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**ANALYSIS OF THE DETERMINANTS OF THE
DEMAND FOR AND SUPPLY OF BANK LOAN
THE CASE OF THE FORMAL CREDIT MARKET IN
ETHIOPIA**



By: Astatke W/Michael

**A Thesis submitted to
The School of Graduate Studies
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**In Partial Fulfillment of the
Requirements for the Degree of
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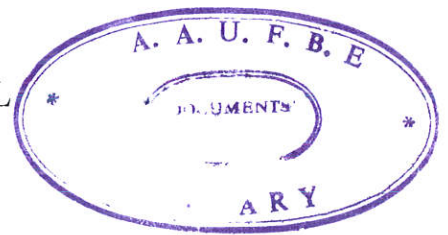
**By: Astatke W/Michael
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ADDIS ABABA UNIVERSITY
SCHOOL OF GRADUATE STUDIES

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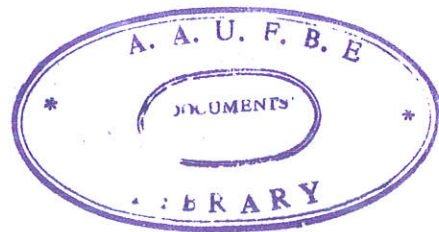

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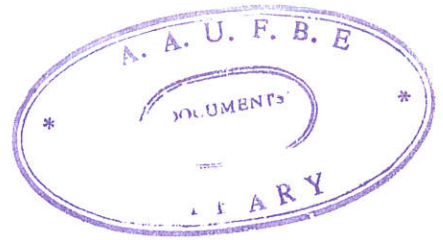
First of all I can't pass the temptation of praising God, the Almighty, and his Mother, St. Virgin Mary, for helping me out all my problems I had while attending the M.Sc. program.

I would also take this opportunity to thank and give my appreciation to my advisor, Dr. Tekie Alemu whose critical comments and constructive suggestions undoubtedly improved the quality of this thesis.

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ABSTRACT



This paper examines the determinants of credit market equilibrium in Ethiopia using cross-section data obtained from borrowers of the Commercial Bank of Ethiopia and the bank itself. In this paper we explore some of the important variables that significantly affect the quantity of loan demanded and the respective loan size approved by the bank.

The results thus obtained suggest that the availability of collateral is an important factor influencing the loan size borrowers request to secure and the size of loan lenders are willing to extend to their potential borrowers.

It is also learned that, apart from the existence of close ties with borrowers, the presence and level of excess liquidity is an important variable for banks while making their lending decisions.

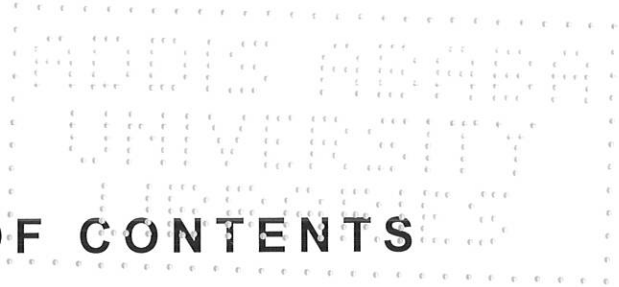
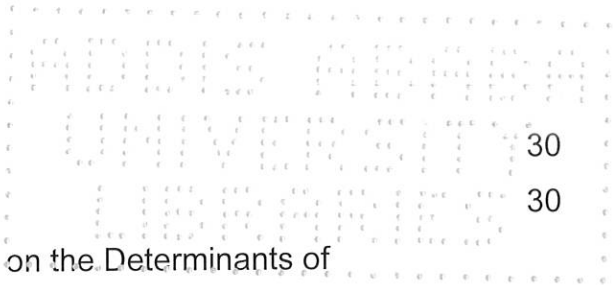


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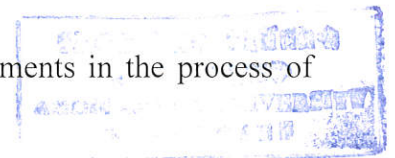
Chapter One

INTRODUCTION

A salient economic feature in most of former socialist countries (FSCs) has been the strong and persistent fall in output, and has attracted the attention of many economists and policy makers (Calvo & Kumar, 1994). Various hypotheses have been forwarded to explain such a collapse. One such hypothesis, which seems to be more likely is the problem associated with market failures. This failure is reflected in a number of interrelated areas among which trade and the provision of credit are important.

Market failure in credit markets, which is the focus of this paper, emanates from two basic sources. These are the

1. absence of profitable (effective) demand for credit, and
2. inability of lenders to make proper need and risk assessments in the process of providing credit.



The absence of profitable demand reflects the specific needs of the borrower as well as the nature of alternative sources of funds and is a reflection of the low level of development of the investing community. The second problem on the other hand reflects failure of banks to determine both effective demand for funds from borrowers and the variability in expected return as a measure of the banks' risk (Koch, 1995).

Ethiopia has not faced strong and persistent fall in output like most FSCs, nonetheless, it is characterized by the absence of strong effective demand for bank credit. Such absence of an effective demand for credit is mainly due to the wide spread poverty and low productivity as well as the absence of strong indigenous and privately operated enterprises.

However, following the economic reform program of 1992 that set out favorable macro-economic conditions, the private sector's involvement in investment activities has increased dramatically. Expansion of the private sector through the bond or equity market cannot be thought of, as both bond and equity markets are non-existent in the country. As a result, the private sector is highly dependent upon bank credit for financing both investment and working capital requirements.

This rapidly growing demand for bank credit by the private sector needs to be satisfied from the supply of loan-able funds at the disposal of commercial banks in the country. However, the supply of bank credit is dependent among other factors on the liquidity position of the banks.

Though it is not, for many reasons, possible to make analogy¹ between the goods and credit markets, it seems possible to model a state of equilibrium for a credit market like any commodity or labour market. This thesis attempts to do so.

¹ For instance, in the goods market it is buyers who decide the quantity of goods they buy; where as in credit markets it is lenders (sellers) who decide what amount to lend (sell). Moreover, in credit markets relationship between the lender and the borrower is very important while in the goods market relationship between the buyer and seller is not that much important. Another distinguishing feature of the two markets is that sellers in the goods market are willing to sell more and more as the price of goods increases;

This thesis is organized in seven chapters. Chapter one provides an overview of the Macro Economic and Financial Sector Performance in Ethiopia. Chapter two reviews both theoretical and empirical literature relating to the current study.

It is in chapter 3 that the methodology adopted in the study is described. A brief survey of credit market issues in Ethiopia is described in chapter 4. Chapter 5 describes the empirical results of the study. This chapter provides both the descriptive and regression results. The last two chapters, chapters 6 and 7 contain the conclusion and policy implication of the study, respectively.

whereas in credit markets lenders do not increase the amount of loan they lend to an individual borrower because higher interest rate is offered.

1.1 Overview of the macro economic and financial sector situation in Ethiopia

The macro economic performance of Ethiopia during the last one decade was excellent. This was reflected in a relatively high growth of overall and sectoral gross domestic product (GDP) averaging more than 7%² per annum; reduced balance of payments (BOP) deficit and price stability with the inflation rate averaging less than 3³ percent per annum.

The macro economic performance record of the country during the decade was attributed to several factors including high savings and investment ratios, expansion of small and large-scale production of cash crops, and favorable external environment.

Due to the economic reform program of 1992, the private sector has been expanding by taking the lion's share in bringing a higher growth to the country's economy. A witness to this fact is the large number of new and privately owned projects that have commenced operation.

Accordingly, during the period 1992 – 1998 out of a total of 4,392 new projects approved by the Ethiopian Investment Authority, 1,184 of them, with a total investment capital of Br. 8.73⁴ billion have commenced operation.

² Computed from the 1997/98 annual report of the National Bank of Ethiopia

³ Ibid.

Such an expansion of the private sector can not be thought to materialize with out the involvement of the banking sector. In this regard, the banking sector has a paramount role in mobilizing idle funds from the general public and in reallocating the funds thus mobilized to sound and viable projects for financing their physical investment and working capital requirements.

1.2 Performance of the Banking Sector in Ethiopia

The major lending bank in the country has been the Commercial Bank of Ethiopia (CBE). Over the years, the share of CBE in the provision of bank credit has never been below 70%⁵ out of the total credit the banking sector provides every year. It has also remained the only bank to finance government deficit.

Table 1 depicts loans and advances made by lender banks of the country for the period 1995 – 1998.

⁴ Ibid.

⁵ Ibid.

Table 1**Loans and advances by lender bank (expressed as a % of total bank loans)**

Lender Bank	1995	1996	1997	1998
Commercial Bank of Ethiopia	82.07	79.35	75.38	71.16
Development Bank of Ethiopia	11.18	14.25	14.48	18.21
Construction & Business Bank	6.75	6.40	6.76	5.87
Awash International Bank	----	----	1.90	2.27
Dashen Bank	----	----	1.24	1.51
Bank of Abyssinia	----	----	0.24	0.49
Wegagen Bank	----	----	0.00	0.49
Total	100	100	100	100

Source: NBE- Annual reports of 1989 and 1990 E.C.

The bank is involved in the provision of credit to almost all sectors of the economy such as public enterprises, cooperatives, private firms and state owned and private banks. Like any bank in a developing economy, the lender banks in Ethiopia are also likely to face two chronic problems that may slow down their active participation in bridging the development process of the economy.

One of these problems emanates from the absence of excess liquidity⁶ to make loans which creates a mismatch between the ever growing demand for bank credit and the liquidity constrained credit supply (supply side problem). Owing to this fact, most of the

⁶ Excess liquidity is defined as that portion of commercial bank funds that is not lent, or used to maintain the necessary reserves

lender banks of the country (particularly, the private ones) have been unable to finance projects justified as viable.

The second problem relates to the recently escalated default rate. The majority of the loans that turned out to be non performing have been the loans that are disbursed in the aftermath of the economic liberalization program

For instance at the end of 1997, the volume of non-performing loans of the Commercial Bank of Ethiopia alone stood a third of the total loan portfolio of the bank (Astatke,1998). The figures for the other state owned banks (Development Bank of Ethiopia and Construction and Business Bank) were nearly the same as that of CBE.

However, recently this issue (the ever growing non-performing loans) has become a leading agendum in the banking sector and has made most lender banks to be more cautious in assessing the credit worthiness of borrowers.

This study focuses on analyzing the determinants of the demand for bank loans by borrowers and the factors that influence the supply of bank loans. Moreover, it attempts to bring together the interaction of demand for and supply of bank credit functions in a model of credit market equilibrium.



1.3. RESEARCH PROBLEM AND OBJECTIVE

Like any formal credit market in other economies, the Ethiopian Credit Market has some salient features that induce research in the area. Particularly, two issues remain unclear about the formal credit market in Ethiopia. These are:

1. Among those loan applicants some receive loans and others do not,
2. Among those who receive loans, some receive the amount of loan they requested while others receive a partial of it (Stiglitz and Weiss, 1981).

A rigorous research has never been done in Ethiopia to suggest possible answers for these and other similar questions. This study hence attempts to fill the knowledge gap in this area and will indicate what the determinants of demand for and supply of credit are. In doing so, this study has four principal objectives. They are:

1. A systematic identification, documentation and evaluation of the determinants of demand for and supply of loan in the formal credit market in Ethiopia.
2. Specification and estimation of a demand for and supply of credit equations as well as an equilibrium model for the formal credit market in Ethiopia.
3. Analysis of the empirical results from the second objective above, and
4. Based on the results from (3) above, validate or revise the findings of the existing literature regarding the determinants of credit market equilibrium and draw some

conclusions that may assist both policy makers and financial intermediaries involved in the provision of credit.

Chapter Two

LITERATURE REVIEW

During the last three decades a lot of research has been conducted on the determinants of demand for and supply of bank credit. Some of this literature is reviewed in what follows.

2.1. THEORETICAL LITERATURE

2.1.1. Factors Affecting Loan Demand

Theoretically, many factors induce borrowers to go for bank credit. These factors, however, primarily reflect the specific need of the borrower for funds and the nature of alternative sources. According to Anderson [1964] and Goldfeld [1966], three principal factors influence the demand for Commercial Loan of business firms.

First, the firm's total need for financing, which is a function of the production decisions and the resulting fixed and working capital requirements, must be met through either equity capital, long term debt, or short term bank loans.

Second, the proportion of the total need for funds which is financed by commercial loans will depend on the nature of the firm's assets and on the cost and availability of loan funds relative to alternative sources of financing.

Third, Commercial loans may finance a larger than normal percentage of a firm's new capital requirements in the short run, pending the increase in long term debt and equity to the desired long run level.

Accordingly a firm has to make its production decision first and determine its fixed and working capital requirements, and then it adjusts its financial structure to meet the required need for funds. This means that the financial structure (debt to equity ratio) must be adjusted to the predetermined fixed and working capital needs.

Sharing a similar view, Khoch (1995) considered working capital needs and capital expenditures as the major factors that influence the demand for credit facilities of a business firm. Working capital needs, according to Khoch consist of account receivables or inventory financing and typically arise because a firm is growing and does not have alternative sources of short-term credit.

- King and Plosser (1984) presented an argument that is similar to the one forwarded by Anderson and Goldfeld. According to King and Plosser, there is a positive correlation (co-movement) of real production by a firm and its credit requirement, in a sense that when firms operate with profitable capital investments in new physical plants or equipment, they resort to credit or bond market for financing.

A digression from these views was in fact reflected in an article written by Stiglitz and Weiss (1981). Stiglitz and Weiss in their article argued that the demand for credit is

influenced, among other factors, by the availability of a tangible security to mortgage. Hence, businesses usually decide on the amount to borrow based on the value of physical collateral that they have at their disposal.

At times, a borrower can get unsecured credit under a mutual understanding with the lender that the borrowed fund will be repaid quickly from normal trading activities of the business. However, Stiglitz and Weiss argued that since such arrangements require businesses to have regular sales turnover with a regular cash cycle and as many borrowers can not meet these requirements, this arrangement will not invalidate the role of collateral in any loan demand function.

Many researchers have constructed their theoretical demand for credit models taking interest rate as one factor in a demand for credit function. Conventionally, as the interest rate increases, the demand for loan-able funds (credit) decreases, and vice versa.

However, Stiglitz and Weiss (1981) refuted this view arguing that as an increase in the interest rate may not reduce the demand for credit in cases where the borrower knows as he is going to default.

2.1.2 Factors Affecting the Supply of Loans

An appropriate supply equation would specify quantity supplied to be a function of the standard variables such as price and cost that are common to nearly all supply equations.

Perhaps in the case of credit markets quantity supplied will usually fall short of the quantity demanded so long as creditors retain the right of refusal to sell, i.e. the right to reject loan applications or otherwise ration credit (Greer, 1974). Therefore, the variables that fall in the lending decision function tend to be creditor specific.

Theory in financial economics suggests that there are five important factors that should enter into the determination of supply of credit. These factors are relationship, collateral, risk, viability and liquidity.

The primary benefit of building close ties with a lending institution is that the availability of financing increases (Peterson and Rajan, 1994). Put differently, an institutional creditor will usually make credit available only to those borrowers that have a good relationship with the lending institution. This is because lenders can easily see the credit worthiness of their reputed customers. Edelstein (1975) also argues that relationship is a good mechanism for screening.

In practice, managers of small firms often complain of not being able to borrow enough capital at reasonable rates. Economic theorists like Stiglitz and Weiss (1981) however suggest that market frictions (information asymmetries) and agency costs may explain why capital does not always flow to firms with profitable investment opportunities.

Collateral on the other hand is given much emphasis by lenders to back loans. A prudent bank lender will always endeavor to obtain the maximum security available from the borrower (Mather, 1979).

Viability of the proposed business is another issue that much of the literature paid attention to in analyzing lenders' decision variables. Accordingly, some thought has to be given by lenders to the nature and prospects of the reference to economic conditions. Allied with this issue is the desirability of the advance (Mather, 1979 and Koch, 1995).

The possibility of success or otherwise of the business for which finance is required from the bank should also be reviewed in the form of risk assessment by the lending Bank.

The last but not least in the class of lending decision variables is the availability of excess liquidity for banks to channel credit. According to Nissanke (1992) lenders' potential to make credit is significantly dependent upon the availability of excess liquidity per se. Even in the presence of viable projects, banks can not move forward to financing these projects if constrained by liquidity problems (Nissanke 1992).

2.2. EMPIRICAL LITERATURE

2.2.1. Factors Affecting Loan Demand

Pennacri (1988) argues business variables such as the magnitudes of the required equity-debt ratios are statistically more important in the borrowing decision of a firm.

Accordingly, a firm will borrow until it reaches the equity-debt ratio that it sets in advance.

The other important variable that many empirical works considered in analyzing the workings of credit markets is cost of borrowing. However, most of the empirical works done in the area do not come up with a significant relationship between the quantity of loan demanded and the lending rate or the cost of borrowing. (Catao, 1997.)

The hypothesis that most empirical works attempt to test is the fact that the demand for loanable funds decreases as the cost of borrowing increases and vice versa. In fact, this view contrasts that of Stiglitz and Weiss (1981) in that an increase in the interest rate may not reduce the demand for credit in cases where the borrower knows as he is going to default.

Catao also suggests that in the long run macro economic model of the demand for credit, nominal GDP is an important and significant variable. The demand for credit function that Catao suggested is a positive function of the level of nominal GDP and negatively related to the interest rate (Catao, 1997).

Catao has also suggested that demand for credit is influenced by expected changes in economic activity. He found out that the demand for credit is significantly elastic to expected changes in economic activity and negatively related to the level of structural unemployment measures (Catao,1997).

Gelos and Werner (1999) on the other hand have indicated, that the availability of working capital (or liquidity constraint) at the firm level is an important variable that affects the demand for credit. Accordingly, this empirical work suggests the fact that firms prioritize financing their capital expenditures using the available internal fund than seeking external finance.

2.2.2. Factors Affecting the Supply of Loans

Most of the factors influencing the supply of bank credit emanate from the risk-averse as well as profit maximizing behavior of lenders. Some of the variables that are considered in the empirical works of many researchers are discussed in the paragraphs that follow.

Khamis (1996) found out strong relationship between inflation stabilization programs and credit to the private sector. Khamis in his study used data from chronic inflation countries like Mexico, Chile, Argentina and Israel and concluded that inflation stabilization programs are characterized by a strong increase in private sector credit, both in absolute terms and as a fraction of real economic activity. His study also supports a negative statistically significant relationship between credit to the private sector and inflation.

Woo (1999) using data from a sample of banks representing 90 percent of Japan's banking assets and found a positive and statistically significant relationship between bank capital and credit supply to business firms.

Gelos and Werner (1999) also explicitly assessed the role of collateral; i.e., using the value of real estate (land and buildings) as a proxy for collateralizable assets in a credit demand function and found a strong relationship between them. According to their article, the heavy reliance of banks on collateral in their lending decisions emanates from their poor state of evaluation and monitoring capacities together with prevailing legal and enforcement problems.



Calvo and Kumar (1994) in their study identified four factors that restrain banks from making potentially more profitable loans to the enterprise sector. These factors are:

- i. Limited information about enterprises' current performance,
- ii. Considerable uncertainty about their future prospects,
- iii. Lack of expertise in evaluating risk, and
- iv. Pressure from the government to improve the quality of bank asset portfolio.

Calvo and Kumar also showed that these factors lead to low credit to the private sector there by creating a vicious cycle of low output, low enterprise profits, high fiscal deficits, and again low credit to enterprises.

Catao (1997) shares Calvo's and Kumar's view in that banks' perception of a higher lending risk (due to information asymmetry) has an important bearing on the sluggish pace of credit to the private sector.

According to Catao, a rise in interest rate exacerbates adverse selection problems, as individuals and firms mostly in need of increasing their returns and/or refinancing their debts are precisely the one's willing to pay highest interest rates. By increasing the share of risky or insolvent clients amongst potential borrowers, a sharp rise in interest rates makes it more hazardous for banks to distinguish between "good" and "bad" borrowers.

CHAPTER THREE

CREDIT MARKET ISSUES IN ETHIOPIA

3.1. SYNOPSIS

These days, the paramount significance of the Private Sector in the Ethiopian economy can hardly be overemphasized. It is in full cognizance of this crucial importance of the sector that the country's economic policies attach top priority to the enhancement of the sector to bring an efficient way of production.

The development of this sector, however, has been constrained by a number of factors of which lack of finance is one. The private sector in Ethiopia doesn't have an alternative source of financing when the need for external finance arises. This is mainly due to the absence of both bond and equity markets in the country.

As a result bank credit has remained the main source of external finance for many business firms. Apart from the lack of alternative means of financing, borrowers in the country are also being unable to make choice between alternative lenders as the number of lender banks in the country is very limited.

Until very recently, credit was entirely provided by three state-owned banks; namely, the Commercial Bank of Ethiopia (CBE) Development Bank of Ethiopia (DBE) and Construction and Business Bank (CBB). Among these, the share of CBE in the provision

of credit stood close to 80% throughout the Derge era. Moreover, as both DBE and CBB were rendering specialized services the fate of working capital financing of small business firms and state owned enterprises was in the hands of CBE.

This situation of the credit market has now shown a modest change. This is owing to the fact that a number of new and privately owned Commercial Banks entered to the market following the 1992 economic liberalization program of the country.

The credit market in Ethiopia has still a long way to go in its development endeavors. For instance, the ratio of loans to GDP in the country has never exceeded 25%⁷.

As far as the provision of credit is concerned banks of the country are currently facing two chronic challenges. These are:

- i. absence of excess liquidity with which to make loans and
- ii. the presence of a high default rate due to the information asymmetry that exists between a lender bank and its borrowers.

The first problem is a characteristic feature of the recently established private commercial banks. The second problem is however a special feature in the three state-owned banks, (CBE, CBB and DBE).



⁷ Birritu, January – February 2000

3.2. CREDIT PRODUCTS

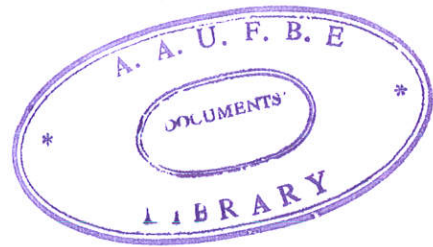
All except one of the banks in Ethiopia provide almost similar types of credit products.

These credit products are briefly discussed in the paragraphs that follow:

- i. Overdraft loan: - This is a credit facility which allows a customer to draw from his/her current account, as desired, and up to the maximum amount approved by the bank. The term of the facility is usually six months. This kind of credit facility is usually provided to alleviate the working capital constraints of borrowing firms. The special feature of this credit product is that interest is calculated on the average used balance during the month.
- ii. Merchandise Loan: - This is a credit facility extended to borrowing firms by accepting a pledge of specific merchandise as collateral whereby the proceeds from sale of the merchandise is used for the repayment of the extended loan.
- iii. Term Loan: - This is a loan extended for a certain period of time, usually not exceeding 10 years. There are three types of term loans, namely short term, medium term and long term loans. The length of the maturity period for these term loans is as follows:
 - Short term loan = maturing in two years or less
 - Medium term loan = maturing within 2 to 5 years, and

- Long term loan = maturing within 5 to 10 years.

The other two important credit facilities that these banks provide are letter of credit (L/C) and Letter of Guarantee (L/G).



CHAPTER FOUR

METHODOLOGY

4.1 Conceptual and Empirical Framework

Credit market equilibrium in Ethiopia is hypothesized to be determined by the interaction of the demand for and supply of bank credit in the country. The identification problem thus implied by this interaction dictates that an analysis of the demand for bank credit is at an individual borrower level while the supply of credit is at the lending bank's level.

Based on this hypothesis, the following demand for and supply of bank credit models are proposed.

$$Q_i^d = \alpha_0 + \alpha_1 EPB_i + \alpha_2 SLB_i + \alpha_3 DEB_i + \alpha_4 WCB_i + U_i$$

$$Q_i^s = \beta_0 + \beta_1 Q_i^d + \beta_2 SLL_i + \beta_3 APEXL_i + \beta_4 TR_i + \beta_5 V_i + \beta_6 CR_i + \beta_7 QC_i + \lambda_i$$

Where,

Q_i^d = amount of bank loan demanded by borrowing firm i

EPB_i = Expected profit of borrowing firm i

SLB_i = Loan to security ratio proposed by borrowing firm i at the time of loan application

DEB_i = Debt to equity ratio proposed by borrowing firm i at the time of loan application

WCB_i = The ratio of available working capital to the total working capital requirement of borrowing firm i

u_i = A white noise error term

Q^s_i = Loan amount approved by the bank (CBE) to borrowing firm i

SLL_i = Loan to security ratio required by the bank from borrowing firm i

$APEXL_i$ = Fraction of the excess liquidity of the bank granted to borrowing firm i in the form of credit

TR_i = a dichotomous variable indicating if the borrower has good track record. TR takes the value 1 if firm i had good track record and 0 otherwise.

V_i = a dichotomous variable indicating if the borrower's business is judged viable by the bank. V_i takes the value 1 if i's business is viable and zero otherwise.

CR_i = a dichotomous variable introduced to capture the plausible impact of banking relationship on the amount of loan granted. Accordingly, CR takes the value 1 if the borrowing firm has a more than five years banking relationship with CBE and zero otherwise.

QC = a dichotomous variable introduced to capture the plausible impact of the quality of collateral a borrower offers. QC takes the value 1 if more than fifty percent of the collateral offered is in the form of building and foreign bank guarantee and zero if the collateral offered is in the form of vehicle .

λ_i = a white noise error term.

The hypotheses to be tested in this study are shown by the expected signs of the coefficients of each and every explanatory variable.

Hence, for the demand function the expected signs of the coefficients are:

$$Q_i^d = \alpha_0 + \alpha_1 EPB_i + \alpha_2 SLB_i + \alpha_3 DEB_i + \alpha_4 WCB_i + U_i$$

(+) (+) (+) (-)

The expected signs to these coefficients are consistent with economic theory. For instance economic theory suggests that if firms have a business venture that is expected to yield a higher return, they would want to under take this business activity. However, in order to make their vision real, firms seek adequate finance to run their business activity, the primary source of this finance being borrowing from banks.

Similarly, as the amount of security a firm mortgages increases, its demand for bank loan also increases as one of the constraints of firms in accessing credit is the absence of collateral to mortgage.

A similar argument can be adopted to show the direct and positive relationship between the proposed (desired) debt equity ratio and the demand for bank credit of a borrowing firm. Accordingly, as a firm's desired debt-to equity ratio increases, one of the possible means of doing so is by increasing the amount of borrowing.

The explanation for the expected sign of the coefficient α_4 is straightforward. Obviously, the primary motive of firms in seeking bank credit is either to cover their capital expenditure or to meet their working capital requirements.

Hence, the volume of bank credit firms desire to borrow is indirectly related to the amount of capital they internally mobilize. Put differently, the higher the amount of fund a firm mobilizes internally, the lesser the amount of bank loans it desires to secure.

For the credit supply function, the following signs are expected:

$$Q_i^s = \beta_0 + \beta_1 Q_i^d + \beta_2 SLL_i + \beta_3 APEXL_i + \beta_4 TR_i + \beta_5 V_i + \beta_6 CR_i + \beta_7 QC_i + \lambda_i$$

(+) (+) (+) (+) (+) (+) (+)

Like the expected signs of the coefficients of the demand function, the expected signs of the coefficients of the credit supply function are also consistent with economic theory. Obviously, the size of loan a lender grants depends on the amount of loan the borrower requests for. The higher the amount of loan a borrower requests, *ceteris paribus*, the higher is the amount of loan the lender advances and vice versa. By the same token, the lender can not approve a loan that exceeds what the borrower requests.

The security to loan ratio (SLL) that lenders want their borrowers to have is usually higher than what the borrowers themselves aim to maintain. In doing so, lenders' would aim primarily to protect themselves from the possible risk of default.

The availability of excess liquid reserve (APEXL) at the lenders' disposal is also an important factor that influences the amount of loan a borrower gets. Intuitively, the higher the amount of excess liquidity a lender maintains, *ceteris paribus*, the higher is the amount of credit it extends to an individual borrower. Put differently, as the amount of loan requested is high in relation to the available excess liquid reserve, lenders tend to approve less than requested.

The explanation of the expected signs of the dichotomous variables (namely, track record, viability and credit relationship and quality of collateral) is straightforward. For instance, the better the track record (TR) a borrower has, *ceteris paribus*, the higher the amount of loan it secures from a lender bank.

Similarly, borrowers with viable business ventures can secure larger credit than do borrowers with less viable and more risky businesses. On the other hand the variable CR measures the primary benefit of building close ties with a lending bank. The availability of credit increases with the strength of relationship between the lender and the borrower.

4.2 Data Type and Source

Broadly, two kinds of cross-sectional data sets are collected for this study. The first set comprises data of primary type. This data set is collected from borrowers of the Commercial Bank of Ethiopia. Data collection was performed by way of a questionnaire and missing information was made complete from the individual borrower's file at the

disposal of the CBE. Primary information was also collected by way of an interview with personnel's of CBE that are working in the credit management main department.

The second set of data is collected from the publications of both the Commercial Bank of Ethiopia and the National Bank of Ethiopia.

Stratified sampling was adopted in selecting 250 borrowers from the total 5,237 borrowers found in Addis Ababa. The five strata formed for the sampling purpose were:

- Domestic trade and services (DTS)
- Agricultural Loans (Agr)
- Building and Construction loans (Bld)
- Manufacturing Loans (Mnf), and
- International Trade Loans (Impex).

Emergency staff loans and personal loans in general have been dropped out from the population before undertaking the sampling exercise.

After the sampling job was completed it was found that these strata are not mutually exclusive. That is, borrowers whose names appeared in one stratum were also found in the other strata. Hence merging the different types of loans these borrowers are enjoying reduced the sample size to 186.

The other important job done in the sampling activity was the removal of those borrowers whose loans were approved outside the range of time the survey intended to consider (i.e. October 1, 1999 to December 31, 1999). The rationale behind taking this action was to avoid inconsistency that results from variation in the level of excess liquidity of the bank. Since, this measure took off 17 borrowers; it further reduced the sample size to 169. Out of the 169 questionnaires distributed to these borrowers, we were able to recover 128 of which 6 were incomplete. As a result the final sample size became 122.

4.3 Estimation Issues

The estimation methodology in this study has considered the “Two – stage least squares technique.” This is mainly because of the nature of the credit supply function we have at hand. As indicated in the previous sections of this chapter, credit demand is an important explanatory variable in the credit supply equation.

4.4 Measurement of Key Variables

Variables such as loan demand, loan supply, value of collateral offered, value of collateral accepted, expected profit of the lender from funds lent, expected profit of the borrower and working capital requirements of borrowing firms are measured and expressed in monetary terms. However, the ratios computed from these variables, such as debt to equity and loan to security ratios are without unit of measurement.

CHAPTER FIVE

EMPIRICAL RESULTS

5.1 Descriptive Results

5.1.1 Findings of the Survey Conducted on the Determinants of Credit

Market Equilibrium in Ethiopia

The basic motive behind conducting this survey is to see if we have credit demand and supply relationships that are governed by the standard market laws. In an attempt to find out if these relationships exist in the Ethiopian credit market, some important results were obtained about the feelings of borrowers regarding their credit relationship with the bank (CBE). These findings are summarized in the paragraphs that follow.

Out of the 122 borrowers of CBE who responded to the questionnaire, 69% of them have more than 5 years of banking relationship with CBE which is assumed to explain the ease with which they can secure credit facilities as they desire. The benefits of long lasting relationship can be wiped by bad conducts of borrowers. One of these misbehaviors is the utilization of loans for purposes other than the ones specified in a loan agreement. In line with this, 19% of the borrowers under study have confessed that they have at least once utilized loans for purposes other than the ones specified in the loan agreement. One of these incidences is the diversion of a working capital loan to capital expenditure.

Though such unpredictable action of borrowers is considered as a misconduct by the lending bank, a number of borrowers complain as the bank refuses them to grant the amount of loan they request for. Some more borrowers also complain that the bank doesn't approve their requests timely. About 72% of the borrowers asked about the issue agree with the above two ideas.

The Commercial Bank of Ethiopia is believed to have a monopoly power in the supply of commercial credit. A clear indication of this fact is of course the absence of other strong institutional lenders in the country. Despite this fact, 37 percent of the borrowers in the sample have disclosed that they have at least access to credit from sources other than CBE. These sources are sister companies, informal lenders, friends, and other local banks.

Regarding the repayment period of loans, the majority of the borrowers believe that the maturity period given to the loans they secure is convenient to them. However, it is the wish of the majority of the term loan users to have a grace period for at least 3 months.

The bank has inclination to favor those borrowers who offer collateral in the form of real estate (buildings and land) than those who offer vehicles. In fact the bank's overdraft procedural manual restricts the acceptance of trucks and vehicles as collateral to secure overdraft facilities.

Despite this fact, some borrowers that are rated to be prime customers can get facilities that are not backed by collateral. Accordingly, 11% of the borrowers under study have at

least once, utilized unsecured credit under a mutual understanding with the bank that the borrowed fund will be repaid quickly from the normal trading activities of the borrowers' business.

About 20% of the borrowers believe that the bank does not make adequate supervision on the utilization of loans. And yet, another 7% believe that they don't get any advice from the bank's side on how to appropriately utilize loans for purposes they are requested for. These borrowers also believe that lack of credit follow-up from the bank's side would lead to defaulting of loans.

Regarding the use of accounting records, 96 percent of the borrowers have disclosed that they are using accounting records for their businesses. The purposes for which they keep accounting records however differ among borrower groups. The three major purposes of keeping accounting records are:

- a) to analyze the profit or loss of their business,
- b) for loan repayment purposes, and
- c) for tax purposes.

Concerning the enforcement of repayments, 21% (26 borrowers) believe that a high cost of default is necessary to enforce repayment of bank loans. However, the views of these

borrowers regarding which cost of default to give emphasis to are different as can be shown from the following table.

Table 2: Preference of Cost of Defaults by Borrowers

No.	Type of Cost of Default	Number of Borrowers who Support the Kind of Penalty
1.	Claims against personal wealth	2
2.	Claims against guarantees	7
3.	Social sanctions (via Edir, Kebelle, etc.)	4
4.	Loss of future access to credit	6
5.	Loss of other economic benefits Such as tax exemption	6
6.	Other	1

5.1.2 Description of the Explanatory Variables Used in The Econometric Analysis

Information pertaining to most of the explanatory variables used in this paper is collected from the respective individual borrower's record that the bank maintains.

These explanatory variables are briefly explained in the paragraphs that follow:

A. Explanatory variables of the Credit Demand Function

i. Expected profit of a borrowing firm

This variable is used as an explanatory variable in the credit demand function in line with the assumption of a rational borrower (agent) that strives to maximize its profit. This behavior of agents induces them to go for bank credit as they forecast a higher expected return from their investment activities.

ii. Loan to Security Ratio Proposed by a Borrower

Borrowing firms will always endeavor to maximize the amount of credit they obtain per given level collateral mortgaged. Hence, such firms always propose higher loan to security ratios even exceeding the value 1.

iii. Debt to Equity Ratio Proposed by a Borrowing Firm

Firms usually review their capital structure periodically in conjunction with the debt to equity ratio they set ahead. And, if they find their debt-equity ratio being lower than what they proposed initially, they go for credit so long as they have profitable investments at their disposal.

iv. Working Capital Requirement of a Borrowing Firm

The major reason for seeking bank loan by borrowing firms is to alleviate the shortfall in their working capital requirements. As the gap between the available working capital and the working capital requirement of a firm gets wider the demand for credit increases, and vice versa.

B. Explanatory Variables of the Credit Supply Function

i. Quantity Demanded of Loan

Generally, banks do not lend unless requested to do so by borrowing firms. As a matter of fact, the loan size that banks decide to lend to an individual borrower is dependent upon the amount of loan requested by the borrower. *Ceteris paribus*, as

the amount of loan a borrower requests increases, the amount of loan approved to this borrower increases and vice versa.

ii. Security Coverage

Security coverage is an important variable in a lending decision. Lenders usually strive to get the maximum level of collateral from a borrower per a given amount of credit facility they extend. As a result, they prefer to maintain the lowest possible level of loan to security ratio. This behavior of banks is contrary to the behavior of borrowers who strive to maximize the loan to security ratio.

iii. Portfolio Diversification Decision

Another important variable in a lending decision is the portfolio diversification of available funds. In our analysis, this variable characterizes the amount of loan approved to a borrower in terms of the available excess liquidity at the bank's disposal. The other variables entered in the supply function are qualitative type.

5.2. REGRESSION RESULTS

In practice we are never sure that a model adopted for empirical testing is the true model. Based on theory or introspection and prior empirical work, we develop a model that we believe captures the essence of the subject under study. We then subject the model to empirical testing thereby assessing whether the model selected is a good or adequate model.

In cases where the chosen model is not congruent to the available data set, we may be required to re-parameterize the model to obtain explanatory variables that are near orthogonal to the data and interpretable in terms of the final equilibrium relationship.

5.2.1. Parameter Estimation of the Demand for Credit Function

A. Model specification



Two kinds of specification for the credit demand model were tried and the sampled data set was fitted using the ordinary least square (OLS) technique. The first specification of the credit demand model is the log-log (log-linear) type of specification of the demand for credit function, which is linear in parameters.

The second form of specification is linear specification in levels. However, it was discovered that running the regression model in levels gives significant results for fewer

parameters than the regression of the log-linear specification. Hence, the analysis made in this paper is based on regression results of the log-linear specification. We have presented the results of the specification in levels in annex 1 for reference.

B. Regression Results

Two dummy variables (DSL_R and DD_{ER}) have been added to the model in order to make the model explain the variation of the credit demand variable about its mean. DSL_R takes the value one if security to loan ratio proposed by a borrower is less than one and zero otherwise. The rationale behind taking this dummy variable is because it is assumed that borrowers always strive to secure large amount of loan per a given amount of collateral and even on clean basis. The other dummy variable, DD_{ER}, takes the value one if the debt to equity ratio a borrower proposes is more than three and zero otherwise.

Regression of the Log demand for credit (Q_i^d) variable on its four explanatory and two dummy variables has given rise to the following results:

Model 1.

$$Q_i^d = \alpha_0 + \alpha_1 EPB_i + \alpha_2 SLB_i + \alpha_3 DEB_i + \alpha_4 WCB_i + \alpha_5 DSLR_i + \alpha_6 DDER_i + U_i$$

Table 3: Regression Results

Variable	Coefficient	St. error	t. ratio
Constant	-9.9498	0.5924	-16.794
Log of Expected profit	1.0285	0.5673E-01	18.127
Security to Loan ratio	0.4632	0.1228	3.770
Debt to equity ratio	-0.3745E-01	0.3763E-01	-0.955
Working capital requirement	-0.8836	0.2876	-0.307
Dummy (SLR)	0.3187	0.1468	2.170
Dummy (DER)	0.4685	0.2296	2.040

$$R^2 = 0.8774 \text{ Adj. } R^2 = 0.8710 \text{ F } [6,115] = 137.25$$

As shown in table 3, two of the four explanatory variables are statistically significant. These variables are SLB (the security to loan ratio proposed by a borrowing firm) and EPL (the expected profit of a borrowing firm). Their sign is also consistent with what is hypothesized in the methodology part. The intuitive explanation of these results is that:

1. as economic theory suggests, if firms have business ventures that are expected to yield a higher return, they would want to under take this business activity. However, in order to make their vision real, these firms seek sources of finance to run their business activity, one of such sources being borrowing from banks. More over, the

coefficient of the Log of expected profit tells us that a percentage change in the expected profit of a borrower will change the quantity demanded of loan by 1.025 percents.

2. as a borrowing firm manages to offer a high value of collateral, it increases the amount of loan it desires to borrow, as one of constraints of firms in accessing bank credit is lack of adequate collateral to mortgage.

As stated above, though the variable DER (debt to equity ratio proposed by a firm) turned out to be insignificant, its dummy variable (DDER) has given significant results. The implication of this result is that most of the borrowing firms under study desire to maintain debt to equity ratio that is more than 3.

The other dummy variable that gave a significant result is DSLR (dummy for security to loan ratio). The intuitive explanation of this result is that most borrowers prefer to maintain a security to loan ratio that is less than one.

The working capital requirement variable (WCR) has turned out to be statistically insignificant. It is imperative at this stage that the power of this variable and the debt to equity ratio variable in explaining the variation of the demand for credit about its mean is questionable.

The F-test of the model at 6 and 115 numerator and denominator degrees of freedom respectively is found to be 137.25. Both at the 5 and 10 percent levels of significance, this statistic induces us to reject the null hypothesis that the subset of variables of the model is statistically insignificant.

The adjusted R^2 of the model is 0.871 implying that 87.1 percent of the variation in $\text{Log } Q_i^d$ is explained by the explanatory and dummy variables entered in the model.

5.2.2 Parameter Estimation of the Credit Supply Function

As explained briefly in the methodology part, the credit supply model analyzed in this study is some how different from the one that standard micro economic theory suggests for the goods market. Its difference emanates from the fact that it embodied a demand for credit variable as one of its explanatory variables. The rationale behind such an inclusion of quantity demanded variable in the supply function is because it is assumed that lenders usually confine the loan size they approve to the loan size requested. More over, such a supply function is not necessarily affected by price, as is the case in the goods market. The supply function we have at hand depicts lenders' desire to ration credit based on the level of excess liquidity they have and the preconditions that they set forth to be fulfilled by their potential borrowers.

A. Model Specification

Based on the assumption of a lender that exercises credit rationing practice, the following credit supply function is used to identify the instruments (variables) that have influential role in the lending decision of the bank (CBE) to allocate loans among a given set of applicants.

$$Q_i^s = \beta_0 + \beta_1 Q_i^d + \beta_2 SLL_i + \beta_3 APEXL_i + \beta_4 TR_i + \beta_5 V_i + \beta_6 CR_i + \beta_7 QC_i + \lambda_i$$

Q_i^d is a fitted endogenous variable^τ obtained from the regression in part 5.2.1. The idea of using the fitted value of Q^d , as is the case in the two-stage least squares procedure, is to “purify” the influence of the disturbance term on the nonstochastic explanatory variables and make the estimators of the model consistent and unbiased (Gujarati, 1995 and Chow, 1983).

As stated in the methodology part, the supply function depicted above also serves to reflect a state of equilibrium for the credit market in Ethiopia. This is so because, as is the usual case, credit market equilibrium is dictated by supply factors. Particularly, it is the behavior of lenders that determines the state of equilibrium. As indicated in the literature part of this paper, the credit market equilibrium model given by the supply function above has a similar feature with that of the equilibrium credit rationing models analyzed by many economists.

B. Regression Result

The regression exercise has given the following results:

Table 4

Name of a Variable	Coefficient	St. Error	t. Ration
Constant	11.7101	0.4546	25.755
loan demand (fitted value of Q^d)	0.222E-04	0.1068E-09	2.081
security to loan ratio (SLR)	0.3683E-02	0.4641E-03	7.937
excess liquidity (APEXL)	78.9735	14.4788	5.454
track record (TR)	0.7145	0.3110	2.297
viability (V)	0.3420	0.3650	0.937
credit relationship (CR)	0.8720	0.3082	2.829
quality of collateral (QC)	0.2628	0.3240	0.811

$$R^2 = 0.420$$

$$\text{Adj.}R^2 = 0.385$$

$$F[7,114] = 11.80$$

$$\text{Breusch-Pagan } \chi^2 \text{ (with 7 df)} = 7.82$$

As can be seen from Table 4, all the three explanatory variables entered in the credit supply function have turned out to be statistically significant at the 5% level. These variables are the fitted value of loan demand, Security to Loan ratio (SLL) the lender bank sets forth on a borrower and the variable that weighs the amount of loan the bank approves to an individual borrower in terms of the available excess liquidity of the bank

[†] since we used the log of Q_d in the credit demand model specification, we have here used the anti-log of the fitted value of Q_d

(APEXL). The sign of these explanatory variables is as expected in the methodology part. The interpretation of these results is quite straightforward.

For instance, the fitted value of loan demand turned out to be statistically significant showing the lender bank's desire to shift the loan size it approves in line with the volume of loan requested. As the direction of the relationship between this variable and the dependent variable (Q^s_i) indicates, the amount of loan approved to an individual borrower increases with the loan size that a borrower requests to secure.

The fact that the security to loan ratio turned out to be statistically significant shows the lender bank's desire to shift the loan size it approves in line with amount of collateral offered. The direction of relationship also between this variable and the dependent variable reveals that as the amount of collateral offered increases, *ceteris paribus*, the loan size increases and vice versa. This result is also consistent with the argument of Mather (1979) discussed in the literature part in that a prudent bank lender will always endeavor to obtain the maximum security available from a borrower per a given amount of loan size approved. Put differently, in order to mitigate the possible risk of default, a lender bank would want to extend less amount of loan as the value of security offered declines.

The other significant relationship was found with the regressor APEXL and the dependent variable Q^s_i . The direction of relationship between these two variables is also as postulated in many micro economic literature. For instance, Niskanen (1992) has argued that the loan size that an institutional lender advances depends on the availability

of excess liquidity. Nissanke also argued that due to lenders' behavior of portfolio diversification, an institutional lender would always be cautious to limit the portion of its liquid assets it lends to a single borrower. By the same token, the amount of loan an individual borrower gets from a single lender diminishes with the size of excess liquid assets that the bank has at its disposal.

More importantly, two of the four dummy variables have showed, by giving significant results, the paramount importance of building close ties with a lender bank. These variables are track record and credit relationship. Both of these variables witness the ease with which borrowers can secure a higher amount of loan if they have good track record and long relationship with a specific lender. Institutional lenders also find it easy to lend to borrowers with whom they have long relationship since this reduces the risks that emanate from information asymmetry.

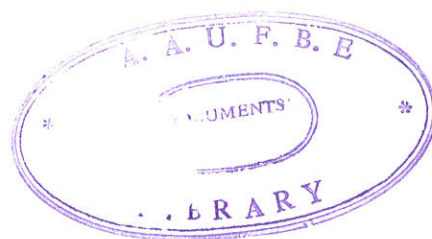
Test of validity of the whole model can be performed using the F-statistic and the coefficient of determination (R^2). Accordingly, with 7 and 114 numerator and denominator degree of freedom, respectively, the F-statistic of the model under study is 11.80. And this statistic by far exceeds the critical values of 1,5 and 10 percent levels of significance. This is a clear indication of the predictive power of the regressors to explain the variation of Q^s about its mean.

The regression exercise has also given an adjusted R^2 of 0.385 which in turn indicates as 38.5 percent of the variation in the dependent variable Q^s is explained by the explanatory and dichotomous variables.

After adjusting the results thus obtained for hetroskedasticity, the Breusch – Pagan χ^2 statistic is found out to be 7.82. With 7 degrees of freedom, this statistic turned out to be insignificant at the 5,10 and 25 percent levels which enables us not to reject the null hypothesis of homoskedasticity.

CHAPTER SIX

CONCLUSION



Cognizant of the paramount importance of Commercial Banks in financing investment and working capital requirements of firms, this paper has attempted to introduce an empirical credit supply model that characterizes the behavior of banks in making lending decisions. The paper has also attempted to formulate credit demand model for Ethiopia.

Both the credit demand and supply models adopted in this paper are postulated to be congruent to the available information in Ethiopia. Such a methodology is also used as a selection device to filter-out poor designs that follow other forms of specification.

Estimation of the parameters for the credit demand and supply models was performed using data that were obtained from the Commercial Bank of Ethiopia. This is so because the attempt made to get information from other state-owned and private lending banks failed from the outset.

This paper used two types of demand for credit models. The first type of the demand for credit model deployed is a regression in levels. However, in an attempt to alleviate the weaknesses of the dependent variable, another form of specification of the credit demand model was used. This form of specification is the log-log or log linear specification. As shown in Table 4, this specification has brought some improvements over the regression in levels of the credit demand model whose results are depicted in annex 1.

Regressing the demand for credit function in its log-linear form, resulted in two out of the four explanatory variables as statistically significant. These variables are SLB (security to loan ratio proposed by a borrower) and LEP, (the log of expected profit of a borrowing firm). Apart from their significance, the sign of these variables is as hypothesized in the methodology part. These results are evident that the expected profit of a borrower and the ability to mortgage an adequate collateral are very crucial in determining what amount of loan to request and/or borrow.

The two dummy variables used in the regression have also played significant role in increasing the explanatory power of the whole model. These variables show that:

- A. as the dummy variable attached to the security to loan ratio indicated, most borrowers of the bank (CBE) endeavor to maintain a less than one security to loan ratio, i.e, they would want to maximize the amount of loan they obtain per a given amount of collateral offered.
- B. as the dummy variable attached to the debt to equity ratio indicated, most borrowers of the bank maintain a more than three debt to equity ratio which is an indication of high indebtedness of the borrowers.

The credit supply function adopted in this paper is some how different from the standard supply function that we have in the goods market. This difference emanates from the very fact that the credit supply function embodies quantity demanded as one of its

explanatory variables. This fact has further dictated us to choose the 'Two-stage' least squares technique to estimate the parameters of the credit supply model.

As indicated in Table 4, the inclusion of quantity demanded variable as a regressor in the supply function has given a statistically significant result. As a result we are inclined to conclude that the lender bank decides what amount to lend based, among other factors, on the amount of loan it is requested to advance.

The other variables that showed significant relationship with the loan size variable are SLR (security coverage) and APEXL (a variable that relates excess liquidity of the bank to the loan size it approves to a particular firm).

Hence, it is apparent to conclude that in determining loan size lenders are sensitive to the amount of collateral offered and the size of loan weighted in terms of the excess liquidity they have at their disposal.

The interesting result of this study is also the significant relationship obtained between the two dichotomous variables (track record and credit relationship) and the credit supply variable. This result is similar to the findings of many empirical works. Most of the empirical works done in other parts of the world have also found out a positive and significant relationship between qualitative variables such as viability of projects and quality of collateral offered and the loan size granted. However, in our regression exercise, these qualitative variables have given insignificant results.

This paper contributes its part on the design and establishment of a credit demand and credit supply as well as credit market equilibrium models that are near congruent to the available information in Ethiopia. Hence, it is our strong belief that the paper serves as a stepping stone for further researches to be done in the area.

CHAPTER SEVEN

POLICY IMPLICATION

The conduct of monetary policy in Ethiopia has changed substantially in recent years in conjunction with the deregulation of the country's financial system. Because of the existence of controls in the previous regime, lending banks of the country were not able to advance profitable loans regardless in the high level excess liquidity they were maintaining. The then Socialist regime for instance, affected the lending activities of the lender banks of Ethiopia in two ways.

First, was the imposition of a command economic system which discouraged the emergence and expansion of the private sector there by slowing down investment activities. This, in turn, made the lending banks face lack of effective demand for credit facilities.

Second, was the high-level liquidity requirement imposed by the central bank which restricted banks from making funds available to their borrowers. This was particularly, a chronic problem to the Development Bank of Ethiopia and the Business and Construction Bank.

It can be said both of these problems are now solved by the economic liberalization and financial sector deregulation policies of the current government.

According to our study, however, we have now two issues at hand that need a careful review and consideration by policy makers.

The first issue relates to banks' sensitivity to a change in their excess liquidity position. As the availability of loanable funds theory suggests, and as we have also seen from the results of the previous chapter, the absence of excess liquidity is a constraint for banks to make loans. To alleviate this problem of the lending banks in Ethiopia, the 15% liquidity requirement may have to be reduced to 12 or even 10% level in order to create excess liquidity for the banks of the country. This is with the strong belief that increased credit, increases national income and the amount of funds available for consumption and saving.

The second issue relates to the problem that borrowing firms face in line with mortgaging adequate security. As shown in the regression results of the previous chapter, banks depend highly on the value of tangible security offered while making their lending decisions. The loan size they advance is significantly dependent upon the value of collateral mortgaged. This is a clear indication of the problem borrowers are facing to get adequate finance from banks regardless of the profitable and viable projects they have at hand.

One of the policy options to alleviate this problem of borrowers could be the arrangement of other sources of finance by the government. Establishing bond and equity markets from which large firms can raise their capital can do this. This arrangement can partially detach these firms from relying on bank loans which in turn increases the availability of

loanable funds to those small borrowers who can not participate in the equity and bond markets.

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Annex 1

Results of the Regression in Levels of the Credit Demand Model

Variable	Coefficient	St.error	t-ratio
Constant	31361.73	4150.23	7.557
Expected profit	0.6344E-1	0.9280E-01	0.684
Security to Loan Ratio	22.2155	1.4276	15.561
Debt to Equity Ratio	-795.953	493.812	-1.612
Working Capital Requirment	-2365.7955	6520.705	-0.363

F(4117)=1.2 $R^2 = 0.493$ Breusch-Pagan χ^2 (with 4 df) = 1.5701

Annex 2

በኢትዮጵያ የብድር ገበያ ውስጥ ያለውን የብድር ፍላጎትና አቅርቦትን ለማጥናት የተዘጋጀ መጠይቅ 1992 ዓ.ም.

Questionnaire for the Survey on the Determinants of Credit Market Equilibrium in Ethiopia

የተበዳሪው የሥራ አድራሻ Business Address of the Borrower

ዞን _____ ወረዳ _____ ቀበሌ _____ የቤት ቁጥር _____ Zone ----- Wereda ----- Kebele -----House No. -----

የብድር አገልግሎት የሚጠቀምበት የባንክ ቅርንጫፍ _____ Bank branch where loan account is maintained -----

የቃለ መጠይቅ አድራጊው ስም _____ ቀን _____ Name of interviewer ----- date -----

I. የተበዳሪው መሠረታዊ መረጃ Basic Information About the Borrower

1.1 የተበዳሪው ድርጅት ስም _____ Name of the borrowing firm -----

1.2 የድርጅቱ ዕድሜ በዓመት _____ Age of the firm ----- years

1.3 የተሰማራበት የሥራ መስክ Area of business specialization:

- በሀገር ውስጥ ንግድ _____ Domestic trade -----
- በትራንስፖርት _____ Transport -----
- በሆቴል _____ Hotel-----
- በአስመጪና ላኪ _____ Import-export-----
- በማምረት _____ Manufacturing -----
- ሌሎች _____ Other (please, specify)-----

II. ብድርና ተዛማጅ ጉዳዮች
Credit and related aspects

2.1 ከኢትዮጵያ ንግድ ባንክ ብድር መበደር መቻ ጀመሩ? 19_____ ዓ.ም.
 When did you start borrowing from C.B.E (Commercial Bank of Ethiopia)? Year 19...

2.2 ከባንኩ ለመጀመሪያ ጊዜ የተሰጠበት የብድር መጠን ምን ያህል ነበር?
 ብር _____
 What was the amount of the first grant made to your firm by the bank (C.B.E)? Birr.....

2.3 ከባንኩ የተሰጠ የዚያ ብድር ዓይነት ምን ነበር?
 What was the kind of the first loan that the bank advanced to your firm?

1. አሸርድራፍት _____
Over draft.....
2. የአጭር ጊዜ ብድር _____
Term loan
3. ሌተር ኦፍ ክራዲት _____
Letter of Credit(L/C)
4. ሌሎች _____
other (please, specify)

2.4 የዚያ ብድር የተጠየቀበት አላማ ምን ነበር?

 What was the purpose of that loan?

2.5 ብድሩን ለመክፈል ስንት ወር /ዓመት/ ፈጀበት? _____
 How many months (years) were required for you to settle that loan?.....

2.6 በብድር ስምምነቱ ላይ ከተጠቀሰው ዓላማ ውጭ ለሌላ ዓላማ ብድሮችን አውለው ያውቃሉ?

1. አውቃለሁ _____
2. አላውቅም _____

Have you ever utilized loans for purposes other than the ones specified in the loan agreement?

1. Yes.....
2. No

2.7 መልሶ አውቃለሁ ከሆነ፣ በብድር ስምምነቱ ላይ ከተጠቀሰው ዓላማ ውጭ ለሌላ ዓላማ ለምን ተጠቀሙበት?

/እባክዎን መልሱን እንደአስፈላጊነቱ በቅደም ተከተል ያኑሩ/

If 'yes', why did you use the loan for purposes other than the ones specified in the loan agreement?

(Please, give up to three reasons in order of their importance)

2.8 ባንኩ የጠየቁትን ብድር በተፈለገው ጊዜ አጽድቆ ይሰጣል?

1. አዎን _____ 2. አይሰጥም _____

Do you think that the bank timely approves and disburses the loans you request for?

1. Yes 2. No

2.9 የጠየቁት ብድር በጊዜው ተወስኖ እንዲሰጡት የሚረዱ አስፈላጊ መረጃዎችን በጠየቁ ጊዜ ለባንኩ ያቀርባሉ?

1. አቀርባለሁ _____ 2. አላቀርብም _____

Do you provide the bank with the appropriate information that assists the timely approval and disbursement of loans you request?

1. Yes..... 2. No.....

2.10 ከኢትዮጵያ ንግድ ባንክ ሌላ ብድር ለማግኘት የሚጠቀሙባቸው አማራጭ አሎት?

1. አለኝ _____ 2. የለኝም _____

Do you have access to credit from sources other than C.B.E?

1. yes..... 2. No.....

አለኝ ካልሆነ አማራጮች ምንድን ናቸው?

If 'yes' what are these sources of credit?

1. ከሌላ የሀገር ውስጥ ባንክ _____
Other local bank

- 2. ከአራጣ አበዳሪዎች _____
Informal lenders
- 3. ከእህት ድርጅቶች _____
Sister companies
- 4. ከጓደኞች /ዘመዶች/ _____
Friends
- 5. ከሌሎች _____
Others

2.11 ለተበደሩት ብድር ባንክ የሚወሰነው የመክፈያ ጊዜና በየጊዜው የሚከፍሉት መጠን ተስማሚ ሆኖ አግኝተውታል?

- 1. ይስማማኛል _____
- 2. አይስማማኝም _____

Are you convenient about the repayment period as well as the amount per installment that the bank sets out each time a loan is granted to your firm? (Applicable for term loan users only)

- 1. yes -----
- 2. No-----

መልሶ አይስማማኝም ከሆነ እባክዎን ምክንያቶችን ይግለጹ

If 'No' please, specify your reasons?

2.12 ከባንክ የተበደሩትን ብድር በመጠቀም የድርጅቶችን ምርት በማስፋፋት ስኬታማ ናት?

- 1. አዎን _____
- 2. አይደለሁም _____

Are you successful in utilizing the bank credit to expand real production of your firm?

- 1. Yes _____
- 2.No _____

2.13 ከባንክ ለተበደሩት ብድር ተጨባጭና በቂ የሆነ ዋስትና ያቀርባሉ?

- 1. አቀርባለሁ _____
- 2. አላቀርብም _____

Do you mortgage to the bank a tangible & adequate security for loans you acquire from the bank?

- 1. Yes _____
- 2.No _____

2.14 እርሶና ባንኩ በጋራ በመተሳሰብ ድርጅቶች ከሚያገኘው ገቢ በቀጥታ ወዲያውኑ ይከፈላል በሚል እምነት ዋስትና ሳያሰጡ የብድር ተጠቃሚ ሆነው ያውቃሉ?

1. አውቃለሁ _____ 2. አላውቅም _____

Have you ever-utilized unsecured credit under a mutual understanding between your firm and the bank that the borrowed fund will be repaid quickly from the normal trading activities of your firm's business?

1. Yes _____ 2.No _____

መልሶ አውቃለሁ ከሆነ ብድሩን ሙሉ ለሙሉ ከፍለዋል?
እባክዎን ከዚህ በፊት ያለዋስትና የወሰዱትን ብድር ሳይከፍሉ ከቀሩ ይግለጹ።

If 'yes' have you fully repaid that loan?
Please, state if you have had failure in repaying the unsecured portion of a loan in the past.

2.15 በአሁኑ ወቅት ባንክ 10.5% ወለድ በተበደሩዎቸው ብድሮች ላይ ያስከፍላል። ይህ የወለድ ክፍያ መጠን ድርጅቶች ከሚያገኘው የትርፍ መጠን አንጻር ከፍተኛ ነው ብለው ያስባሉ?

1. አዎን _____ 2. አላስብም _____

መልሶ አዎን ከሆነ ባንኩ ማስከፈል አለበት የሚሉትን የወለድ መጠን ይግለጹ።

Currently the bank is charging 10.5% interest per annum on all loans and advances.

Do you think this cost of borrowing is high relative to the yearly rate of return of your firm?

1. Yes _____ 2. No _____

If 'yes' please, specify the ideal interest rate you think it should be charged by the bank.

የሚበደሩትን የብድር መጠን ሲወስኑ ከግምት ውስጥ የሚያስገቧቸው ሁኔታዎች ምንድን ናቸው?

1. _____
2. _____
3. _____
4. _____
5. _____

What are the factors that you take in to account in deciding what amount to borrow?

1. _____
2. _____
3. _____
4. _____
5. _____

2.17 ድርጅቱ እንዲኖረው የሚፈልጉት የፅዳ ከሀብት ሬሽዮ ምንድን ነው?

What is the debit equity ratio you want your firm to have?

2.18 ድርጅቱ ከባንኩ ጋር ጥሩ የብድር አመላለስ ታሪክ አለው?

1. አዎን _____
2. የለውም _____

Does your firm have a good-truck record with the bank?

1. Yes _____
- 2.No _____

III. የብድር ክትትልን የሚመለከቱ ጉዳዮች
Issues relating credit follow up

3.1 ባንኩ ባበደሮት ብድሮች አጠቃቀም ላይ ቁጥጥር ወይም ክትትል ያደርጋል?

1. ያደርጋል _____ 2. አያደርግም _____

Does the bank make any supervision on the utilization of loans and advances granted to your firm?

1. Yes ----- 2. No -----

3.2 መልሶ አዎን ያደርጋል ከሆነ በርሶ አመለካከት ቁጥጥር ወይም የአፈጻጸም ክትትል በቂ ነው ብለው ያስባሉ?

1. አዎን _____ 2. አይደለም _____

If 'yes', is this supervision adequate in your opinion?

1. Yes ----- 2. No -----

3.3 የጠየቁትን ብድሮች እንዴት ለተባለለት ዓላማ በትክክል መጠቀም እንደሚችሉ ከባንኩ በኩል ምክር አግኝተው ያውቃሉ?

1. አዎን _____ 2. አላውቅም _____

Do you get any advice from the bank's side on how to appropriately utilize loans for purposes they are requested for?

1. Yes ----- 2. No -----

3.4 ጠቅላላ የሥራ እንቅስቃሴዎን እንዴት መምራት እንደሚችሉ ከባንኩ በኩል ምክር አግኝተው ያውቃሉ?

1. አዎን _____ 2. አላውቅም _____

Do you get any advice from the bank's side on how to manage the over all activities of your firm?

1. Yes ----- 2. No -----

3.5 በርሶ አመለካከት ከባንኩ የብድር ክትትል ማነስ ብድሮች በጊዜያቸው እንዳይከፈሉ የሚያደርግ ይመስሎታል?

1. አዎን _____ 2. አይደለም _____

In your opinion, do you think that lack of credit follow up from the bank's side leads to defaulting of loans?

1. Yes ----- 2. No -----

IV. የተበዳሪ ድርጅቶች የሥራ እንቅስቃሴ የሚመለከቱ ጉዳዮች

Issues Relating to the Business Activities of Borrowing Firms

4.1 ድርጅቶ ስንት ዓይነት ምርቶችን ያመርታል ወይም አገልግሎት ይሰጣል?

አንድ _____ ሁለት _____ ሦስት _____ ከሶስት በላይ _____

How many types of goods and/or services does your firm produce?

One ----- Two ----- Three ----- More than three -----

4.2 ምርቶችን በሚያቀርቡበት ቦታ በጣም የጠነከረ የገበያ ውድድር ያጋጥሞታል?

1. አዎን _____ 2. አያጋጥመኝም _____

Are you facing any stiff competition in the market where you supply your products?

1. Yes ----- 2. No -----

4.3 መልሶ አዎን ከሆነ ድርጅቶ ውድድሩን ለማቋቋም በቂ ጥንካሬ አለውን?

1. አዎን _____ 2. የለውም _____

If 'yes', is your firm strong enough to withstand this competition?

1. Yes ----- 2. No-----

4.4 ድርጅቶ በገበያ ውስጥ የሚያጋጥመው ውድድር ሁኔታ ወይም አይነት ምን አይነት ነው?

- ሀ/ በዋጋ ላይ የተመረኮዘ ውድድር
ለ/ በጥራት ላይ የተመረኮዘ ውድድር

What is the nature of that competition your firm is facing in the market?

- A. Competition in price -----
- B. Competition in quality of products -----

4.5 ከርሶ ድርጅት ጋር ተመሳሳይ ከሆኑት ድርጅቶች ውስጥ በአማካይ ደረጃ ላይ ካለው ድርጅት በልጠና ተሽሎ በመገኘት ስኬታማ ናት?

- 1. አዎን _____
- 2. አይደለም _____

Are you successful in running your firm well above an average firm in the industrial group to which your firm belongs?

- 1. Yes -----
- 2. No -----

4.6 መልሶ አዎን ከሆነ ለሥራዎ ስኬታማነት አስተዋጽኦ ያደረጉ ሁኔታዎች ምንድን ናቸው? እባክዎን ሶስት መልስ ብቻ እንደአስፈላጊነቱ በቅደም ተከተል ያነጩ

- 1. _____
- 2. _____
- 3. _____

If 'yes', what factors contributed to this success of your business? (Please, give up to three factors in order of their importance)

- 1. _____
- 2. _____
- 3. _____

4.7 በርሶ አመለካከት ላመረቱት ምርቶች የሚቀበሉት ዋጋ ጥሩ ነው?

- 1. አዎን _____
- 2. አይደለም _____

In your opinion, is the price you receive for your products favorable?

- 1. Yes -----
- 2. No -----

4.8 የድርጅቶችን ምርቶች የዋጋ ውጣ ውረድ ወይም አካሄድ እንዴት ይመረምሩታል? /አንድ መልስ ብቻ/

- በየጊዜው የማይለዋወጥ

- እየጨመረ የሚሄድ
- እየቀነሰ የሚሄድ
- በየጊዜው የሚዘበራረቅ

How do you assess the trend in the price of your firm's products? (One answer only)

- Constant over time -----
- Increasing over time -----
- Decreasing over time -----
- Fluctuates over time -----

4.9 መልሶት በየጊዜው “እየጨመረ የሚሄድ” ከሆነ ዋና ዋናዎቹ ምክንያቶች ምን ምን ናቸው? /ከአንድ በላይ መልስ ይቻላል/

- ለምርቶቹ ያለው ከፍተኛ የሆነ የሽማግቢያ ፍላጎት
- ድርጅቱ ለገበያው ያለው ቅርበት
- የማመርታቸው ምርቶች ከፍተኛ የሆነ ጥራት
- በማምረቻ ዋጋ ወጪ መጨመር ምክንያት

If 'Increasing', what are the major reasons? (Multiple answers possible)

- High demand for such products -----
- The location of my firm is favorable -----
- High quality of the products of my firm -----
- Increase in the cost of production -----

4.10 ከላይ በ4.8 ለተጠየቀው ጥያቄ መልሶት “እየቀነሰ የሚሄድ” ከሆነ ምክንያቶቹ ምን ምን ናቸው?

- ለምርቶቹ የሚሆን በቂ ገበያን አለማግኘት
- የማመርታቸው ምርቶች ጥራት ከገበያው የጥራት ፍላጎት ጋር አለመጣጣማቸው
- የማምረቻ ድርጅቱ ከገበያው መራቅ
- የማምረቻ ወጪዎች መቀነሳቸው
- በየጊዜው እየጨመረ የሚመጣ የገበያ ውድድር
- ሌላ ካለ ይገለጽ

If 'Decreasing', what are the possible reasons? (Multiple answers possible)

- Low demand for such products -----

- Low quality of the product my firm produces -----
- Unfavorable location of my firm -----
- Decrease in cost of production -----
- Ever increasing competition -----
- Other (please, specify) -----

**V. የሂሳብ አያያዝ ወይም አመዘጋገብን በተመለከተ
The Use of Accounting Records**

5.1 ለድርጅቱ የሂሳብ መዝገብ ይይዛሉ?

1. አዎን _____ 2. አልይዝም _____

Do you keep accounting records for your firm?

1. Yes ----- 2. No -----

5.2 መልሶ አዎን ከሆነ የሂሳብ መዝገብ የሚይዙበት ዓላማ ምንድን ነው? /ከአንድ በላይ መልስ ይቻላል/

- የሥራውን ትርፍና ኪሳራ ለመገምገም
- ለብድር አከፋፈል እንዲያመች
- ለቀረጥ አከፋፈል እንዲያመች

If 'yes', what are the purposes you keep records for?
(Multiple answers possible)

- To analyze the profit or loss of the business -----
- For loan repayment purposes -----
- For tax purposes -----

5.3 መልሶ አልይዝም ከሆነ የሂሳብ መዝገብ የማይይዙበት ምክንያቶች ምንድን ናቸው?
/አማራጮችን መጠቀም ይቻላል/

- የኔ ድርጅት የሥራ እንቅስቃሴ ለሂሳብ መዝገብ አያያዝ በጣም አነስተኛ ስለሆነ
- ስለ ሂሳብ መዝገብ አያያዝ ዕውቀት ማነስ
- ሌላ ካለ ይግለጹ

If 'No', what are the reasons for not keeping accounting records? (Multiple answers possible)

- The business activities of my firm are too small to keep records for -----
- Lack of knowledge to keep records -----
- Other (please, specify) -----

VI. ተጨማሪ ጥያቄዎች
Additional Questions

6.1 የባንክ ብድርን በመውሰድዎ የሚያገኙት ጥቅም አለን?

1. አዎን _____ 2. የለም _____

Do you really benefit from using bank credit?

1. Yes ----- 2. No -----

6.2 መልሶ የለም ከሆነ ምክንያትዎ ምንድን ነው?

/ ከሚከተሉት አማራጮች ውስጥ ይምረጡ /

- የብድር መክፈያ /መመለሻ/ ጊዜ አጭር ስለሆነ
- ወቅታዊ ክፍያው ብዙ በመሆኑ
- የተዛማጅ ወጪዎች ከፍ ማለት /በብድሩ ላይ የሚከፈሉ ተደራቢ ክፍያዎች መብዛት / ወለድና ተደራቢ ወጪዎች
- ሌሎች ካሉ ይግለጹ

If 'No', what are your reasons for not benefiting from the bank credit? (Multiple answers possible)

- **The repayment period for bank loans is very short ---**
- High repayment per installment -----
- High cost of borrowing (interest and other related expenses)
- Other (please specify) -----

6.3 የባንክን ብድር ለማስመለስ ተጨማሪ ህጋዊ ቅጣቶች አስፈላጊ ናቸው ብለው ያምናሉ?

1. አዎን _____ 2. የለም _____

Do you believe in that a high cost of default is necessary to enforce repayments of bank loans?

1. Yes -----2. No -----

6.4 በተራ ቁጥር 6.3 መልስዎ አዎን ከሆነ የትኛው ተጨማሪ ቅጣት በባንኩ / በኢ.ን.ባ/ ትኩረት ሊሰጠው ይገባል?

- በግል ሀብት ላይ የሚወሰድ ህጋዊ እርምጃ
- በዋስትና ላይ የሚወሰድ ህጋዊ እርምጃ
- ማህበራዊ ተአቅቦ /በዕድሮች? ቀበሌዎች እና በመሳሰሉት/
- ቀጣይ የብድር አገልግሎትን ማሳጣት
- የኢኮኖሚ ጥቅሞችን ማሳጣት
- ሌሎች /ቢገለጽ/


If 'yes', which cost of default should be given emphasis by the bank (C.B.E)

- Claims against personal wealth -----
- Claims against guarantees -----
- Social sanctions (via Iddir, kebele, etc.) -----
- Loss of future access to credit -----
- Loss of other economic benefits -----
- Other (please, specify) -----

DECLARATION

I, the under signed declare that this thesis is my original work and has never been presented for a degree in any other university. All sources of materials used for the thesis are duly acknowledged.

Name: Astatke W/Michael

Signature  _____

Date: June, 2000

Confirmed by Advisor:

Name: Dr. Tekie Alemu

Signature  _____

Date: June, 2000