with installment basis including interest.

Loan and advances is one of activity that banks do to generate income. According to the National Bank of Ethiopia banking business proclamation no. 592/2008 loans and advances defined as;

loan and advance means any financial assets of a bank arising from a commitment to advance funds by a bank to a person that is conditioned on the obligation of the person to repay the funds, either on a specified date or dates of on demand, usually with interest, or from indirect advances such as unplanned overdrafts, participation in loan syndication and the purchase of loans from another lender; and includes a contractual obligation of a bank to advance funds to or on behalf of a person's claim evidenced by a lease financing transaction in which the bank is the lessor, and an overdraft facility to be funded by a bank on behalf of a person(National Bank of Ethiopia, 2008).

Banks grant loans and advances to individuals, business organization and government for different purpose. According to Olokoyo (2011, p 61),

Lending which may be on short, medium or long-term basis is one of the services that commercial banks do render to their customers. In other words, banks do grant loans and advances to individuals, business organizations as well as government in order to enable them embark on investment and development activities as a mean of aiding their growth in particular or contributing toward the economic development of a country in general.

In Ethiopia loan and advance granted to central government, private and individual borrower, enterprise and inter banking loan. As per National Bank of Ethiopia report dated on the fiscal year 2015/16, loans and advance granted to central government, private and individual borrower and inter banking loan. From the total loan advanced from the stated borrower type private and individual's borrower cover 165,467 million from the total lending outstanding balance of Birr 280,319 million (NBE annual report, 2016). From the above

data private and individual's borrower contribute 59% of total loan outstanding balance and central government and inter banking loan covers 41% of total loan outstanding balance.

Private commercial banks in Ethiopia granted loan to individual and enterprise like private limited company, Share Company, cooperative, financial institution and so on. Commercial banks in Ethiopia granting loan and advances in the economic sector of agriculture, industry, domestic trade and service, international trade (import and export), personal, building and construction, hotel and tourism and like.

Commercial banks render various types of services to their customers. There are different kinds of products serving by commercial banks such as saving deposit, current deposit, time deposit, loan and advances and international trade. Each of these products has a different set of features attached to it. Loan or credit facility has one of the product that banks grant to their customers. Commercial banks facilitate credit facilities for the sectors of agricultural, domestic trade and service, building and construction, transport, personal consumption, import, export, manufacturing and so on. These products grant to customers in short term period, medium period and long term period with monthly, quarterly, semi-annually, annually and at lump sum installment basis.

Table 1. Loan and advance by Economic Sector

(In million)

Economic Sector	Fiscal Year 2015/16		
	Disbursement	Collection	Outstanding Balance
Agriculture	13,375.7	12,863.4	20,377.5
Industry	25,495.6	15,954.1	106,164.0
Domestic Trade	15,040.5	15,297.7	28,550.6
International Trade Import	4,404.9	8,429.6	23,028.4

International Trade Export	5,123.1	7,278.3	28,872.0
Hotel and Tourism	1,893.8	2,406.5	4,818.8
Transport and Communication	4,494.1	3,336.8	10,026.1
Housing and Construction	13,641.9	8,422.3	28,080.8
Mines, Power and Water Resource	341.2	145.5	851.8
Personal	1,051.4	652.9	2,779.6
Others	3,160.8	2,393.9	10,297.7
Interbank Lending	0	5.72	54.3
Government Deficit Finance	0	0	16,471.6
TOTAL	88,023	77,186.72	280,373.2

Source: NBE annual report 2016

From the above data, industry sector cover the major portion of loan and advance for the fiscal period 2015/16 which contribute 37.9% to the total outstanding loan and advance balance. The least contribution to the total loan and advance for the stated period was interbank lending and which cover 0.02% and it show insignificant amount contribution to the total loans.

2.1.4. Types and Classification of Credit

Classification of credit facilities are categorized in different forms.

Overdraft: - It means the act of overdrawing from a bank account i.e. the account holder withdrawal more money form a bank account that has been deposited for a specified period (Surbhi, 2015).

Term Loan: - are granted for a specific period of time and payment of such loans is spread over a longer period. It required for the purpose of starting a new business activity, renovation, modernization, expansion of existing units, and purchase of their land for setting up a victory, construction, building or purchase of other immovable properties (Dheeraj, n.d)

Demand loan: - is a loan which is repayable on demand by the bank. The entire amount of demand loan is disbursed at one time and the borrower has to pay interest on it and the borrower can repay the loan either in lump-sum or as agreed with the bank (Dheeraj, n.d).

Cash credit: - it is primary method in which banks lend money against the security of commodities and debt. It runs like current account except that the money that can be withdrawn from this account is not restricted to the amount deposited in the account.

Bills discounted and purchased: - Banks takes the bill drawn by borrower on his customer and pay him immediately deducting some amount as discount /commission.

The under listed classification of loan and advance granted to their customers in Awash International Bank S.C sourced from credit manual prepared by banks credit department (Awash International Bank Credit Manual, 2011).

Term Loans

Term loans are loans that are availed for defined purposes, to be repaid within a given period in a predetermined repayment patterns. The loans are to be repaid on the basis of monthly, bi monthly, quarterly, semi-annually and annual installments, in one lump sum upon maturity or other agreed amortization patterns, depending on the nature of the business and its cash flow.

⇔ **Short term loan** are loans that are fully repaid within 36 months. These loans are used for working capital requirements of businesses.

⇔ **Medium and long term loans and advances** are loans that are repayable beyond 37 months up to 60 months for medium term loan and the loans that are repayable beyond 60 months for long term loans. Such loan can be used for acquisition of fixed assets such as furniture, vehicles, machinery, construction as well for purchase and renovation of buildings.

Merchandise Loan Facility

Merchandise loan is a one time or renewable credit facility that may be granted against pledge of merchandise stock at a margin of advance, depending on the nature, stability and marketability of the merchandise items.

- ⇒ **Merchandise – In Transit Facility** is a one term or renewable credit facility which may be converted to merchandise loan shortly after clearing the goods. For the purpose of the loan, the bank selects its preferred transitor with whom it makes undertakings to deliver the goods to the bank's preferred store.
- ⇒ **Pre shipment Finance** are short term, one time or revolving facilities that may be granted upon presentation of valid sales contract (loans against sales contract) and irrevocable export letters of credit (advances against irrevocable L/Cs) as a bridge finance to address seasonal financial needs of exporters.
- ⇒ **Post Shipment Credit** is a facility advanced to exporter to bridge their temporary working capital requirement while the goods are in transit for shipment upon presentation of all relevant and valid export documents, except "Bill of Lading".

Overdraft Facilities

- ⇒ **Overdrafts** are renewable credit facilities by which customers are allowed to draw beyond the deposits they maintain in their current accounts. Overdrafts are extended to meet working capital need or borrowers based on justified volume of operating and the collateral/s proposed. Overdraft facilities are callable whenever the client breaches one or more of the covenants, upon 30 days prior notification.
- ⇒ **Special overdraft facilities to exporter**, this special overdraft facility may be granted to exporters with reputed integrity and strong financial performance. Each

withdrawal from the special overdraft account should be supported by presentation of genuine export contract or irrevocable L/Cs.

2.1.5 Requirement for Granting of Credit

Borrower must fulfill the five C's to get credit facilities from banks. These C's are capacity, capital, collateral, condition and character. According to wellsfargo.com, when an applicant applied for loan, lenders assess credit risk based on a number of factors including the five C's.

- ⇒ **Credit History (character):-** the applicant qualifying for the different types of credit hinges largely on their credit history. The track record established while managing credit and making payments over time. Credit report of the customer is a primary detailed list of the borrower's credit history. Credit worthiness is history of trustworthiness, a moral character, and expectations of continued performance demonstrate a debtor's ability to pay. Creditors give more favorable terms to those with high credit ratings via lower point structures and interest costs.
- ⇒ **Capacity:** - Lenders need to determine whether they can comfortably afford loan repayment. Income and employment history are good indicator of the customers' ability to repay outstanding debt. Income amount, stability and type of income may all be considered.
- ⇒ **Collateral:** - there are different types of collateral offered by the applicant to pledge. The value of collateral will be evaluated and any existing debt secured by the same collateral will be subtracted for the total value. There are different forms of security or collateral such as building, motor vehicle, machinery, stock, share certificate and so on.
- ⇒ **Capital:** - the household income of the borrower was expected to be the primary source of repayment, capital represents the savings, investments and other assets that

can help repay the loan. This can be helpful if the borrower lose the job or experience other setbacks.

⇔ **Conditions:** - lenders may want to know how the borrower plans to use the money and will consider the loan purpose such as whether the loan will be used to purchase a vehicle or other property. Other factors such as environmental and economic conditions may also be considered.

2.1.6 Determinant Factors that Affect Granting of Loan

Amano, (2014) stated that loan granted to customers is principal function of banks and the management should give due attention for those internal and external factors that affect lending being without lending banks interest income would highly affected the overall performance of the banks.

2.1.6.1 Volume of Deposit

Studies stated that bank deposit has an impact on credit facility. Banks should put in place strategies aiming at improving deposit mobilization policy to attract more customers and also ensure that there is an effective and efficient policy of converting deposit mobilized into loan in order to gain the interest paid on the deposits (Tuyishime, Memba, & Mbera, 2015).

Banks accept customer deposits and use those funds to give loans to other customers or invest in other assets that will yield a return higher than the amount bank pays the depositor (McCarthy et. el 2010). Therefore, the customer deposits directly have a positive effect on lending. As a result, deposits play a pivotal role in bank funding, as a major portion of commercial banks asset is usually financed through customer deposit (Bologna, 2011).

2.1.6.2 Liquidity

Liquidity is an important principle of bank lending. Bank lend for short period only because they lend public money which can be withdrawn at any time by depositors. The liquidity of

banks could be controlled by the minimum reserve requirements given by each respective countries central bank in order to protect the bank against liquidity rush from its depositors in certain economic conditions. Since loans are illiquid assets, increase in the amount of loans means increase in illiquid assets in the asset portfolio of a bank.

According to Pilbeam, (2005) in practice the amount of liquidity held by banks is heavily influenced by loan demand that is the base for loan growth. If demand for loans is weak, then the bank tends to hold more liquid assets (i.e. short term assets), whereas if demand for loans is high they tend to hold less liquid assets since long term loans are generally more profitable. It shows that loans and advances have negative impact on banks liquidity.

2.1.6.3 Non-Performing Loan

Credit risk (NPL) is the uncertainty attached with the collection of loans. The probability that some banks asset value, especially its loans will decline and perhaps became worthless is known as credit risk. Non-performing loan is a loan that is not earning income and full payment of principal and interest is no longer anticipated, the maturity date has passed and payment in full has not been made.

As per NBE directive under directive No. SSB/43/2008, nonperforming loans are loans or advances whose credit quality has deteriorated such that full collection of principal and/or interest in accordance with the contractual repayment terms of the loan or advances are in question; or when principal and/ or interest is due and uncollected for 90 (ninety) consecutive days or more beyond the scheduled payment date or maturity (NBE Directive, 2008).

2.1.6.4 Capital Adequacy

Capital adequacy is the level of capital that banks are required to hold to enable them withstand credit, market and operational risks they are exposed to. According to Bouvatier & Lepetit (2007) cited in Berehenu (2016) adequate capital in banking is a confidence

booster and it provides the customer, the public and the regulatory authority with confidence in the continued financial viability of the bank. Confidence to the depositor that his money is safe; to the public that the bank will be, or is, in a position to give genuine consideration to their credit and other banking needs in good as in bad times and to the regulatory authority that the bank is, or will remain, in continuous existence.

According to Berehanu (2016), bank capitalization can affect bank willingness and ability to extend long term loans in several different ways. Banks with larger capital cushion against credit risks should have higher capacity to extend risky, long-term loans. Therefore increasing bank equity enhances the banks capacity to increase lending. In addition, better capitalized banks can attract more creditworthy borrowers that will qualify for long term loans. Alternatively, high levels of capital can reveal risk averse and conservatively managed banks that may be reluctant to issue risky long-term loans.

2.1.6.5 Bill Purchase

National Bank of Ethiopia Bill (NBE Bill) is a long-term obligation of the National Bank of Ethiopia having a maturity period of five years and sold to all private banks and state-owned Construction & Business Bank (National Bank of Ethiopia, 2011).

The National Bank of Ethiopia (NBE) the regulatory body of financial institutions in the country, issued a new directive on commercial banks, setting the minimum requirement for short term loans at 40 percent of the bank's total loan provision. Private Banks raised a concern on the constraint that forces them to set aside 40 percent of their loans for short term loans. The directive is to be effective as of year July 2013 (NBE, 2011).

The central bank has also given the banks until January 2015 to restructure their loan portfolios to the stated ratio. The new directive is supposed to push commercial banks to purchase more NBE bills worth 27 percent of the loans disbursed as stated by officials of the commercial banks.

The National Bank of Ethiopia pays 3% interest for the bill that commercial banks purchase but commercial banks pay 5% minimum interest for the deposit they mobilized (Yoseph, 2013). Starting from April 4, 2011 NBE has introduced NBE-Bills aimed at mobilizing resources from commercial banks to finance priority sectors deemed as the driving forces of the economy. Since its introduction total NBE-bills purchased by the banking sector has reached Birr 49.9 billion (NBE, 2016).

Yoseph (2013) finds that lending capacity of commercial banks before the implementation of the policy showed a different outlook compared with the time after the policy implementation, as the time after was marked by the pressure the Bill laid on Banks. The Bill purchase was taking a considerable amount of fund that could otherwise have been advanced as a loan, thereby affecting their lending capacity.

2.1.6.6 Reserve and Requirement

The reserve requirement ratio also plays an important role in a banks capacity to give out loans and credit. The assumption here is that the higher the reserve requirements from the central bank, the lower the amount of credits and loans a bank is willing to give to the public. National bank of Ethiopia imposed reserve requirement in banking industry. Reserve requirements can be used as a cyclical policy instrument to ease credit fluctuation in the financial sector, and hence to stabilize the real economy (Montero and Moreno, 2011).

As per directive no. SBB/55/2013, NBE has laid down the directive to enforce any bank operating in Ethiopia to maintain 5% of all Birr and foreign currency deposit liabilities held in the form of demand or current assets, saving and time deposit (NBE, 2013).

2.1.6.7 Gross Domestic Product

Gross domestic product are used to measure the economic condition of the country. A strong economic condition creates more demand for goods and services which lead to more

investment in different sectors hence increase the per capital income as well as the savings, collectively these factors convince to banks to issue more private credit. According to the study Guo and Stepanyan (2011) indicated that domestic and foreign funding is positively associated with the credit growth. The stronger economic growth leads to higher credit growth. Due to the reason of the above study, gross domestic product of a country directly related on increase in credit granting credit facility.

2.2. Review of Related Literature Empirical Studies

A number of studies have examined the determinants of banks' lending decision in many countries around the world. Most of the studies consider internal factors (i.e., banks specific) and external factors (i.e., macroeconomic and legal environment) by focusing on the supply side or demand side and examine either a particular country or a number of countries. This section discusses the empirical studies which related to the objective of the study.

2.2.1 Related Empirical Studies in Foreign Countries

Olokoyo, (2011) investigated the determinants of commercial banks' lending behavior in Nigerian context. The model used is estimated using Nigerian commercial banks loan advance and other determinants or variables such as their volume of deposits, their investment portfolio, interest (lending) rate, stipulated cash reserve requirements ratio and their liquidity ratio for the period; 1980 – 2005. The model hypothesizes that there is functional relationship between the dependent variable and the specified independent variables. From the regression analysis, the model was found to be significant and its estimators turned out as expected and it was discovered that commercial banks deposits have the greatest impacts on their lending behavior.

Alrgaibat (2013), aimed to find the impact of capital, volume of deposits, size of cash holdings, and interest rates in the Jordanian commercial banks on the credit facilities that granted for customers. The data was analyzed through the statistical analysis of E-views program by using

a set of tests, including test method of least squares in the regression analysis (OLS). The results indicated that there was no significant effect for the size of capital, volume of deposits, size of cash holdings, and the interest rate in the Jordanian commercial banks on size of the credit facilities that granted for customers.

Rabab'ah, (2015) aimed to examine the determinants of commercial banks' lending in Jordan. The study used the ratio of credit facilities to total assets as a dependent variable, and eleven independent variables including the ratio of deposits, ratio of non-performing loans, capital ratio, liquidity ratio, asset size, lending rate, deposits rate, window rate, legal reserve ratio, inflation and economic growth rate. The results showed that the ratio of non-performing loans, liquidity ratio and window rate have a negative and significant impact on the ratio of credit facilities, while found that the bank size and the economic growth have a positive and significant impact on the ratio of credit facilities granted by commercial banks in Jordan. The study recommended Jordanian commercial banks to avoid excess liquidity, and to pay more attention to reduce the ratio of non-performing loans.

Moussa, (2016) studied the internal factors and external factors of bank credits in Tunisia using a panel data through a sample of 18 banks in the period (2000-2013). The researcher found that among the internal factors, only the return on assets, net interest margin, liquidity has a significant impact on bank loans. Among the external factors, only the inflation rate has a significant impact on bank loans.

Ayieyo, (2016) determined the effect of volume of deposit and interest rate on total loan advanced by selected commercial banks in Kenya. The study employed a correlation research design and was informed by theory of Money Supply. The findings indicated that lending interest rates are negatively related and significantly affect the total loans advanced. Further, volume of deposit in commercial banks has a significant and positive effect on the total loan advanced.

2.2.2 Related Empirical Studies in Ethiopia

Amano (2014) investigated the determinants of commercial banks' lending behavior in the Ethiopian context. The study aimed to test and confirm the effectiveness of the common determinants of commercial banks' lending behavior and how it affects the lending behavior of commercial banks in Ethiopia. Seven factors affecting banks loan and advance were selected and analyzed. The results of panel data regression analysis showed that volume of deposit and bank size had positive and significant impact on loan and advance. Liquidity ratio and interest rate had negative and significant impact on loan and advance. Cash reserve requirement, and inflation rate had positive and significant impact on loan and advance but the coefficient sign was not as expected. Real GDP growth rate had statistically insignificant impact on banks' loan and advance.

Mitiku (2014), aimed to confirm the main determinants of commercial bank lending in Ethiopia by using panel data of eight commercial banks in the period from 2005 to 2011. It tested the relationship between commercial bank lending and its some determinants (bank size, credit risk, gross domestic product, investment, deposit, interest rate, liquidity ratio and cash required reserve). The result suggests that, there is significant relationship between commercial bank lending and its size, credit risk, gross domestic product and liquidity ratio. But deposit, investment, cash required reserve and interest rate does not affect Ethiopian commercial bank lending for the study period. The study suggests that commercial bank have to give more emphasis to credit risk and liquidity ratio because it weakens banks loan disbursement and leads a bank to be insolvent.

Berhanu, (2016), investigated the determinants of lending decision of private commercial banks in Ethiopia and the impact of those factors that significantly affects the lending decision on the financial performance of the banks. The results of panel data regression analysis showed that Liquidity ratio, Capital adequacy ratio, Inflation rate and gross domestic

product had positive and statistically significant effect on banks' lending. Nonperforming loans, Cash reserve requirement and lending interest rate had negative and statistically significant effect on banks' lending. Volume of deposit had positive but insignificant effect on banks' lending. Among factors that statistically significantly affecting banks' lending; liquidity, Lending interest rate and GDP had positive and significant impact on financial performance whereas, non-performing loans and Cash reserve requirement had negative impact on financial performance. Capital adequacy ratio had positive and inflation rate had negative but, insignificant impact on financial performance.

Finally, Sintayehu, (2016), investigated credit drivers of Ethiopian commercial banking sector during the period from 2002 to 2014. It was conducted based on the hypothesis that credit in Ethiopian banking industry is determined by bank, industry and macro-economic specific factors. The regression technique was used to estimate the model using the Eviews 8 econometric package. The researcher obtained bank lending is determined by banks and industry specific factors than macroeconomic specific factors. And specifically the estimation results show that deposit volume, capital of banks, liquidity position, investment portfolio, cost of financial intermediation and market concentration have significant effect on bank lending. However, economic growth proxies by real GDP and inflation are not significant.

2.3 Summary and Knowledge gap

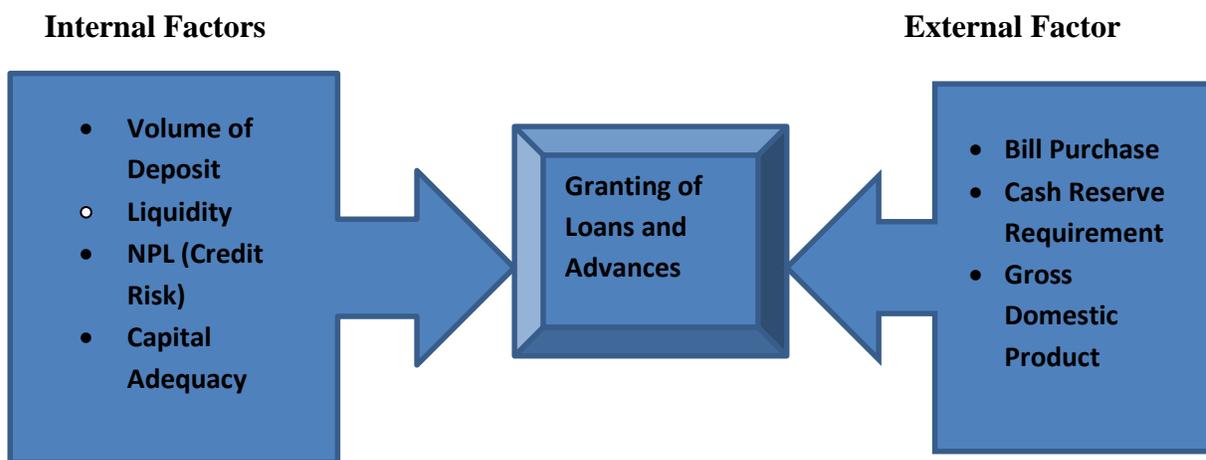
According to the above theoretical as well as empirical review, lending behavior is important to banking industry since lending is undoubtedly the heart of banking business. It also revealed that banks' lending can be affected by different factors such as bank specific (internal factor) and macroeconomic (external factor). The study was focused on some of the bank specific and macroeconomic factors affecting lending behavior of commercial banks of Ethiopia.

Most of the literature reviewed in this study focused on the foreign countries banking sector. Although such types of research were done in our country limited literatures were available for this research.

To the knowledge of the researcher there is no empirical studies done regarding to internal and external factors that affect granting of credit facilities in private commercial banks in Ethiopia in recent year's data i.e. up to the year ended 2016 G.C using explanatory research design. Also, in the above stated studies, the result of the research findings was varying from researchers to researcher. Therefore, this study filled the gap by giving more emphasis on the bank specific and macroeconomic factors affecting banks' lending behavior of commercial bank of Ethiopia up to the fiscal year ended 2015/2016.

Determinant Factor in granting loan and advance

Figure 1. Determinant factor in granting loan and advance



Researcher own source

CHAPTER THREE

3. RESEARCH DESIGN AND METHODOLOGY

The purpose of this chapter is to present the research hypotheses and the research approach adopted by the study. The chapter was arranged as research design, sample and sampling technique, source and tools of data collection, procedure of data collection method of data analysis, study variable i.e. dependent and independent variable, .

3.1 Research Design

Research design is used to obtain answers to the research questions. This means it gives the procedure necessary for obtaining the information needed to solve the research problems. To achieve the intended objective as well as to test the hypothesis, the study employed quantitative research approach. For the purpose of this study quantitative approach was employed to establish how independent variable affects dependent variable. Creswell, (2014), quantitative research approach is an approach for testing objective theories by examining the relationship among variables. These variables can be measured typically on instruments, so that numbered data can be analyzed using statistical procedures.

Explanatory study or causal research design was employed to show the causal relationship between variables. Explanatory research design is one in which the researcher first conducts quantitative research, analyzes the results and then build on the results to explain them in more detail with qualitative research. It is considered explanatory because the initial quantitative data results are explained further with qualitative data. This type of design is popular in fields with a strong quantitative orientation (Creswell, 2014).

3.2 Sample and Sampling Technique

The study target population or participants of this research was private commercial banks in Ethiopia. Target population is the larger population to which the researcher ultimately wants to generalize the results (Oescher, n.d). There are sixteen private commercial banks in Ethiopia (NBE, 2017). In order to obtain representative data, non-probability sampling design was used. Non-probability sampling is a method of sampling in which the probability of selecting a subject unknown and the goal is to identify information rich subjects and there are three techniques of non-probability sampling are commonly used in quantitative research i.e. convenience, purposive and volunteers (Oescher, n.d). The sampling technique was employed in the study are purposive judgmental sampling technique. Purposive sampling offers the researcher deliberately select items for the sample covering the choice of item as supreme based on the selection criteria.

The selection criteria set by the researcher was first, the required banks are only private commercial banks in Ethiopia. Second, these private commercial banks should start operation before year 2007 G.C having ten years data from year 2007 -2016 G.C. The sample size was eight private commercial banks in Ethiopia which includes Awash International Bank S.C, Dashen Bank S.C, Wegagen Bank S.C, Bank of Abiysinia S.C, United Bank S.C, Nib International Bank S.C, Cooperative Bank of Oromia S.C and Lion International Bank S.C. The eight private commercial banks were taken purposively by taking into account the availability of ten years data and due to the importance of experience in the industry to understand those factors that were affected bank lending ability.

3.3 Source & Tools of Data Collection

The most appropriate method that provides practical answers to the research hypothesis and the stated objective, the study was conducted secondary date. There are different types of secondary data used to conduct a research. However, for purpose of these study tools that

was used for collection of data from annual reports from sample banks which were submitted to National Bank of Ethiopia.

3.4 Study Variable

3.4.1 Dependent Variable

Loans and Advance (LOA)

According to Amano (2014) loan refers to the amount borrowed by one person from another. The amount is in the nature of loan and refers to the sum paid to the borrower. Thus from the view point of borrower, it is borrowing and from the view point of bank, it is lending. Loan may be regarded as credit granted where the money is disbursed and its recovery is made on a later date. It is a debt for the borrower. While granting loans, credit is given for a definite purpose and for a predetermined period. Interest is charged on the loan at agreed rate and intervals of payment. On the other hand Advance means a credit facility granted by the bank for a short-term purpose.

$$\text{LOAN AND ADVANCE} = \frac{\text{TOTAL LOAN AND ADVANCE}}{\text{TOTAL ASSET}}$$

3.4.2 Independent Variable

3.4.2.1 Deposit (DEP)

Bank deposit covered the majority of banks liability and it is an important activity of the bank (Behanu, 2016). The bank decision regarding to granting loan and advances are influenced by the volume of deposit and its cost or interest paid to their depositor. Since commercial banks depend on depositor's money as a source of funds, it means that there are some relationships between the ability of the banks to mobilize deposits and the amount of credit granted to the customers (Tomoka, 2013).

Imran & Nishaton (2013) confirmed that, the high deposit have a positive impact on the rate of growth in the credit provided to the private sector. There are direct relation between volume of deposit and loan and advances. If the volume of bank deposit increase, bank granted loan and advance also increase and vice versa.

Olokoyo (2011) indicated that the volume of deposits in banks has a significant impact on the volume of bank lending. This variable will be measured by dividing the total deposits of the bank in a given year by the total assets in that year. It is expected that the effect of this variable is positive on the proportion of the credit facilities granted by banks.

On the other hand, Rabab'ah (2015) showed that the coefficient ratio of the deposits to the total assets (DEP/TA) was positive but not statistically significant, which means that the proportion of deposits does not affect the ratio of credit facilities granted by the commercial banks.

$$\text{VOLUME OF DEPOSIT} = \frac{\text{TOTAL DEPOSIT}}{\text{TOTAL ASSET}}$$

H1= Volume of deposit has positive effect on bank loan.

3.4.2.2 Liquidity (LIQ)

Liquidity indicates the ability of the bank to meet its financial obligation in a timely and effective manner. As per NBE directive under directive no. SBB/57/2014, any licensed commercial bank shall maintain liquid assets of not less than fifteen percent (**15%**) of its net current liabilities While a commercial bank fails to meet the minimum regulatory liquidity requirement, it shall not grant any new or additional loan or credit accommodation to any person without prior written approval of the National Bank (NBE directive, 2014).

Rabab'ah (2015) indicated that the coefficient of the liquidity ratio (LIQ) was negative and has a statistical significance, which means that the high liquidity ratio reduces the proportion

of the credit facilities granted by the commercial banks. Also, Olokoyo (2011) indicated that liquidity has no impact on bank lending. This means the correlation between the liquidity ratios has negative effect on credit facilities.

According to NBE establishment under directive No. SBB/57/2014 liquidity asset of banks includes cash on hand, deposit in other bank, and short term government securities that are acceptable by NBE as collateral (for instance Treasury Bill) (NBE, 2014).

$$\text{LIQUIDITY RATIO} = \frac{\text{LIQUID ASSET}}{\text{TOTAL ASSET}}$$

H2= Liquidity has positive effect on bank loan.

3.4.2.3 Non-Performing Loan (NPL)

Loans become nonperforming when borrowers stop making payments and the loans enter default. A lower NPL ratio indicates smaller losses for the bank, while a larger (or increasing) NPL ratio can mean larger losses for the bank as it writes off bad loans (Mengistu, 2015).

Guo and Stepanyan (2011) indicated that the rise in the proportion of the non-performing debt leads to a decline in the strength of the banking sector and the volume of the credit granted. The study will also calculate the proportion of the non-performing loans by dividing the non-performing credit facilities in a given year by the total assets of the bank in that year. It is expected that the effect of this variable is negative for the proportion of the credit facilities granted by banks.

$$\text{NON PERFORMING LOAN RATIO} = \frac{\text{PROVISION}}{\text{TOTAL ASSET}}$$

H3= N

3.4.2.4 Capital Adequacy (CAP)

Capital adequacy means the ratio of capital to the total asset. According to Olokoyo (2011), the banks to pursuit to maintain a constant level for the ratio of the capital to the assets may cause them to manage their assets more effectively and efficiently and this reducing the losses resulting from the granting of credit. This may reduce the volume of credit granted by the bank.

Rabab'h (2015) showed that the coefficient ratio of the capital to the total assets was negative but not statistically significant, which means that the proportion of the capital does not affect the ratio of the credit facilities granted by the commercial banks. Capital adequacy ratio is calculated by natural logarizm of total capital of the bank.

CAPITAL ADEQUACY RATIO = NATURAL LOGARIZM OF TOTAL CAPITAL

H4= Capital adequacy has positive effect on bank loan.

3.4.2.5 Cash Reserve Requirement (RR)

Reserve requirement by banks represent the rate that banks should extract from their deposits in order to keep it at the Central Bank. Thus, the lower the legal reserve ratio, the more deposits volume that can be exploited by the Bank in lending, which increases the size of the credit facilities granted by banks.

Several studies such as Olokoyo (2011) have indicated that the legal reserve ratio is considered an influential factor on the bank lending. It is expected that this variable has a negative effect on the proportion of credit facilities.

Rabab'h (2015) showed that the coefficient of the legal reserve ratio (RR) was positive but not statistically significant, which means that the legal reserve ratio does not affect the ratio of credit facilities granted by the commercial banks.

**RESERVE REQUIREMENT = NATURAL LOGARIZM OF CASH RESEREVE
REQUIREMENT ON NBE**

H5= Cash reserve requirement has negative effect on bank loan.

3.4.2.6 Gross Domestic Product or Economic Growth Rate (GDP)

The economic growth measured by the rate of the annual change in the gross domestic product at constant prices. The economic growth is one of the important factors that affect the bank lending because the high growth rates reflect high pace of economic activity in the country and its accompanying rise in demand for funding. Imran and Nishatm (2013) cited in Rebab'h (2015) found that the economic growth has a positive effect on the bank credit. It is expected that this variable has a positive effect on the proportion of credit facilities. According to Rebab'h (2015), the economic growth rate coefficient (GRTH) was positive and statistically significant, which means that the high rate of the economic growth increases the proportion of the credit facilities granted by the commercial banks. The economic growth will be measured by the rate of annual change in the GDP at constant price.

**GROSS DOMESTIC PRODUCT (GDP) = CHANGE IN THE GDP AT CONSTANT
PRICE**

H6= Gross domestic product has positive effect on bank loan.

3.4.2.7 Bill Purchase (BP)

NBE bills purchase directive has negative impact on loanable fund, income and expense, profit, capital and reserve, and deposit of private commercial banks which further has negative implications on the development of private commercial banks (Shiberu, 2015).

According to (Shibiru, 2015), the effects of NBE bills purchase directive on Loanable fund has been reflected by several signals such as reducing the size of loanable fund, forcing private banks to change their price (lending rate), dissatisfying borrower, instigating banks to alter loan provision strategy, reducing private banks' loans and advances market share and prohibiting financing priority sectors (import and export).

According to stated study, twenty seven percent bill purchase imposed by NBE to private commercial banks negatively affect granting of credit facilities by commercial banks.

BILL PURCHASE BY PRIVATE COMMERCIAL BANKS = NATURAL LOGARTIZM OF BILL PURCHASE FROM NBE

H7= Bill purchase of 27% has negative effect on bank loan.

Table 2:- Summary of variables used in the study

Dependent and Independent Variables	Abbreviation	Measure	Expected Result
Bank Loan and Advance	LOA	Total Loan and Advance/Total Asset	NA
Deposit	DEP	Deposit/ Total Asset	Positive
Liquidity	LIQ	Quick asset/ Total Asset	Positive
Non-Performing Loan	NPL	Provision/Total Asset	Negative
Capital Adequacy	CAP	Natural logarithm of total capital	Positive
Reserve and Requirement	RR	Natural logarithm of reserve and requirement at NBE	Negative
Gross Domestic Product or Growth	GDP	Growth rate of real GDP (current year real GDP-Previous year real GDP)/Previous year real GDP	Positive
Bill Purchase	BP	Natural logarithm of 27% Bill Purchase from NBE	Negative

Source: researcher own

3.5 Method of Data Analysis

As noted by (Kothari, 2004), data has to be analyzed in line with the purpose of the research plan after data collection. Accordingly, secondary data collected from annual financial statements of the concerned private commercial banks in Ethiopia was analyzed to determine its suitability, reliability, adequacy and accuracy. Thus, this study utilized both descriptive and regression analysis based on a panel data from 2007-2016 to examine the relationship between loan and advance and its determinant internal and external factors in private commercial banks found in Ethiopia.

The study conducts its data analysis based on private commercial banks operating in Ethiopia before the year 2007 and it cover the period from 2007-2016, resulting 80 bank year observations. The study employed panel data procedures since the sample contains data across banks and over time. To this end, the researcher used panel data methodology to examine the effect of each explanatory variable on loan and advance of private commercial banks in Ethiopia.

In panel data regression methodology three estimation models were adopted, namely, pooled OLS, fixed-effects and random effects. The selection between fixed effect and random effect panel estimation method was based on compatibility of the model base on number of cross-section, number of observations and nature of omitted variables. The panel regression results were presented in a tabular form evaluated using individual statistical significance test (T-test) and overall statistical significance test (F-test). The goodness of fit of the model would be tested using the coefficient of determination (R-squared). In conducting all our data analysis, the study used Eviews 9 software package.

3.6 Model Specification

The nature of data that was used in this study enables the researcher to use panel data. Panel data involves the pooling of observations on the cross-sectional over several time periods.

According to Brook (2008) cited in Mitiku (2014) the advantages of using panel data set; first and perhaps most importantly, it can address a broader range of issues and tackle more complex problems with panel data than would be possible with pure time-series or pure cross-sectional data alone.

To test the hypothesis the study model has been developed as follows. Ordinary least square model was used to test hypothesis.

$$LOA = F (DEP, LIQ, NPL, CAP, RR, GDP, BP)$$

The regression equation for this study becomes;

$$LOA_{it} = \alpha_0 + \beta_1 * DEP_{it} + \beta_2 * LIQ_{it} + \beta_3 * NPL_{it} + \beta_4 * CAP_{it} + \beta_5 * RR_{it} + \beta_6 * GDP_{it} + \beta_7 * BP_{it} * \mu \text{-----} (1)$$

WHERE

α = Intercept of the regression line

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7,$ = are parameter or coefficient of the independent variables estimated.

μ = error term or residual in the model

LOA_{it} = loan and advance of bank i at time t

DEP_{it} = volume of deposit of bank i at time t

LIQ_{it} = liquidity ratio of bank i at time t

NPL_{it} = Non-performing loan ration of bank i at time t

CAP_{it} = Capital adequacy ratio of bank i at time t

RR_{it} = Cash reserve and requirement of bank i at time t

GDP_{it} = Gross domestic product i at time t

BP_{it} = 27% Bill purchase with NBE of bank i at time t

The model specified above, was used to empirically achieve the objective of the study.

3.7 Data presentation and analysis

Descriptive statistics of the variables (both dependent and independent) were first calculated over the sample period. This is in line with (Malhotra, 2007), which states that using descriptive statistics methods helps the researcher in picturing the existing situation. Then, a diagnostic test includes multicollinearity, heteroscedasticity, autocorrelation, and normality were to ensure that the data are suitable for ordinary least square (OLS) analysis.

Before moving to interpretation of regression results the suitability of fixed model over random effects model need to be determined based on number of cross-section, number of observations and nature of omitted variables.

CHAPTER FOUR

4. RESULTS AND DISCUSSION

In the current chapter descriptive statistics of dependent and independent variables, regression model test, and ordinary least square regression model were presented. Finally, discussions for the results of the regression analysis were made under section.

4.1 Descriptive statistics of the data

The descriptive statistics for the dependent and independent variables are presented below. The dependent variables are loan and advance measured by natural logarithm of total loan and advance. The remaining are the independent variables such as: volume of deposit, liquidity ratio, non-performing loan, capital adequacy ratio, cash reserve requirement, gross domestic product and bill purchase.

Table 3. Summary of descriptive statistics of dependent and independent variables from the period 2007-2016 G.C

	LOA	BP	CAAP	DEP	GDP	LIQ	NPL	RR
Mean	0.47208	4.49366	6.77738	0.75607	0.10171	0.21416	0.02769	6.64782
Median	0.45790	6.63474	6.83340	0.76703	0.10250	0.19926	0.02243	6.75168
Maximum	0.67874	8.76873	8.48343	0.84429	0.11800	0.52256	0.09827	8.14370
Minimum	0.28196	0.00000	4.86753	0.45865	0.08500	0.07619	0.01045	3.36730
Std. Dev.	0.08414	3.75334	0.84200	0.05886	0.00944	0.08623	0.01713	0.91663
Skewness	0.55186	-0.31641	-0.43454	-1.73753	-0.44210	0.90998	1.93185	-0.83970
Kurtosis	3.24615	1.20451	2.56953	9.38118	2.29308	4.13801	7.21937	3.90543
Observations	80	80	80	80	80	80	80	80

Source: Financial statement of sampled private commercial banks and own computation through Eviews 9

Table 3 shows the average indicators of variables computed from the financial statements of sampled banks as well as NBE reports and the standard deviation that shows how much dispersion exists from the average value. According to Brooks (2008), a low standard deviation indicates that the data point tend to be very close to the mean, whereas high standard deviation indicates that the data point are spread out over a large range of values. As shown above all variables comprised 80 observations. The dependent variables are total loans and advances (LOA) and volume of deposit (DEP), liquidity (LIQ), non-performing loan (NPL), capital adequacy ratio (CAP), cash reserve requirement (RR), gross domestic product (GDP) and bill purchase (BP) are the independent variables.

The mean value of total loan and advance was 47.2 % and the standard deviations of 8.4% show form the total asset of private commercial banks, an average of 47.2% was loan and advance over the sample period. Standard deviation of 8.4% was show high dispersion of loan and advance to total asset ratio from its mean for the private commercial banks in Ethiopia. The maximum and minimum values of loan and advance ratio were 67.9% and 28.2% respectively. It indicate the margin that loan and advance ratio of private commercial banks ranged over the sample period.

The mean value of volume of deposit was 75.6 % which shows that on average customer deposit (i.e. saving deposit, demand deposit and fixed deposit) share 75.6 % from the total asset of private commercial banks with the maximum and minimum values of 84.4% and 45.8% respectively. The standard deviation for volume of deposit was 5.9% revealing high dispersion towards the mean among private commercial banks in Ethiopia.

Among the bank specific independent variables the mean value of liquidity ratio was 21.4% that was above the NBE requirement of 15% of its net current liability NBE Directive № SBB/57/2014. The standard deviations of 8.6% show little dispersion of liquid assets to total asset ratio from its mean for the private commercial banks in Ethiopia. The maximum and minimum values of liquidity ratio were 52.3 % and 7.6 % respectively.

The mean value of non-performing loan ratio was 2.8 % and the standard deviations of 1.7% show form the total asset of private commercial banks, an average of 2.8% were being default or uncollected over the sample period. Standard deviation of 1.7% was show little dispersion of non-performing loan to total asset ratio from its mean for the private commercial banks in Ethiopia. The maximum and minimum values of NPL ratio were 9.8% and 1% respectively. It indicate the margin that non-performing ratio of private commercial banks ranged over the sample period.

Capital adequacy was highly dispersed from its mean value of 6.78 with the standard deviation of 0.84. The maximum and minimum values were 8.48 and 44.87 respectively. The maximum and the minimum value indicated total loan and advance of Awash International Bank (AIB) for the year 2016 G.C and Cooperative Bank of Oromiya (CBO) for the year 2007 G.C which is Birr 4.8 billion and Birr 130 million respectively.

Reserve and requirement was highly dispersed from its mean value of 6.65 with the standard deviation of 0.92. The maximum and minimum values were 8.14 and 3.37 respectively. The maximum and the minimum value indicated reserve and requirement of Dashen Bank (DB) for the year 2009 G.C and Lion Bank (LB) for the year 2007 respectively for Birr 3.4 billion and 29 million respectively.

The average real GDP growth in Ethiopia for the last ten years was 10.2%, with a standard deviation of 0.9% and it shows there was high dispersion towards the average over the period under consideration. The maximum growth of the economy was 11.8% which was in the year 2007 and the minimum growth of the economy was 8.5% which fall in the year 2016.

Bill purchase imposed by NBE was highly disbursed form its mean 4.49 with the standard deviation of 3.75. The maximum and minimum values were 8.77 and 0 respectively. The maximum value indicated 27% bill purchased by Dashen Bank in year 2016 for Birr 6.4

billion and the minimum value indicated that the period cover the year 2007 to year 2010 which was 27% bill purchase was not declared by NBE.

For almost all the variables, the mean and median values lie within their maximum and minimum values showing a good level of consistency. Regarding kurtosis and skewness, the result shows that most of the data lack normality.

4.2 Correlation Matrix

Correlation is a way to index the degree to which two or more variables are related to each other. The objective of correlation between two or more variables is to measure the strength or degree of relationship. Pearson correlation is the most widely used bi-variant correlation statistics (Gujarati, 2004). For the purpose of this study the stated model was used to determine the correlation between variables.

Correlation coefficient between two variables ranges from perfect positive relation (+1) to perfect negative relationship (-1). To determine whether or not the correlation coefficient is different from zero or statistically significant a sample size is necessary. As a sample size approaches to 100, the correlation coefficient of about or above 0.20 is significant at 5% level of significance (Meyers et al. 2006). The sample size of the study was 8*10 matrixes of 80 observations which was close to 100 hence the study used the above justification for significance of the correlation coefficient.

Table 4 presents the results of the correlation analysis which was done to examine any serial correlations among the independent variables when entered into the model for regression analysis, would lead to false results.

Table 4-Correlation Matrix (With Dependent Variable)

Covariance Analysis: Ordinary

Date: 07/08/17 Time: 14:23

Sample: 1 80

Included observations: 80

Correlation

Probability	LOA	BP	CAP	DEP	GDP	LIQ	NPL	RR
LOA	1							

BP	-0.279581	1						
	0.012	----						
CAP	-0.089051	0.751671	1					
	0.4321	0	----					
DEP	0.23277	0.162492	0.274295	1				
	0.0377	0.1498	0.0138	----				
GDP	0.146894	-0.505789	-0.454899	-0.045008	1			
	0.1935	0	0	0.6918	----			
LIQ	-0.500005	-0.331489	-0.468338	-0.460128	0.197798	1		
	0	0.0027	0	0	0.0786	----		
NPL	0.299501	-0.465904	-0.136142	0.184577	0.24852	0.006225	1	
	0.007	0	0.2285	0.1012	0.0262	0.9563	----	
RR	-0.098153	0.284331	0.691982	0.565087	-0.129479	-0.425292	0.260539	1
	0.3864	0.0106	0	0	0.2523	0.0001	0.0196	----

Source: Own estimation of research data

Deposit, gross domestic product and non-performing loan were positively correlated. Bill purchase, capital adequacy, liquidity and reserve requirement were negatively correlated. From the stated independent variables deposit, non-performing loan, bill purchase, liquidity were statically significant relation with loan and advance. However gross domestic product, capital adequacy, and reserve requirement were insignificant relation with loan and advance. However, they are kept in the model as the correlation coefficient did not exceed 0.8 (very high correlation) in absolute term. The rest of the correlations were medium and low.

4.3. Regression Model Test

The researcher conducted diagnostic tests to guard against the possibility of obtaining and interpreting false regression results. The results of the tests are presented in the following sections.

4.3.1. Multi-collinearity Test

The result of the test for existence multi-collinearity between independent variable is presented in the correlation analysis using only independent variables in Table 5.

Table 5: Correlation Matrix (Only Independent Variables).

Covariance Analysis: Ordinary

Date: 07/08/17 Time: 14:33

Sample: 2007 2016

Included observations: 80

Correlation

Probability	BP	CAP	DEP	LIQ	GDP	NPL	RR
BP	1.0000 -----						
CAP	0.7517 0.0000	1.0000 -----					
DEP	0.1625 0.1498	0.2743 0.0138	1.0000 -----				
LIQ	-0.3315 0.0027	-0.4683 0.0000	-0.4601 0.0000	1.0000 -----			
GDP	-0.5058 0.0000	-0.4549 0.0000	-0.0450 0.6918	0.1978 0.0786	1.0000 -----		
NPL	-0.4659 0.0000	-0.1361 0.2285	0.1846 0.1012	0.0062 0.9563	0.2485 0.0262	1.0000 -----	
RR	0.2843 0.0106	0.6920 0.0000	0.5651 0.0000	-0.4253 0.0001	-0.1295 0.2523	0.2605 0.0196	1.0000 -----

Source: Own estimation of research data

If an independent variable is an exact linear combination of the other independent variables, then the model suffers from perfect collinearity, and it cannot be estimated ordinary linear square (Brooks, 2008). As noted by (Gujarati, 2004), a serious problem for multicollinearity is occurred if the correlation is about 0.8 or larger. if pair-wise or zero-order correlation coefficient between two regresses is out of the recommended range of multicollinearity which is - 0.8 or 0.8.

The results in the above correlation matrix table 7 shows that the highest correlation of 0.7517 which is between bill purchase and capital adequacy. Since there is no correlation above 0.8 in this study, it can be concluded that there is no problem of multicollinearity, thus enhanced the reliability for regression analysis.

4.3.2. Heteroscedasticity Test

It has been assumed that the variance of the errors is constant. This is known as the assumption of homoscedasticity. If the errors do not have a constant variance, they are said to be Heteroscedasticity. The ARCH test was used to check for the presence of heteroscedasticity in the residuals (see Table 6).

Hypothesis of this test are:-

Following the general null hypothesis of ARCH tests, the researcher develops the following hypothesis to check the presence of hetroskedasticity:

⇔ **H0**: *Homoscedastic error term*

⇔ **H1**: *Heteroscedasticity error term*

Table 6: Heteroskedasticity Test: ARCH (Summary)

Heteroskedasticity Test: ARCH

F-statistic	0.364548	Prob. F(1,77)	0.5478
Obs*R-squared	0.372255	Prob. Chi-Square(1)	0.5418

Source: Own estimation of research data

As shown in Table 6 Since the p -values in all of the cases were above 0.05, the null hypothesis of homoscedasticity is failed to reject at 5% of significant level. This implying that there is no significant evidence for the presence of heteroskedasticity in these research models. Both F-statistic and chi-square version of test give the same conclusion that there is no evidence for the presence of heteroscedasticity since the p -values in all of the cases were above 0.05.

Generally, in the regression models used in this study it was proved that the test statistics is significant and the variance of the error term is constant or homoscedastic and we had sufficient evidence to accept the null hypothesis of Homoscedasticity. The linear model is also correctly specified.

4.3.3. Normality Test

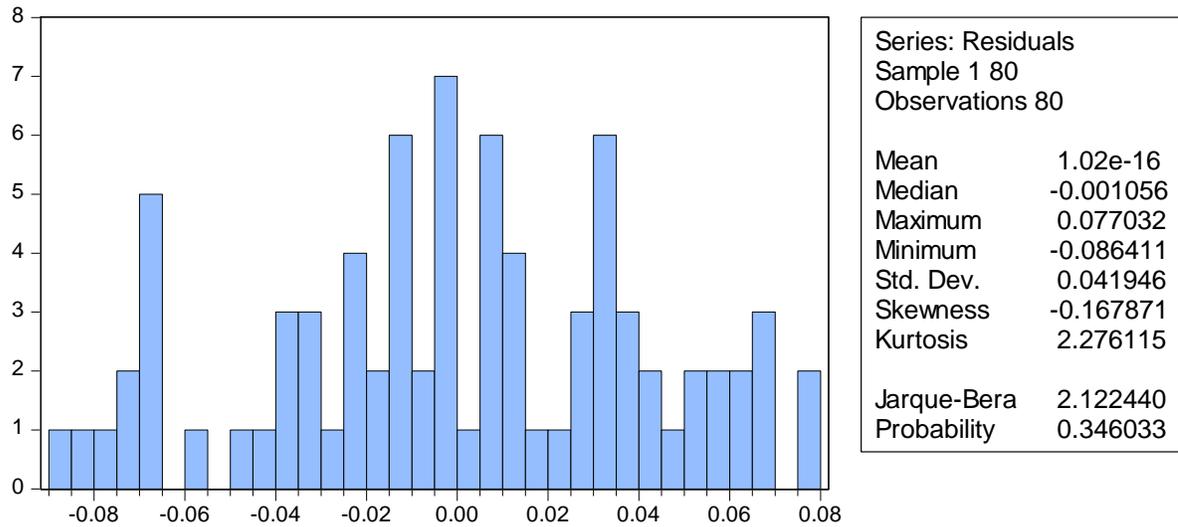
A normal distribution is not skewed and is defined to have a kurtosis coefficient of 3. Bera-Jarque formalizes this by testing the residuals for normality and testing whether the coefficient of Skeweness and kurtosis are zero and three respectively. Skewness measures the extent to which a distribution is not symmetric about its mean value and kurtosis measures how fat the tails of the distribution are. The Bera-Jarque probability statistics/P-value is also expected not to be significant even at 10% significant level (Brooks, 2008).

The hypothesis of normality distribution is:

⇔ **H_0 :** *residuals follows a normal distribution*

⇔ **H_1 :** *residuals do not follows a normal distribution*

Figure 2. Normality Test for Residual



As shown in the histogram above in the figure 2. Kurtosis approaches is not to 3 (i.e. 2.28) and skewness approaches to 0 (i.e.-0.167). The Jarque-Bera statistics was significant at 5% level of significance as per the P-values shown in the histogram (34.6%). Hence, null hypothesis of the residuals follows a normal distribution is failed to reject at 5 percent of significant level. Hence, it seems that the error term in all of the cases follows the normal distribution and it implies that the inferences (interpretation) made about the population parameters from the samples tend to be valid.

4.3.4. Autocorrelation Test

Under this section the researcher incorporates Breusch-Godfrey Serial Correlation LM Test. Breusch-Godfrey Serial Correlation LM Test, this is another test for autocorrelation in residuals. The Breusch-Godfrey test is much more general in that it allows for both AR and MA error structures as well as the presence of lagged regress and as an explanatory variable (Gujarati, 2004). The null hypothesis is that there is no serial correlation. The summary statistic is depicted here under.

Hypothesis of this test are:-

Following the general null hypothesis of Breusch–Godfrey serial correlation LM test, the researcher develops the following hypothesis to check the absence of autocorrelation:

⇔ **H0**: No autocorrelations errors

⇔ **H1**: Autocorrelations errors

Table 7-Breusch-Godfrey Serial Correlation LM Test (Summary)

Breusch-Godfrey Serial Correlation LM Test:

Version of Test	Value	DF	Probability
F-statistic	2.013489	Prob. F(6,66)	0.0762
Obs*R-squared	12.37786	Prob. Chi-Square(6)	0.0541

Source: Estimation of Research Data

As can be seen in the above table 6, F test result and the P value of F-statistic 0.0762 which is way beyond the significance level of 5%. Hence, the null hypothesis of no autocorrelation is failed to reject (accept) at 5 percent of significance level. This implying that there is no significant evidence for the presence of autocorrelation in this model. Therefore, can be concluded that, the covariance between residuals is zero (no multi-collinearity problem), absence hetroscedacisity error, data is normal (in terms of skewness, kurtosis and p-value) and absence of autocorrelation problem was found conclusively from the LM test.

4.4 Choosing Random Effect (RE) Vs Fixed Effect (FE) models

The results so far indicate that all classical regression linear model (CRLM) assumptions are not violated, so the ordinary least square regression can be safely applied. However, since this study uses a panel data, there are two types of panel estimator approaches that can be employed, namely fixed effects models (FEM) and random effects models (REM) (Brooks, 2008).

The simplest types of fixed effects models allow the intercept in the regression model to differ cross-sectional but not over time, while all of the slope estimates are fixed both cross-

sectional and over time. The random effects approach proposes different intercept terms for each entity and again these intercepts are constant over time, with the relationships between the explanatory and explained variables assumed to be the same both cross-sectional and temporally (Brooks, 2008).

To examine whether individual effects are fixed or random, a Hausman specification test was conducted providing evidence in favor of the REM model (Baltagi, 2005). The null hypothesis for this test is that unobservable heterogeneity term is not correlated or random effect model is appropriate, with the independent variables. If the null hypothesis is rejected then we employ Fixed Effects method.

The Hausman test hypothesis is:

- *H0: Random effect model is appropriate*
- *H1: Fixed effect model is appropriate*

Table 8. Hausman test

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. def.	Prob.
Cross-section random	36.625005	7	0.000000

Source: Estimation of research data through E-views 9

Table 8 above shows Hausman specification test, the P-value of a model is 0.0000, which is less than 5% level of significance. Hence, the null hypothesis of the random effect model is rejected at 5 percent of significant level. This implying that, fixed effect model is more

appropriate than random effect model and gives more comfort that fixed effect model results are valid.

4.5. Regression analysis results

This section presents the regression result of fixed effect model that examines the determinant factors of bank credit in private commercial banks in Ethiopia.

4.5.1 Operational Model

The operational panel regression model used to find determinant factors of bank credit in private commercial banks in Ethiopia was:

$$LOA_{it} = \alpha_0 + \beta_1 * DEP_{it} + \beta_2 * LIQ_{it} + \beta_3 * NPL_{it} + \beta_4 * CAP_{it} + \beta_5 * RR_{it} + \beta_6 * GDP_{it} + \beta_7 * BP_{it} + \mu_{it} \quad (1)$$

Table 9-Results of fixed effect regression model

Dependent Variable: LOA
 Method: Panel Least Squares
 Date: 07/08/17 Time: 16:00
 Sample: 2007 2016
 Periods included: 10
 Cross-sections included: 8
 Total panel (balanced) observations: 80

Variable	Coefficient	Std. Error	t-Statistic	Prob.	
BP	-0.013768	0.003607	-3.816424	0.0003	*
CAP	0.074068	0.022151	3.343771	0.0014	*
DEP	0.384971	0.149768	2.57045	0.0125	**
GDP	0.768927	0.721411	1.065866	0.2904	***
LIQ	-0.569766	0.08422	-6.765238	0.0000	*
NPL	1.383873	0.49067	2.820375	0.0064	*
RR	-0.097919	0.013301	-7.361557	0.0000	*
C	0.397339	0.201958	1.967436	0.0534	**

Cross-section fixed (dummy variables)

R-squared	0.733571	Mean dependent var	0.472077
Adjusted R-squared	0.676186	S.D. dependent var	0.084138
S.E. of regression	0.047879	Akaike info criterion	-3.072937
Sum squared resid	0.149003	Schwarz criterion	-2.626307
Log likelihood	137.9175	Hannan-Quinn criter.	-2.89387
F-statistic	12.78337	Durbin-Watson stat	1.509262
Prob(F-statistic)	0		

Source: Financial statement of sampled banks and own computation through E-views 9

*and ** correlation coefficient significant at 1% and 5% significance level respectively and *** insignificant

Based on the regression result, the relationship between the variables included in the model can, therefore, be represented as follows;

$$LOA = 0.3973 + 0.3849*DEP - 0.5698*LIQ + 1.3839*NPL + 0.0741CAP - 0.0979*RR + 0.7689*GDP - 0.0138*BP \text{-----} (2)$$

Where: - Dependent variable-loan and advance (LOA) and independent variables includes- bank specific variables and macro variables (DEP, LIQ, NPL, CAP, RR, GDP and BP)

4.5.2. Interpretation of Regression Results

Table 9 presents the estimation results of the operational panel regression model of total loans and advances as dependent variable and bank specific and macroeconomic explanatory variables for the sample of eight private commercial banks in Ethiopia.

The R-squared and adjusted R-squared 73.4% and 67.6% respectively. It indicates that the model is a good fit. This means, more than 73.4% of variations in total loans and advances of private commercial banks in Ethiopia were explained by independent variables included in the model. However, the remaining 26.6% changes in total loans and advances of private commercial banks in Ethiopia are caused by other factors that are not included in the model.

Furthermore, the F-statistic tests the fitness of the model and a recommended F-statistics should greater than 5 for it to be considered fit. The regression F-statistic takes a value of 612.78 which is greater than 5 hence the model was fit for estimation and tests for the joint impact of all explanatory variables on the dependent variable. The corresponding p-value of zero attached to the test statistics shows that the null hypothesis that all of the slope parameters are jointly zero should be rejected even at 1% level of significance. This implies that all selected explanatory variables can affect total loans and advance jointly.

4.5.2.1 Deposit and Loan and Advance

As Table 9 depicted that, the coefficient of deposit which was measured by deposit to total asset is 0.3850 with p-value of 0.0125. This indicated that holding other independent variables constant at their average value, when deposit increase by one percent, total loan and advance also increased by 0.385% at 5% statically significant level.

This positive association between deposit and total loans and advances is supported by prior research result of (Amano, 2014), (Olokoyo, 2011) and (Ayieyo, 2016) (Moussa, 2016) who finds the positive relationship between deposit and loans and advances. This implies that, an increase in banks deposit lead to banks to grant more loan and advances to their customer. This result is contrary to result found by (Moussa, 2016).

Therefore, the researcher failed to rejects the first research hypothesis that volume of deposit has a positive and significant relationship with banks loans and advances. This means, there is no sufficient evidence to support the negative relationship between deposit and loans and advances.

4.5.2.2 Liquidity (LIQ) and Loan and Advance (LOA)

As Table 9 depicted that, the coefficient of liquidity which was measured by liquid asset to total asset is -0.5698 with p-value of 0.0000. This indicated that holding other independent

variables constant at their average value, when liquidity increase by one percent, total loan and advance decreased by 0.5698% at 1% statically significant level.

This negative association between liquidity and total loans and advances is consistent with prior research results of (Amano, 2014), (Rabab'h 2015). However, the sign of liquidity differ from to our prior expectation and this showed that, the banks tend to hold more liquid asset or short term asset, the amount of illiquid asset decrease and total loan and advance also decrease. This result is contrary to result found by (Mitiku, 2014), (Olokoyo, 2011) and (Berehanu, 2016).

Therefore, the researcher rejects the second research hypothesis that liquidity has a positive and significant relationship with banks loans and advances. This means, there is no sufficient evidence to support the positive relationship between liquidity and loans and advances.

4.5.2.3 Non-Performing Loan (NPL) and Loan and Advance (LOA)

As Table 9 depicted that, the coefficient of non-performing loan which was measured by provision of total loan and advance to total asset is 1.3839 with p-value of 0.0064. This indicated that holding other independent variables constant at their average value, when non-performing loan increase by one percent, total loan and advance increase by 1.38% at 5% statically significant level.

This positive association between non-performing and total loans and advances is consistent with prior research results of (Mitiku, 2014). However, the sign of non-performing loan differ from to our prior expectation and this showed that, the banks non-performing provision directly associated with outstanding loan and advance rather than new loan granted by the bank. These provisions are an impact on the banks performance or net income rather than new loan and advance granted by the bank. . This result is contrary to result found by (Rabab, 2014) and (Berehanu, 2016).

Therefore, the researcher rejects the third research hypothesis that non-performing loan has a negative relationship with banks loans and advances. This means, there is no sufficient evidence to support the negative relationship between liquidity and loans and advances.

4.5.2.4 Capital Adequacy (CAP) and Loan and Advance (LOA)

As Table 9 depicted that, the coefficient of capital adequacy which was measured by natural logarithm of total capital of the bank is 0.0741 with p-value of 0.0014. This indicated that holding other independent variables constant at their average value, when capital adequacy increase by one percent, total loan and advance also increased by 0.0741% at 1% statically significant level.

This positive association between capital adequacy and total loans and advances is supported by prior research result of (Mitiku, 2014), (Moussa, 2016) and (Berehanu, 2016) who finds the positive relationship between capital adequacy and loans and advances. This implies that, an increase in banks capital lead to banks have capacity to grant more loan and advances to their customer. More capitalized bank can create more confidence of the people to deposit their money to bank being it is safe place. If a bank get more deposit, the capacity to grant loan and advance also increase. Also, better capitalized banks can attract more creditworthy borrower that will qualify for longer term loans. This result is contrary to result found by (Rabab'h, 2014).

Therefore, the researcher failed to rejects the fourth research hypothesis that capital adequacy has a positive relationship with banks loans and advances. This means, there is no sufficient evidence to support the negative relationship between deposit and loans and advances.

4.5.2.5 Reserve and Requirement (RR) and Loan and Advance (LOA)

As Table 9 depicted that, the coefficient of cash reserve requirement which was measured by natural logarithm of reserve requirement at NBE is -0.0979 with p-value of 0.000. This indicated that holding other independent variables constant at their average value, when cash reserve requirement increase by one percent, total loan and advance also decreased by 0.0970% at 1% statically significant level.

This negative association between cash reserve requirement and total loans and advances is supported by prior research result of (Berehanu, 2016) who finds the negative relationship between reserve requirement and loans and advances. This implies that, an increase in banks cash reserve requirement lead to banks decrease to grant or give loan and advances to their customers being more cash amount hold by NBE. This result is contrary to result found by (Amano, 2014), (Mitiku, 2014), (Rabab'h 2015) and (Olokoyo, 2011).

Therefore, the researcher failed to rejects the fifth research hypothesis that reserve requirement has a negative and significant relationship with banks loans and advances. This means, there is no sufficient evidence to support the positive relationship between deposit and loans and advances.

4.5.2.6 Gross Domestic Product (GDP) and Loan and Advance (LOA)

As Table 9 depicted that, the coefficient of gross domestic product which was measured by the difference between current year real GDP and previous year real GDP divided by previous year real GDP is 0.7689 with p-value of 0.2904. This indicated that holding other independent variables constant at their average value, when GDP increase by one percent, total loan and advance also increased by 0.7689% . However, unexpectedly the results indicate that GDP has positive coefficient but it is not significant and it was opposite to the expectation. This may suggest that bank lenders expectations do not depend on GDP, which implies the proportion of GDP does not affect loan and advance generated by private

commercial banks. Hence, Ethiopian private commercial banks loan and advance does not affected by GDP from the period covering 2007-2016 G.C.

4.5.2.7 Bill Purchase (BP) and Loan and Advance (LOA)

As Table 9 depicted that, the coefficient of bill purchase which was measured by natural logarithm of bill purchase imposed by NBE is -0.01377 with p-value of 0.0003. This indicated that holding other independent variables constant at their average value, when bill purchase by NBE increase by one percent, total loan and advance decreased by 0.01377% at 1% statically significant level.

This negative association between bill purchase to total loans and advances is in contrary with prior research results of (Yoseph, 2015) and (Shiberu, 2014). However, it confirm to our prior expectation and this showed that and increase in bill purchase by private commercial banks reduce to grant loan and advance by 27% of total loan and advance.

Therefore, the researcher failed to rejects the null hypothesis that 27% bill purchase of NBE has a negative effect on loans and advances. This means, there is no sufficient evidence to support the positive relationship between bill purchase and loans and advances.

Table 10. Comparison of test results with expectation

<i>Independent Variable</i>	<i>Expected Result</i>	<i>Actual Result</i>	<i>Statistical significant</i>	<i>Hypothesis Test</i>
Deposit	Positive	Positive	Significant	Failed to reject
Liquidity	Positive	Negative	Significant	Reject
Non-performing loan	Negative	Positive	Significant	Reject
Capital Adequacy	Positive	Positive	Significant	Failed to reject
Reserve Requirement	Negative	Negative	Significant	Failed to reject
Gross Domestic Product	Positive	Positive	Insignificant	Reject
Bill Purchase	Negative	Negative	significant	Failed to reject

CHAPTER FIVE

5. CONCLUSION AND RECOMMENDATION

The basic intent of this chapter is to present the overall overviews of the research by summing the main findings of the analysis part and give future research directions.

5.1 Conclusion

Loan and advance cover the largest portion of banks income as it is stated in the literature part. The main objective of this study was to examine internal and external factors that hinder to banks from granting loans. The internal factors are termed as bank specific determinants of bank lending, while the external factors are macroeconomic variables that are not related to banks management but reflect the monetary, economic and legal environment that affect the operation and performance of financial institutions. To achieve the study objective the researcher developed seven independent variables that affect banks credit and used quantitative research approach. To this end, data collected from National Bank of Ethiopia (NBE) and a sample size of eight Ethiopian private commercial banks over the period of 1994 to 2006 G.C.

Those variables which included in the study were volume of deposit, liquidity, non-performing loan, capital adequacy, reserve and requirement, gross domestic product and bill purchase as independent variable and loan and advance as dependent variable.

The analysis was conducted using panel data estimation technique of fixed effect model using E-Views 9 statistical software. Data was presented by using descriptive statistics. The balanced correlation and regression analysis for loan and advance was conducted. Before performing regression the study goes through all diagnostic tests. The models fulfill

assumptions of multi-coliniarity test, Heteroscedasticity test, normality test and autocorrelation test i.e. Breusch-Godfrey serial correlation LM test. Fixed effect model/FEM was used based on Housman test hypothesis.

According to the regression results, the model is a good fit based on the value of R^2 and F-statistics and the corresponding p-value of zero attached to the test statistics showed that all selected explanatory variable can affect total loans and advance jointly the null hypothesis that all of the slope parameters are jointly zero should be rejected even at 1% level of significance. This implies that all selected explanatory variables can affect total loans and advance jointly. Furthermore, from the list of possible explanatory variables, most of them proved to be statistically significant with the only exception of non-performing loan. The results of models enable us to make following conclusions.

Deposit, NPL and capital adequacy have positive and significant effect on bank loan and advance whereas bill purchase, liquidity and reserve requirement have negative and significant effect on bank loan and advance. However, GDP have a positive but insignificant effect on bank loan and advance. Generally, the finding of the study failed to reject four hypotheses that indicate the relationship between banks loan and advance and bill purchase, capital adequacy, deposit and reserve and requirement. Whereas, rejected three hypotheses indicating the relationship between banks loan and advance and GDP, liquidity and NPL.

The results of deposit, NPL and capital adequacy have positive and significant effect on bank loan and advance of private commercial banks in Ethiopia. The finding showed that, an increase/decrease in deposit, NPL and capital adequacy leads to increase/decrease in the lending of private commercial banks in Ethiopia. This implies that there is a direct relationship between them. On the other hand, bill purchase, liquidity and reserve requirement showed that negative and significant relationship with total loan and advance of private commercial banks in Ethiopia. This revealed that, an increase/decrease in bill purchase, liquidity and reserve requirement to decrease/increase in the lending of private

commercial banks in Ethiopia. This implies that there is an indirect relationship between bill purchase, liquidity, and reserve requirement and bank loan. However, GDP found to have positive but insignificant relationship with bank loan on private commercial banks in Ethiopia. The insignificant results showed that banks do not depend on gross domestic product and the proportion of gross domestic loan does not affect loan and advance generated by private commercial banks in Ethiopia.

5.2 Recommendations

Based on the research findings and conclusions above, the following possible recommendations are forwarded:

- ⇔ Among the independent variables deposit and capital adequacy were the factors that positively and significantly affect the lending decision of private commercial banks in Ethiopia.
- ⇔ Private commercial banks increase their deposit and capital adequacy which lead to increase the amount of total loan and advance granted to customers. To increase their deposit, bank might work more on deposit mobilization by giving different incentives to their customers who deposit an amount of cash on a long period of time.
- ⇔ Capital adequacy has a positive impact on total loan and advance. Banks might increase their capital by increasing shareholders equity, which implies more capital adequate banks have a guarantee to grant long term loans than poor capital adequacy banks and also it increase number of creditworthy customers and it enhance the confidence of the people to deposit their money in safe.
- ⇔ Among the independent variables bill purchase and reserve requirement were the factors that negatively and significantly affect the lending decision of private commercial banks in Ethiopia.
- ⇔ It may seem unrealistic but, the only solution for private commercial banks to neutralize the impact levied on their lending capacity is to negotiate possible

solutions with National Bank of Ethiopia to make some amendment on the policy in the reduction of 27% of bill purchase rate imposed by NBE to compensate the expense incurred due to this factor. Moreover, private banks grant loan and advance for a long period of time being reduction of the turnover rate of 27% bill purchase.

- ⇔ Regardless of cash reserve requirement adversely affect the lending ability of private commercial banks in Ethiopia. Even though, the obligatory reserve rate by NBE has ranged from 15% (SBB/43/2008) to 5% (SBB/55/13) during the period under consideration, the increase in the volume of deposits has led to the increase of the volume of the obligatory reserves in NBE. So, NBE might amend their policy being reserve requirement has a negative impact on loan and advance which reduce the performance of the bank and it direct impact on the society as well as the growth of the country.
- ⇔ Regarding to the independent variable liquidity was the factors that negatively and significantly affect the lending decision of commercial banks in Ethiopia. Thus, banks might increase loan and advance to generate interest income instead hold to liquid asset. Long term loans increase the illiquid asset of the bank and proportional increase the profit of the bank.
- ⇔ The general objective of the research was to examine the some internal and external factors that hinder to grant loan and advance in private commercial banks in Ethiopia using selected variables. However, there are some variables that did not include in the study and future researches are recommended to undertake similar study by considering additional variables like bank size, interest rate, inflation, bank networking, and additional private commercial banks in Ethiopia.

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APPENDIX

Appendix A. List of private commercial banks in Ethiopia

S.No.	Name of the bank	Year of establishment
1	Awash international bank S.C	1994 G.C
2	Dashen Bank S.C	1995 G.C
3	Bank of Abyssinia S.C	1996 G.C
4	Wegagen Bank S.C	1997 G.C
5	United Bank S.C	1998 G.C
6	Nib International Bank S.C	1999 G.C

7	Cooperative Bank of Oromia S.C	2004 G.C
8	Lion international Bank S.C	2006 G.C
9	Oromia International Bank S.C	2008 G.C
10	Zemen Bank S.C	2008 G.C
11	Bunna International Bank S.C	2009 G.C
12	Birhan International Bank S.C	2009 G.C
13	Abay Bank S.C	2010 G.C
14	Addis International Bank S.C	2011 G.C
15	Enat Bank S.C	2012 G.C
16	Debub Global Bank S.C	2012 G.C

Source: National Bank of Ethiopia, 2017

Appendix B. Heteroskedasticity Test

Heteroskedasticity Test: ARCH

F-statistic	0.364548	Prob. F(1,77)	0.5478
Obs*R-squared	0.372255	Prob. Chi-Square(1)	0.5418

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 07/08/17 Time: 17:18

Sample (adjusted): 2 80

Included observations: 79 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
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C	0.001866	0.000301	6.200901	0
RESID^2(-1)	-0.068892	0.114101	-0.603778	0.5478
R-squared	0.004712	Mean dependent var		0.001745
Adjusted R-squared	-0.008214	S.D. dependent var		0.001987
S.E. of regression	0.001995	Akaike info criterion		-9.571695
Sum squared resid	0.000306	Schwarz criterion		-9.511709
Log likelihood	380.0819	Hannan-Quinn criter.		-9.547662
F-statistic	0.364548	Durbin-Watson stat		1.979307
Prob(F-statistic)	0.547766			

Appendix C. Breusch-Godfrey Serial Correlation LM Test

F-statistic	2.013489	Prob. F(6,66)	0.0762
Obs*R-squared	12.37786	Prob. Chi-Square(6)	0.0541

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 07/08/17 Time: 17:01

Sample: 1 80

Included observations: 80

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
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BP	-0.001428	0.00275	-0.51936	0.6052
CAAP	0.00764	0.015067	0.507081	0.6138
DEP	-0.004204	0.115625	-0.036356	0.9711
GDP	0.415586	0.646916	0.642412	0.5228
LIQ	0.037068	0.072575	0.51075	0.6112
NPL	0.007607	0.359302	0.021171	0.9832
RR	0.002576	0.010935	0.235546	0.8145
C	-0.109327	0.139753	-0.782293	0.4368
RESID(-1)	0.182656	0.130197	1.402919	0.1653
RESID(-2)	-0.371489	0.131838	-2.817775	0.0064
RESID(-3)	-0.099661	0.143823	-0.69294	0.4908
RESID(-4)	-0.138436	0.140008	-0.988768	0.3264
RESID(-5)	0.043342	0.133682	0.32422	0.7468
RESID(-6)	-0.021902	0.132021	-0.165895	0.8687
R-squared	0.154723	Mean dependent var		1.02E-16
Adjusted R-squared	-0.011771	S.D. dependent var		0.041946
S.E. of regression	0.042192	Akaike info criterion		-3.335539
Sum squared resid	0.117491	Schwarz criterion		-2.918685
Log likelihood	147.4216	Hannan-Quinn criter.		-3.16841
F-statistic	0.929302	Durbin-Watson stat		2.015735
Prob(F-statistic)	0.528515			

Appendix D. Ratio computed for analysis purpose

<i>Name of the Bank</i>	<i>BANK</i>	<i>YEAR</i>	<i>LOA</i>	<i>DEP</i>	<i>LIQ</i>	<i>NPL</i>	<i>CAP</i>	<i>RR</i>	<i>GDP</i>	<i>BP</i>
AIB	1	2007	0.6559	0.8125	0.1587	0.0434	6.0719	6.2538	0.1180	0.0000
AIB	1	2008	0.5680	0.8028	0.1939	0.0464	6.3922	6.8128	0.1120	0.0000
AIB	1	2009	0.4224	0.7727	0.2204	0.0550	6.6199	7.4793	0.1000	0.0000
AIB	1	2010	0.3959	0.7685	0.2998	0.0471	6.8462	7.4151	0.1060	0.0000
AIB	1	2011	0.3941	0.7655	0.1756	0.0364	7.1764	7.7281	0.1140	7.3709
AIB	1	2012	0.4612	0.7711	0.1695	0.0270	7.3842	7.0362	0.0870	7.8180
AIB	1	2013	0.5189	0.8443	0.1662	0.0230	7.6065	7.0056	0.0980	8.0539
AIB	1	2014	0.4582	0.7759	0.1315	0.0227	7.8342	7.7944	0.1030	8.3107
AIB	1	2015	0.5229	0.7330	0.0890	0.0174	8.0360	7.4719	0.1020	8.5877
AIB	1	2016	0.4961	0.7509	0.0824	0.0153	8.4834	8.0784	0.0850	8.5766
DB	2	2007	0.6438	0.8047	0.1341	0.0248	6.2999	6.7581	0.1180	0.0000
DB	2	2008	0.5468	0.7858	0.1460	0.0232	6.5939	7.4803	0.1120	0.0000
DB	2	2009	0.4469	0.8143	0.1296	0.0230	6.8120	8.1437	0.1000	0.0000
DB	2	2010	0.3998	0.8212	0.2452	0.0218	7.0241	7.7081	0.1060	0.0000
DB	2	2011	0.4157	0.8077	0.2232	0.0199	7.2417	7.9908	0.1140	6.8783
DB	2	2012	0.4537	0.8028	0.2014	0.0215	7.5109	7.7172	0.0870	7.6133
DB	2	2013	0.4387	0.8027	0.1937	0.0225	7.6235	7.7124	0.0980	7.9804
DB	2	2014	0.4294	0.8051	0.1895	0.0185	7.8624	7.8168	0.1030	8.3163
DB	2	2015	0.4576	0.8001	0.1333	0.0168	7.9807	7.7089	0.1020	8.6677
DB	2	2016	0.4367	0.7964	0.1369	0.0170	8.1191	7.9926	0.0850	8.7687
BOA	3	2007	0.6787	0.8012	0.1734	0.0469	5.9989	6.0707	0.1075	0.0000
BOA	3	2008	0.6598	0.8145	0.1456	0.0889	6.0395	6.7103	0.1120	0.0000
BOA	3	2009	0.4946	0.8206	0.1831	0.0983	6.2523	7.4346	0.1000	0.0000
BOA	3	2010	0.5021	0.8183	0.2159	0.0741	6.3724	7.3815	0.1060	0.0000
BOA	3	2011	0.4556	0.8347	0.2162	0.0333	6.4934	7.1874	0.1140	6.7056
BOA	3	2012	0.4730	0.8218	0.1987	0.0257	6.8097	6.7868	0.0870	7.2876
BOA	3	2013	0.4642	0.8388	0.1191	0.0199	7.0100	6.6393	0.0980	7.6449
BOA	3	2014	0.4570	0.8067	0.1539	0.0179	7.3323	6.9187	0.1030	7.9051
BOA	3	2015	0.4386	0.8134	0.3730	0.0150	7.5014	7.0699	0.1020	8.1283
BOA	3	2016	0.4826	0.8103	0.0886	0.0135	7.6611	7.3859	0.0850	8.2115

WB	4	2007	0.6193	0.7826	0.2853	0.0441	5.9989	5.7900	0.1075	0.0000
WB	4	2008	0.5689	0.7191	0.2324	0.0592	6.4060	6.7391	0.1120	0.0000
WB	4	2009	0.4127	0.7284	0.1998	0.0609	6.7291	7.5458	0.1000	0.0000
WB	4	2010	0.4308	0.6832	0.3763	0.0397	6.9582	6.7745	0.1060	0.0000
WB	4	2011	0.3610	0.7390	0.2755	0.0454	7.1984	7.5604	0.1140	6.8024
WB	4	2012	0.4272	0.6898	0.2651	0.0243	7.3803	6.3602	0.0870	7.3759
WB	4	2013	0.4512	0.7265	0.1701	0.0224	7.5123	6.9146	0.0980	7.7660
WB	4	2014	0.5095	0.7273	0.2247	0.0167	7.6705	6.0307	0.1030	8.0196
WB	4	2015	0.4500	0.7199	0.0791	0.0159	7.7892	7.2167	0.1020	8.3340
WB	4	2016	0.4713	0.6844	0.1228	0.0163	7.9395	7.0112	0.0850	8.3768
UB	5	2007	0.6460	0.7061	0.2827	0.0301	5.8861	4.9488	0.1075	0.0000
UB	5	2008	0.5722	0.7518	0.2524	0.0268	6.1480	6.3375	0.1120	0.0000
UB	5	2009	0.4627	0.7773	0.2482	0.0309	6.2538	7.1939	0.1000	0.0000
UB	5	2010	0.4433	0.8013	0.2590	0.0365	6.4576	7.4660	0.1060	0.0000
UB	5	2011	0.4242	0.7852	0.2823	0.0277	6.8039	7.2284	0.1140	6.6958
UB	5	2012	0.4649	0.7690	0.2291	0.0233	7.0046	6.7453	0.0870	7.3753
UB	5	2013	0.4721	0.8082	0.1600	0.0186	7.0910	6.1431	0.0980	7.9491
UB	5	2014	0.4269	0.7502	0.2253	0.0144	7.3622	6.5639	0.1030	7.9617
UB	5	2015	0.4777	0.8219	0.1471	0.0122	7.4303	6.4167	0.1020	8.3070
UB	5	2016	0.4942	0.7550	0.1210	0.0130	7.6363	6.7190	0.0850	8.3798
NIB	6	2007	0.6732	0.7208	0.1600	0.0341	6.0521	5.6312	0.1075	0.0000
NIB	6	2008	0.5572	0.6767	0.1678	0.0379	6.3938	6.5794	0.1120	0.0000
NIB	6	2009	0.4407	0.6858	0.2972	0.0460	6.5914	6.8093	0.1000	0.0000
NIB	6	2010	0.4098	0.6913	0.3577	0.0390	6.8206	6.8376	0.1060	0.0000
NIB	6	2011	0.3730	0.7252	0.2755	0.0412	7.0653	7.4297	0.1140	6.3333
NIB	6	2012	0.4360	0.7055	0.2593	0.0271	7.3317	6.7274	0.0870	7.0992
NIB	6	2013	0.4844	0.7278	0.1915	0.0250	7.4181	6.2225	0.0980	7.5554

NIB	6	2014	0.5032	0.7372	0.0892	0.0210	7.5829	6.8638	0.1030	7.8958
NIB	6	2015	0.5201	0.7373	0.0762	0.0150	7.6858	6.6682	0.1020	8.2362
NIB	6	2016	0.4745	0.7848	0.1171	0.0177	7.8312	7.0255	0.0850	8.3352
CBO	7	2007	0.5637	0.6533	0.1887	0.0126	4.8675	4.5539	0.1075	0.0000
CBO	7	2008	0.4752	0.7224	0.1782	0.0123	4.9994	5.3371	0.1120	0.0000
CBO	7	2009	0.5827	0.7710	0.1547	0.0136	5.0521	5.3156	0.1000	0.0000
CBO	7	2010	0.4082	0.7758	0.2371	0.0253	5.2418	6.0691	0.1060	0.0000
CBO	7	2011	0.3207	0.7920	0.2909	0.0200	5.5047	6.1936	0.1140	5.5413
CBO	7	2012	0.3769	0.7621	0.2019	0.0144	6.0336	6.2047	0.0870	6.0568
CBO	7	2013	0.3236	0.6829	0.4366	0.0172	6.5453	6.2971	0.0980	6.3404
CBO	7	2014	0.5050	0.7414	0.1888	0.0183	6.9943	6.1312	0.1030	6.7912
CBO	7	2015	0.4780	0.6428	0.1713	0.0255	7.2520	6.1612	0.1020	7.3165
CBO	7	2016	0.5780	0.7853	0.1471	0.0528	7.1074	6.3544	0.0850	7.4821
Lion Bank	8	2007	0.2820	0.4586	0.5226	0.0133	4.9053	3.3673	0.1075	0.0000
Lion Bank	8	2008	0.3178	0.6536	0.3872	0.0116	5.1418	4.9590	0.1120	0.0000
Lion Bank	8	2009	0.4936	0.7387	0.2977	0.0105	5.2562	5.0701	0.1000	0.0000
Lion Bank	8	2010	0.4283	0.7462	0.3717	0.0162	5.4881	5.4540	0.1060	0.0000
Lion Bank	8	2011	0.3741	0.7175	0.2331	0.0145	5.8662	6.1970	0.1140	5.1120
Lion Bank	8	2012	0.3941	0.7051	0.3017	0.0155	6.0907	5.6907	0.0870	5.8493
Lion Bank	8	2013	0.4480	0.7157	0.2659	0.0130	6.2952	5.3042	0.0980	6.2596
Lion Bank	8	2014	0.4323	0.7437	0.2759	0.0134	6.4423	4.8903	0.1030	6.5737
Lion Bank	8	2015	0.4914	0.7607	0.2219	0.0167	6.7117	5.4596	0.1020	7.1204
Lion Bank	8	2016	0.3659	0.7801	0.3430	0.0196	6.9754	6.6254	0.0850	7.4260