ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

THE EFFECTS OF FOREIGN EXCHANGE CONTROL ON PERFORMANCE OF COMMERCIAL BANKS IN ETHIOPIA

BY

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The Effects of Foreign Exchange Control on Performance of Commercial Banks in Ethiopia

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Declaration

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of Abreham Gebregiorgis (Ast Prof). All sources of materials used for the thesis have been duly acknowledged, the researcher 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.

Asrat Abate   _____

St. Mary's University, Addis Ababa   **June, 2021**

ENDORSEMENT

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

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Advisor   Signature

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Abstract

This study was conducted to identify the effect of foreign currency exchange control on performance of commercial banks in Ethiopia. it has mainly focused on newly implemented directive of transparency in allocation of foreign currency and foreign exchange control that has been implemented since 2016. The directive restricts allocation of at least 50% of foreign currency to priority imports, thus, the banks are not allocating foreign currency according to business focuses of the banks. The study has included 16 commercial banks in Ethiopia and 4 years. As a result, the study has used panel data. ROA and ROE were used to measure performance of the banks. Allocation of foreign currency to priority and non-priority imports is measured by using percentage of the foreign currency allocated to the imports in a given year. In addition, the study has used control variables such as size of a bank, management efficiency, and income diversification. Data was analyzed by using descriptive statistics and econometric estimations. To select appropriate panel model between random effect and fixed effect, Hausman test was conducted and random effect model was selected. This study has identified that foreign currency allocation to priority imports has positive effect on performance of the banks. On contrary, allocation of foreign currency to non-priority imports has negative effect. Therefore, this study recommends management of the banks to allocate foreign currency to priority imports.

Key Words: Foreign exchange control, foreign Currency Allocation, Priority and Non-Priority Imports, Commercial Banks in Ethiopia

CHAPTER ONE

INTRODUCTION

This study is entitled 'the effect of foreign exchange control on performance of commercial banks, specifically in Ethiopia. Different methods are followed by central banks to control foreign currency. This study focuses on restrictions made by National Bank of Ethiopia to allocate the foreign currency between priority and non-priority imports of the country. This chapter presents introduction to the study.

1.1 Background of the study

Commercial banks play a critical role in economic development of countries. They channel funds from depositors to investors through their financial intermediation role. Beyond the intermediation function, the financial performance of banks has critical implications for economic growth of a country. Good financial performance rewards the shareholders for their investment. This, in turn, encourages additional investment and brings about economic growth. In order to provide a sustainable intermediation services in the economy and reasonable reward for the shareholders, banks need to be profitable. They can do so, if they generate necessary income to cover their operational cost. On the other hand, poor banking performance can lead to banking failure and crisis which have negative repercussions on the economic growth (Ongore and Kusa 2013). According to Ayman (2017) banking sector performance in economic growth by their profitability (ROA), deposits, and credit facilities will significantly cause a change in the economic growth which indicate that profitability, deposits and credit facilities have significant positive impact on economic growth. It is revealed that banking sector is contributing a major role in economic development.

Commercial banks facilitate international transactions through international banking divisions, Foreign exchange (FOREX) in other ways has been a major concept in international banking. Without foreign exchange, international banking would be impossible as it represents the financial part of the commercial transactions which is conducted through the payment and settlement systems of the banks (Franklin and Elena

2008). Thus, foreign exchange as defined by the (Business Dictionary 2015) is any currency other than the local currency which is used in settling international transactions and also a system of trading in and converting the currency of one country into that of another.

In many countries, especially the developing ones, the foreign exchange control which means regulating foreign currency allocation and management has become a central concern. Many countries can control foreign exchange for several reasons and follow different strategies. Rationing of foreign exchange is very common due to currency crises in developing countries. Foreign exchange is very important aspect of commercial banks that the banks provide their customers with an access of foreign currency to facilitate import. Transactions done through foreign exchange will form a very vital aspect of the activaties of financial sectors and the effect of commercial banks cannot be over emphasized in the allocation of economic resources (Ongore and Kusa 2013). But rationing of foreign exchange by government limits the role of commercial banks to provide foreign exchange based on business interest of the banks.

The system of exchange control is characterized by monopoly of the government in the foreign exchange business and the government exercises full control over the foreign exchange market. The government centralizes all foreign exchange operations in the hands of the central tank which administers various foreign exchange regulations. Government or the central bank determines the priorities in the allocation of scarce foreign currencies. As a result of exchange control, the volume of imports gets automatically reduced and there is a favorable impact on country's balance of payments (Martin and Mauer 2003). Cecilia and Gekara (2016), Opaluwa et al. (2010) and Addael, et al. (2014) revealed that foreign exchange intervention has negative impact on performance of commercial banks due to idle resource and customer dissatisfaction. The customers were shifting to larger banks from smaller banks because of lack of foreign currency in the smaller banks.

The government of Ethiopia uses different strategies to control foreign exchange. Among the controlling mechanisms, rationing the foreign exchange is implemented by National Bank of Ethiopia (NBE) on commercial banks. This regulation provides priority in

allocation of foreign currency for selected sectors. The priority sector focuses import of primary goods for the society and the commercial banks are ordered to allocate 50% of the foreign currency to priority area and the remaining 50% based on the interest of the banks.

1.2 Statement of the Problem

The banking sector is one of the most essential service industries which impact the lives of the people. The services given are unique both in social and economic points of view of a nation. For banks to remain competitive and thrive, they are necessitated to evaluate their external forces, which include foreign exchange control. Therefore, any slight change in foreign exchange control may have significant effect on banks performance (Pancras, 2015).

Exchange control interferes in the competitive working of the economy and distorts its economic structure by diverting the resources in less economical and less efficient areas of production which do not represent maximum natural advantage. As a result exchange control has undesirable effects on the internal economy of the country that restrictions on imports may lead to inflationary rise in prices due to scarcity of restricted goods. Needy traders use all types of illegal methods to obtain the desired amount of foreign exchange which has been rationed by the government. Often, they lead to the emergence of black markets or parallel markets in currencies. The black markets develop due to higher demand for foreign currencies that is greater than the supply in the official market (Taiwo & Adesola, 2013). Similar to macroeconomic effect, control foreign exchange reduces performance of banks by allocating the exchange resource to sectors that have low business interest and weak customer relationship. But on the other hand there are debates that working on priority area of the economy boosts economic growth and ultimately results on strong performance of commercial banks (Hommel 2008).

Different studies were conducted to identify effect of foreign exchange control on performance of commercial banks. But the studies mainly focused on effect of exchange rate. Few studies (for example, (Tadesse, 2015), (Kidist, 2018), (Muluken, 2017), (Tirsit, 2011)) were conducted to identify effect of rationing of foreign exchange on performance of commercial banks. In Ethiopia various studies were conducted to examine the effect of

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foreign exchange control on performance of commercial banks in the country. But these studies identified the government control from the aspect of under valuation of the foreign exchange. Recently conducted studies include Tadesse (2015) and Kidist (2018). On the other hand, Muluken (2017) and Tirsit (2011) identified the effect of control on exchange on overall economy.

To the knowledge of the research there is no any study conducted to identify the effect of foreign exchange control through rationing on performance of commercial banks in Ethiopia. Therefore, this study is conducted to identify the effect of foreign exchange control on performance of commercial banks in Ethiopia by using foreign currency allocated to priority imports and non-priority imports.

1.3 Research Questions

✓ How foreign exchange control regulation is implemented in commercial banks in Ethiopia?

✓ How foreign currency in the priority and non-priority sectors is allocated by commercial banks in Ethiopia?

✓ What is the effect of foreign exchange allocation to priority sectors on performance of commercial banks in Ethiopia?

✓ What is the effect of foreign exchange allocation to non-priority sectors on performance of commercial banks in Ethiopia?

1.4. Objective of the Study

1.4.1 General Objective

The general objective of the study is to analyze the effect of foreign exchange control on performance of commercial banks in Ethiopia.

1.4.2 Specific Objective

✓ To assess implementation of foreign exchange control regulation in commercial banks in Ethiopia;

- ✓ To assess allocation of foreign currency in the priority and non-priority sectors by commercial banks in Ethiopia;

- ✓ To examine the effect of foreign exchange allocation to priority sectors on performance of commercial banks in Ethiopia; and

- ✓ To investigate the effect of foreign exchange allocation to non-priority sectors on performance of commercial banks in Ethiopia.

1.5 Significance of the study

The objective of this study is to analyze the effect of foreign exchange control on performance of commercial banks in Ethiopia. It is expected that the result of this study will contribute to current knowledge of exchange control effects on the performance of commercial banks in Ethiopia.

The study result can be a potential input for the bank management to devise strategy that can help to optimize gain and losses that emanate from foreign exchange control. The study result may also be a useful input for bank regulators and supervisors to induce commercial banks to have proactive exchange rate risk management strategy that encompasses both the direct & indirect impact of exchange control on banks profitability.

It paves a way to other researchers and organization they wish to study the effects of exchange control on the performance of a single organization and even very important for other banks to study the effect emanates from exchange control on the performance of commercial banks in Ethiopia.

Lastly, this study will contribute its share to the scantly available literature on the Ethiopian banking sector and will be an important source document for academicians and future researchers who may wish to investigate the performance of commercial banks in relation to exchange rates. Not only Banks performance it may helpful for other sectors that affected by Exchange control.

1.6. Scope of the Study

The study is delimited to examining the effects of foreign exchange control on the performance of commercial banks in Ethiopia. The study covers 4 years' data which is

from 2016 to 2019 because the foreign currency allocation and foreign exchange management directive was started in 2016.

There are different mechanisms used to control the foreign exchange by NBE. This study focuses on the rationing mechanism used control the foreign currency. The study specifically focuses on directive FXD/62/2019 which is about transparency in Foreign Currency Allocation and Foreign Exchange Management.

In this study ROA and ROE are used as a main performance measures. The reason for using ROA as the measurement of bank performance is because ROA reflects the ability of banks management to generate profits from the bank's assets. In addition, ROE is used as a performance measurement that reflects return from investment in the banks.

1.7 Limitation of the Study

According to the directive, there are three levels of the priorities; first, second and third priorities. The effect of currency allocation within the priorities might vary. But data held by NBE does not classify allocation of the currency within these categories. In addition, the commercial banks have not sorted the allocation of the currency by the priorities.

Another limitation is the study couldn't communicate customers of the banks in a priority and non-priority imports.

1.8 Organization of the Study

The study is organized under five chapters. The first chapter deals with the introductory part which bears background, statement of the problem, research hypothesis, objectives, significance, and scope/limitations of the study; the second chapter deals with review of theoretical and empirical literatures related to the study and conceptual framework of the study. The third chapter deals with methodology of the study which is about design of the research, source of data and methods of data analysis. The fourth chapter presents the results and discussions which summarize the results/findings of the study, and interpret and/or discuss the findings. The final chapter is about summary of conclusions and recommendations.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Theoretical Review

2.1.1 Concepts about Exchange Control

The spirit of economic nationalism induces every country to look primarily to its own economic interests. In modern times various devices have been adopted to control international trade and regulate international indebtedness arising out of international workings and dealings. Foreign Exchange control is one of the devices adopted for the purpose. Different definitions are provided about foreign exchange control. Most common definitions are provided by Crowther (2001) and Haberler (2007). Foreign Exchange control is a system in which the government of the country intervenes not only to maintain a rate of exchange which is quite different from what would have prevailed without such control. Under this system the government of a country intervenes directly or indirectly in international payments and undertakes the authority of purchase and sale of foreign currencies. It requires the home buyers and sellers of foreign currencies to dispose of their foreign funds in particular ways. It is a method of state intervention in the imports and exports of the country, so that the adverse balance of payments may be corrected. Exchange controls are government-imposed controls on restrictions on private transactions conducted in foreign currency. The government restricts the free play of inflow and outflow of capital and the exchange rate of currencies.

According to Haberler (2007) Foreign Exchange Control in the state regulation excludes the free play of economic forces for the Foreign Exchange Market. The government regulate the payments dealings in foreign exchange and import-export of currencies through foreign exchange control. In the exchange control state regulation exchange the free play of economic forces from the foreign exchange market. The Government regulates the Foreign Exchange dealings by Consideration of national needs. It is the monopoly of the government in the purchase and sale of foreign currencies in order to restore the balance of payments equilibrium and disregard the market forces in the decision of monetary authority. Exchange controls are legislative limitations on the

purchase and/or sale of currencies. When tariffs and quotas do not help in correcting the adverse balance of trade and balance of payments the system of Foreign Exchange Control is restored to by Governments. The principal purpose of most systems of exchange control is to prevent or redress an adverse balance of payments by limiting foreign-exchange purchases to an amount, not in the surplus of foreign-exchange receipts. These controls consent to countries a better degree of economic constancy by limiting the amount of exchange rate instability due to currency inflows/outflows.

According to Cole (2005) exchange is controlled by the state, central bank or any other agency with the free play of market forces that determine foreign exchange rate and amount. In this system the government dominates the foreign exchange market. Exchange control deals with the balance of payments difficulties, disregards market forces and substitutes for them the arbitrary decisions of government officials. The essence of exchange control is that the possessor of the controlled currency has no right, without special leave to convert it into foreign currency. The government's major aim of exchange control is to manage or prevent an adverse balance of payments position on national accounts. It involves ordering all or part of foreign exchange received by a country into a common pool controlled by exchange control authorities, typically the central bank.

The exchange control influences international trade and investment as well as the payments mechanism. It applies to all types of international transactions and the government restricts the sale and purchase of all currencies. It is adopted by and is especially suited to those nations which seek to achieve economic goals by manipulating the market behavior. Exchange control maybe complete or partial. Exchange control is complete when the government has full control over the exchange market. In fact, under complete exchange control, there exists no exchange market and disequilibrium in the balance of payments is impossibility. Exchange control is partial when the government partially controls the exchange market. The exchange control applies only to certain types of international transactions and the government restricts the sale and purchase of some selected currencies (Cole, 2005).

Each international transaction requiring payment in foreign currencies is sanctioned by the government and all foreign exchange receipts from international transactions are surrendered to the government. Exchange control is mainly intended to secure stability of fixed exchange rate and to ensure balance of payments equilibrium. It is not an appropriate measure for the free-market economies. For this reason, the system of exchange control is commonly used in the less developed countries and the communist countries. It's not every nation that can legitimately introduce exchange control measures. According to the articles of agreement by the International Monetary Fund (IMF), only countries with transitional economies can apply exchange controls. Several western nations employed exchange control measures soon after World War II but gradually phased them out before the 1980s as their economies strengthened overtime. The phasing out of exchange controls was also necessitated by trends towards globalization, free trade, and economic liberalization in the 1990s, which does not co-exist with the application of exchange controls. Presently, exchange controls are mostly utilized by developing countries with weak economies, low exports, are import-dependent, and with low foreign currency reserves (IMF, 2016).

The system of exchange control is characterized by monopoly of the government in the foreign exchange business and the government exercises full control over the foreign exchange market. Based on this role the government officially fixes the rate of exchange and the market forces of demand and supply have no effect on its determination. Further, the government centralizes all foreign exchange operations in the hands of the central tank which administers various foreign exchange regulations. In the exchange market, the exporters have to deposit their all foreign exchange earnings with the central banks and the imports of a country are regulated and the importers are allocated foreign exchange at the official rates to enable them to make payments for the goods imported. Further, the government or the central bank determines the priorities in the allocation of scarce foreign currencies. As a result of exchange control, the volume of imports gets automatically reduced and there is a favorable impact on country's balance of payments (Cole, 2005).

The foreign exchange pool is rationed to cater for "essential" or priority payments abroad. It involves controlling the trading of foreign currency and transfers across national borders. The government will determine how foreign exchange earned by individuals and businesses is spent. It will be mandatory for all earned foreign exchange to be sold at the central bank at a predetermined rate. Limits on foreign currency amount that individuals and businesses can purchase from the central bank will also be put in place. Exchange control is also used to restrict non-essential imports, encourage the importation of priority goods, control the outflow of capital, and manage the country's exchange rate. Generally, countries use foreign exchange control to manage the value of the local currency (Cole, 2005).

2.1.2 Objectives of Exchange Control

There have been varied objectives of adopting the system of exchange control by governments. According to Haberler (2007) the system may be adopted mainly to achieve following objectives.

2.1.2.1 Restore Adverse Balance of Payments:

A country may follow the system of exchange control when it faces a deficit in its balance of payments and does not want to leave the process of adjustment either on the mercy of automatic mechanism of fluctuating foreign exchange rates or on deflation. The main objective of introducing exchange control regulations is to correct the balance of payments equilibrium. The BOP needs realignment when it is sliding to the deficit side due to greater imports than exports. Hence, controls are put in place to manage the dwindling foreign exchange reserves by limiting imports to essentials items and encouraging exports through currency devaluation. By adopting exchange control, imports are restricted to the level permitted by the availability of foreign exchange reserves and, thereby, the balance of payments equilibrium is established (Haberler, 2007).

2.1.2.2 Protect the value of the national currency

Exchange control is adapted to stabilize the rates of exchange. Fluctuating exchange rates harm commerce and industry. The government, therefore, adopts exchange control measures to stabilize the exchange rates by announcing conversion at the official fixed

rates of exchange. The government may adopt exchange control to check fluctuations in the rate of exchange. Fluctuations in the rate of exchange are the normal feature in a free exchange market and cause disequilibrium in the economic life of a country. These fluctuations can be checked by officially fixing the exchange rate at a predetermined level (Haberler, 2007).

Governments may defend their currency's value at a certain desired level through participating in the foreign exchange market. The control of foreign exchange trading is the government's way to manage the exchange rate at the desired level, which can be at an overvalued or undervalued rate. The government can create a fund to defend currency volatility to stay in the desired range or get it fixed at a certain rate to meet its objectives. An example is an import-dependent country that may choose to maintain an overvalued exchange rate to make imports cheaper and ensure price stability.

When the Government feels that the rate of exchange is not at a particular level, it intervenes in maintaining the rate of exchange at that level. For this purpose the Government maintains a fund, may be called Exchange Equalization Fund to peg the rate of exchange when the rate of particular currency goes up, the Government start selling that particular currency in the open market and thus the rate of that currency falls because of increased supply. On the other hand, the Government may overvalue or undervalue its currency on the basis of economic forces. In over valuing, the Government increases the rate of its currency in the value of other currencies and in under-valuing; the rate of its over-currency is fixed at a lower level. Overvaluation, by making the home currency dearer for the foreigners, reduces the prices of imports and raises the prices of exports.

Some countries resort to exchange control to keep their currencies overvalued. Under this, the foreign exchange value of the currency is fixed at a higher level than allowed by market forces. The currency is overvalued for three reasons. First, the country is engaged in the development process and needs raw materials and capital equipment from abroad and the second country has to repay foreign debt. When the country overvalues its currency, its country becomes dearer relative to other countries. So it pays less to other countries in terms of its currency both for imported goods and for repayment of foreign debt. However, exchange control for the purpose of overvaluing the currency can be

adopted only as short term measure. In the long-run, it will lead to an adverse balance of payments, because export become dearer and imports cheaper with the overvaluation of the currency. The policy of overvaluation is adopted to facilitate the country to make its purchases at cheaper prices and to pay off the foreign debts.

Undervaluation fixes the value of a currency at a rate lower than the free market rate. It is also known as 'pegging down'. Undervaluation, by making the currency cheaper for the foreigners, reduces the prices of exports and raises the prices of imports. The policy of undervaluation is adopted to promote exports, reduce imports and to give support to general rise in prices. Some countries also exercise exchange control to keep their currencies undervalued. This is done for suitable exports and reduce imports and to raise the general price level of the country. But such a policy can succeed only in the case of a small country, whose participation in the world trade is insignificant. But if a large country were to adopt this policy, it will lead other countries to retaliate and follow this policy, which is highly dangerous for the world economy.

2.1.2.3 Policy of Differentiation:

The Government may adopt the policy of differentiation by exercising exchange control. If the Government may allow international trade with some countries by releasing the required foreign currency the Government may restrict the trade import and exports with some other countries by not releasing the foreign currency. Exchange control helps a country to follow a policy of discrimination in international trade. The government fixes favorable rates of exchange for the countries with which it wants to strengthen its trade relation (Haberler, 2007).

Exchange control can also be used as a source of income to the government. Under the multiple exchange rate system, the government fixes the selling rates higher than the buying rates and earns income equal to the difference between the two rates. Exchange control is used to earn revenue in the form of difference between selling and purchasing rates of foreign exchange.

2.1.2.4 Prevention of Capital Flight

Another objective of exchange control is to prevent the fight of capital from the country. Exchange control may be adopted to prevent the flight of capital from the country. Flight of capital refers to the action of the citizens of a country to convert their cash holdings (i.e., short- term securities and bank deposits) into foreign currencies. Flight of capital maybe the result of speculative activities, economic fluctuations and political uncertainty. Gold and capital funds cannot be exported without the permission of exchange control authority. The latter may totally ban such movements or give specific purposes. In this way, exchange control not only prevents the flight of capital but also conserves foreign exchange. The government may observe increased trends of capital flight as residents and non-residents start making amplified foreign currency transfers out of the country. It can be due to changes in economic and political policies in the country, such as high taxes, low interest rates, increased political risk, pandemics, and so on (Haberler, 2007).

The government may resort to an exchange control regime where restrictions on outside payments are introduced to mitigate capital flight. Flight of capital exhausts the country's limited reserves of foreign exchange and destabilize the economy. Through exchange control, the government imposes restrictions on the sale of foreign currencies and there-by checks the flight of capital. When the domestic capital starts flying out of the country, the Government may check its exports through exchange control.

2.1.2.5 Protection to Domestic Industries

Exchange control is resorted to for giving protection to domestic industries against foreign producers. The exchange control authority controls the imports of such commodities which compete with domestic producers and thus protects them from foreign competition. Exchange control may be resorted to protect the home industry from foreign competition. For this purpose, the government restricts the imports through foreign exchange controls and thus provides opportunity to the domestic industries to develop without any fear of international competition. The government may resort to exchange control to protect the domestic industry from competition by foreign players that may be more efficient in terms of cost and production. It is usually done by

encouraging exports from the local industry, import substitution, and restricting imports from foreign companies through import quotas and tariff duties (Haberler, 2007).

2.1.2.6 Conserve Foreign Exchange:

The government may intend to increase foreign exchange reserves to meet several objectives, such as stabilize local currency whenever needed, paying off foreign liabilities, and providing import cover. One of the objectives of exchange control is to earn and conserve foreign exchange for the purpose of repaying the principal and interest changes on foreign debt. Therefore, exchange control may be used to conserve country's foreign exchange reserves through exports. These reserves are restricted for paying off external debt, importing essential goods for economic development, and purchasing defense materials (Haberler, 2007).

Exchange control is also used by some countries to prevent the enemy countries from using their foreign assets. Regulations are adopted to freeze the assets held by the residents of the enemy country and they are not allowed to use or transfer these assets.

2.1.2.7 Make imports of preferable goods

Exchange control forms an integral part of economic policy in a planned economy. Planned economic development requires expansion, conservation and proper use of foreign exchange reserves of the country according to the national priorities. Here the exchange control is intended to make imports of preferable goods possible by making the necessary foreign exchange available (Haberler, 2007).

Exchange control helps the process of planning by controlling the non-essential and wasteful expenditures on imports and encouraging the flow of exports. The exchange control authority encourages the inflow of essential raw materials, capital goods, and technical know-how by allocating scarce foreign exchange 'resources. Such imports are needed for execution of plan projects. Exchange control is also needed to check the import of certain non-essential, harmful and socially undesirable goods in the country.

2.1.3 Methods of Exchange Control:

A country desirous of adopting exchange control system can employ various methods. According to Paul Einzig (2011), broadly these methods can be classified as follows;

2.1.3.1. Exchange Pegging:

It is a commonly adopted mild form of exchange control. Demand and supply forces are allowed to play their role in the market. But, the government may intervene with these forces by pegging up or pegging down the exchange rates. Pegging up implies fixation of exchange rate artificially higher than the market rate. Under mild system of exchange control, also known as exchange pegging, the Government intervenes in maintaining the rate of exchange at a particular level. Under this system, the Government maintains on 'Exchange Equalization Fund' in foreign currencies. A commonly adopted method of exchange control is the interference in the foreign exchange market by the government or the monetary authority with the purpose of either holding up or down the foreign exchange rate of its currency. This interference takes the form of purchasing and selling of home currency in the exchange market and, thereby influencing the exchange rate. (Paul Einzig, 2011).

The government intervenes the foreign exchange market through exchange pegging. Exchange pegging refers to the act of fixing the exchange value of the currency to some chosen rate. The government buys and sells the home currency in exchange for foreign currency in order to establish a desired rate of exchange. The pegging operation involves pegging up or pegging down the exchange rate. When the exchange rate is fixed higher than the market rate, it is called pegging up; when the exchange rate is fixed lower than the market rate, it is called pegging down. In other words, pegging up means overvaluation of home currency and pegging down means undervaluation of home currency. In the pegging up operation, public demand for foreign currency increases and the government must be ready to sell adequate foreign currency in exchange for home currency. When the exchange rate is pegged up there is a high demand for foreign exchange and the government has to satisfy it. In the pegging down operation, public demand for home currency increases and the government must be in a position to purchase foreign currency in exchange for home currency. Pegging down implies fixing exchange rate artificially lower than the market rate. In the case of pegging down, people demand more local currency and give up their foreign holdings. Naturally, in a less developed economy, under the pressure of balance of payments disequilibrium, to maintain pegging up of exchange rate is a difficult proposition.

The exchange pegging should be used as a temporary measure to remove fluctuations in the foreign exchange rate. Intervention may be active or passive. In the passive intervention, the monetary authority is prepared to buy or sell the foreign currency at fixed rate without curtailing the right of the public to deal in foreign exchange. In the active intervention the monetary authority itself takes the initiative and bids for the foreign currency or offers it for sale with a view to influence the exchange rate.

2.1.3.2. Rationing of Foreign Exchange:

Under this method of exchange control, the government keeps the exchange value of its currency fixed by rationing the ability of its residents to acquire foreign exchange for spending abroad. The government imposes restrictions on the use, sale and purchase of foreign exchange. All foreign exchange business is centralized either with the government or with its agents. All foreign exchange earnings are to be surrendered by exporters to the central bank at the fixed exchange rate. The importers are allotted foreign exchange at the fixed rate and in fixed amount. The government also determines the priorities in the allocation of scarce foreign currencies (Paul Einzig, 2011).

Under the system, all foreign exchange earnings are to be surrendered by exporters to the central bank at a fixed change rate and then allocation is made by the government for imports on a priority basis in fixed amount only. It is full-fledged system of exchange control. Under this system, the Government does not only Peg the Rate of Exchange but have complete control over the entire foreign exchange transactions. All receipts from exports and other transactions are surrendered to the control authority. The available supply of foreign exchange is then allocated to different buyers of foreign exchanges on the basis of certain pre-determined criteria. In this way the Government is the sole dealer in foreign exchange.

2.1.3.3. Blocked Accounts:

Blocked accounts refer to a method by which the foreigners are restricted to transfer funds to their home countries. The method of blocking the accounts of creditor countries is adopted by the debtor countries particularly during the periods of war or financial crisis. Under this method, the foreigners are not allowed to convert their deposits, securities and

other assets into their currency. Their banking accounts are blocked and they are not permitted to withdraw their funds and remit them to their own countries. Blocked accounts imply restrictions on the transfer of foreign capital or transfer of funds by foreigners to their home countries. When the policy of blocked accounts is adopted, the central bank deposits assets of foreign nationals in their accounts but they are not allowed to convert these credit balances into their home currencies for some period. This device harms the reputation of the country. It is adopted only during wartime or in grave circumstances (Paul Einzig, 2011).

The method of blocked accounts is defective because; it causes hardships to the foreigners; it harms the reputation of the blocking country; it reduces the volume of foreign trade; and it encourages black marketing in foreign exchange.

2.1.3.4. Multiple Exchange Rates:

When a country, instead of one single exchange rate, fixes different exchange rates for the import and export of different goods, it is known as the system of multiple exchange rates. Even for different countries or imports, different exchange rates are fixed. The system of multiple exchange rates amounts to a type of rationing by price rather than by quantity and therefore does not directly restrict free trade. The system of different exchange rates for different goods and for different countries is adopted with the objective of earning maximum possible foreign exchange by increasing exports and reducing imports. The countries employ this system to improve their balance of payments (Paul Einzig, 2011).

The system of multiple exchange rates is adopted to reduce the deficits in the balance of payments. Under the system, different rates of exchange are set up for different exports and imports. It is a rationing by price rather than by quantity. It is better, since it does not directly restrict free trade.

2.1.3.5. Standstill Agreements:

Standstill agreement aims at maintaining status quota in the relationship between two countries in terms of capital movement. This method was first adopted by Germany after the Great Depression of 1929. It is characterized as the movement of capital is checked

and the payments to the foreign exporters are made in easy installments instead of in lump-sum; and Short-term loans are converted into long-term loans with a view to allow more time to the debtor country to repay his debt. In this method of foreign exchange control the rate of exchange is kept under control by preventing the movement of capital; and the debtor country is provided enough time to improve his economic position and pay off the debt (Paul Einzig, 2011).

2.1.3.6. Clearing Agreements:

It is a revolutionary innovation to the international and commercial systems. Clearing agreement refers to a system under which agreement is made between two countries for settling their international trade accounts through their respective central banks. In the words, Clearing Agreement is an agreement between the governments of the two countries by which each undertakes to make payments to its exporters which it receives from its own importers (Kent, 2010).

Under the system, exchange clearing agreements are made between two nations for settling their accounts through their central banks. It consists of an understanding by two or more countries to buy and sell goods and services to each other, at mutually agreed exchange rates against payments made by buyers entirely in their own currency. The importers instead of making payment for the imported goods in foreign currency pay in home currency to their central bank. Similarly, the exporters, instead of receiving payment for goods exported in foreign currency receive it through the central bank in the home currency. Thus, the individual importers and exporters need not clear their accounts in foreign currencies, but in home currencies through their respective central banks and the transfer of currencies from one country to another is avoided.

The balance of outstanding claims are settled as between the central banks at the end of stipulated periods either by transfers of gold or of an acceptable third currency, or the balance might be allowed to accumulate for another period, pending an arrangement whereby the creditor country works of the balance by extra purchases from the other country. Clearing between individual exporters and importers is not allowed, but done country-wise at an interval of time. Under the system, the importers pay in domestic currency to central bank and exporters get payment through the central bank in the home

currency. If the exports and imports of the two countries balance with each other, no further difficulty arises. But, if the exports and imports of the two countries are not equal to each other, the net balance in the clearing account is paid off in terms of gold. In this way, stability of exchange rate is maintained through clearing agreement.

2.1.3.7. Payment Agreements

To overcome the difficulties of delay involved in settling international payments and for the centralization of payments observed in clearing agreements, the device is defined as payment agreements. In a payments arrangement the usual procedure of making foreign payments through the exchange market is left intact. But each country agrees to establish a method of control whereby its citizens are forced to purchase goods and services from the other country in amounts equal to the latter's purchase from the first country. Another type of payments agreement is one designed to collect past debts. The system of payment agreement solves two major problems experienced under the system of clearing agreement centralization of payments, and the problem of waiting for the exporters. Under this scheme, a creditor is paid as soon as information is received by the central bank of the debtor country from the creditor country's central bank that its debtor has discharged his obligation and vice versa. Payment agreements have the advantage that direct relation between the exporters and importers is maintained (Kent, 2010).

The advantage of payment agreement is that the direct relation between the exporters and importers is maintained and there is no need for centralization of payments. The payments between the concerned parties are made through special non-resident accounts opened for that very purpose. However, payment agreements suffer from two defects: The agreements could only be debited or credited for licensed payments, and the balances in the accounts could only be used for payment from one partner to another.

2.1.3.8. Compensation Agreements:

This is a kind of barter agreement between the two countries under which the exporter in a country is paid by the importing country in terms of certain goods on an agreed basis. Since no payment is made in foreign exchange, the problem of foreign exchange does not arise. A compensating arrangement per-takes of the character of the old-fashioned barter deal. An example would be the sale by India of cotton goods of a particular value to

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Pakistan, the latter agreeing to supply raw cotton of the same value to India at a mutually agreed exchange rate. Imports thus compensate for exports, leaving no balance requiring settlement in foreign exchange (Kent, 2010).

Since the imports and exports of the two countries exactly balance with each other, the rate of exchange between them remains stable and the balance of payments equilibrium is maintained in the two countries. Although the compensation agreements encourage bilateral trade, they discourages multilateral trade, discourage division of labor and specialization among different countries, and give undue protection to home industries.

2.1.3.9. Transfer Moratoria

Under the method of transfer moratoria, the payments for the imported goods or the interest on the foreign capital are not made immediately but are suspended for a pre-determined period, known as period of moratorium. A country adopts this method of exchange control to temporarily solve its payments problems. The importers and debtors make payments in the home currency and this payment is deposited with some authorized bank, generally the central bank. During the period of moratorium, the government uses these funds and solves the foreign exchange problems of the country. After the expiry of the moratorium period, these deposits are transferred to exporters and creditors (Kent, 2010).

2.1.3.10. Exchange Stabilization Fund:

The exchange stabilization fund was established by England in 1932, by America in 1934, and by France, Holland and Belgium in 1936 with the objective of neutralizing the effects of wide fluctuations in the exchange rates as a result of any abnormal movements of capital. The purpose of such a fund is to control seasonal or temporary fluctuations in the exchange rate and not to interfere with the general trend in the exchange rate and the forces influencing it. If there is large inflow of foreign currency in the country, the exchange rate of the home currency rises. In such a situation, the fund starts purchasing the foreign currency as a result of which the upward movement in the exchange rate is checked. On the other hand, if there is large outflow of foreign currency, the exchange rate of the home currency falls. In this case, the fund will sell the foreign currency which, in turn, will control the downward movement of the exchange rate (Kent, 2010).

2.1.4 Impacts of Exchange Control

Although exchange controls can be effective in some instances, but they can also come with negative consequences. It leads to an ongoing debate about whether exchange controls are effective or not. In spite of the fact that a large number of nations, especially the less developed countries, have resorted to the exchange control system, International Monetary Fund (IMF) strongly opposes the adoption of exchange control by the member countries because of its serious defects. There are various defects suggested by IMF (2011). First, the system of exchange control is not based on the sound comparative cost principle of international trade according to which every country tends to specialize in the production and export of that commodity in which it enjoys comparative natural advantage. In addition, it leads to the reduction in the volume of international trade and contraction of world's welfare because it encourages bilateral trade and deprives the country from the gains of multilateral trade. Thus, it is an arbitrary system that encourages retaliation and restrictive tendencies. Therefore, under the exchange control system, advantages of international specialization are sacrificed and economic resources are not optimally utilized.

Second, exchange control interferes in the competitive working of the economy and distorts its economic structure by diverting the resources in less economical and less efficient areas of production which do not represent maximum natural advantage. As a result exchange control has undesirable effects on the internal economy of the country that restrictions on imports may lead to inflationary rise in prices due to scarcity of restricted goods. Needy traders use all types of illegal methods to obtain the desired amount of foreign exchange which has been rationed by the government. Often, they lead to the emergence of black markets or parallel markets in currencies. The black markets develop due to higher demand for foreign currencies that is greater than the supply in the official market (Taiwo & Adesola, 2013).

Third, exchange control provides only a temporary remedy to the problem of disequilibrium in the balance of payments. Instead of basically solving the problem, it prevents the situation from becoming worse. It involves great social costs and does not lead to the maximization of community's welfare by hampering private transactions. In

addition, it causes large administrative costs to enforce the exchange controls; resource waste in the process of trying to evade the controls or of applying for foreign exchange licenses; and psychological costs of the inevitable perceived injustices created by the controls or their evasion. Exchange control system is also morally undesirable because it breeds corruption in the country. They impose welfare losses on society.

2.2 Empirical Review

Cecilia and Gekara (2016) identified effect of foreign exchange control on performance of commercial banks in Kenya. The study revealed Kenya as a developing country suffers from foreign exchange shortage and the government prioritized allocation of foreign currency by commercial banks in the country. The study has used secondary data from commercial banks and used proportion of foreign exchange used to priority sector and proportion of the exchange provided by interest of the banks to measure the level of intervention by the central bank. In addition, the study adopted CAMEL model to control the determinants performance of the banks. The study has followed Panel strategy and used fixed effect model. The study reveals that the exchange control negatively influences the performance of the banks suggesting that higher levels higher proportion to priority sectors leads to lower performance of the banks that the banks could not provide foreign exchange to their long term customers and could not finance the feasible sector. In addition, the banks were holding idle resource.

Opaluwa et al. (2010) also identified the effect of government intervention in Nigeria to control foreign exchange through central bank on performance of commercial banks in the country. The government rationed foreign exchange based on economic sector that have highest public importance. The research was carried out by using data of the banking at twenty-year period (1986-2005). The study argued that exchange control adversely impacts profitability the banking industry. The least prioritized sectors by the central bank were the highest priority of the commercial banks. The business interest of the banks mainly focused on importing companies. The study identified that foreign exchange intervention has negative impact on profitability of commercial banks in Nigeria due to idle resource and customer dissatisfaction. The customers were shifting to larger banks from smaller banks because of lack of foreign currency in the smaller banks.

Addael, et al. (2014) had a look at the performance of Ghanaian banks particularly due to control on foreign exchange by the central bank. The study was conducted by using bank specific factors between the years 2005 and 2010. Qualitative and quantitative approaches were adopted while undertaking this study as well as econometric models. The study results showed that the banks under review were negatively affected by the amount foreign currency provided to prioritized sectors by the central bank. In contrast, the amount of foreign currency allocated to non-priority area has positive effect on profitability of the banks.

Kairu (2016) examined the rationing of foreign exchange on performance of commercial banks in Tanzania. The study had taken 43 banks as a sample and adopted a descriptive research construction. The study identified that there was a weak positive relationship between exchange rate control and the performance of the commercial banks. The finding also indicates that there was a higher attention was provided more profitable sectors in the country like agriculture and manufacturing. The control enabled to work closely with businesses that high demand from the public.

Wong et al (2008) indicated that the direct effect of individual banks exchange rate exposure can be discerned largely from their accounting data, while the indirect exposure, which arises from impacts of exchange rate fluctuations on the economy in general and banks' customers in particular, is more subtle. Foreign exchange risk also may be linked to other types of market risk, such as interest rate risk. Interest rates and exchange rates often move simultaneously. So, a bank's interest rate position indirectly affects its overall foreign exchange exposure. The foreign exchange rate sensitivity of a bank with an open interest rate position typically will differ from that of a bank with no interest rate exposure, even if the two banks have the same actual holdings of assets denominated in foreign currencies. Therefore, the vulnerability of the bank as a whole to foreign exchange fluctuations depends on more than just its holdings of foreign exchange

Rao and Lakew (2012) identified the impacts of foreign exchange control by on performance of commercial banks and included factors that affect the performance of a bank by broadly classifying as bank specific or internal and external factors. The bank specific factors relate to a bank's overall managerial practices on capital structure,

liquidity management, credit risk, loan portfolio management, expense management and diversification of a bank's line of products or activities. The external factors generally relate to the industry and macroeconomic variables within which the bank operates. The external factors include factors related to the level of competition in the industry to which the bank belongs (concentration), barriers related to entry to and exit from the industry, the pace of economic growth, the nature of the regulation and supervision of the banking industry, inflation, financial deepening, and monetary and physical policies, among others. The external factors can be further classified in to industry specific factors and macro-economic factors. Macroeconomic factors that affect the bank performance include GDP, inflation rate, exchange controls. Specifically, Rao and Lakew (2012) revealed that control on foreign exchange negatively affected performance of commercial banks by affecting performance of customers of the banks.

Kanwal and Nadeem (2013) and Pan and Pan (2014)) indicated that the change in macroeconomic factors affect the profitability of commercial banks in different extent and magnitude. In Pakistan, have found that although other macroeconomic factors such as GDP and inflation has significant impact on the performance of the banks (ROA, ROE), policy instrument, foreign exchange control, has no effect on profitability of the banks.

In Ethiopia various studies were conducted to examine the effect of foreign exchange control on performance of commercial banks in the country. But these studies identified the government control from the aspect of under valuation of the foreign exchange. Recently conducted studies include Tadesse (2015) and Kidist (2018). On the other hand, Muluken (2017) and Tirsit (2011) identified the effect of control on exchange on overall economy.

According to Tadesse (2015) there is a negative effect of exchange rate on the profitability of banks in Ethiopian but the negative effect was not emanated from its effect on loan growth. Rather it may emanate from its effect on other aspects of the bank performance. Kidist (2018) concluded that there is positive association between exchange rate and banks performance in Ethiopia. The finding shows that an increase in an exchange rate results in significant increase on the returns of the banks regardless of an

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increase in operating costs, on which the negative effect eliminated due to asset revaluations.

According to Tirsit (2011) devaluation has a negative effect on GDP per capital the same year whereas the coefficient for the one year lagged exchange rate was significantly positive thus devaluation has a time varying effect. Muluken (2017) noted that undervaluation of currency is contractionary in the long run and neutral in the short run. In addition, in the study it is viewed that the effect of exchange rate on economic growth works through the supply channel and it is the reflection of various economic and policy shocks, mainly a strategy shifts of the government.

2.3 Summary and Knowledge Gap

As shown in previous section, different studies were conducted to identify effect of foreign exchange control on performance of commercial banks. But these studies mainly focused on effect of exchange rate. Few studies were conducted to identify effect of rationing of foreign exchange on performance of commercial banks. To the knowledge of the research there is no any study conducted to identify the effect of foreign exchange control through rationing on performance of commercial banks in Ethiopia. Therefore, this study was conducted to identify the effect of foreign exchange control on performance of commercial banks in Ethiopia by using foreign currency allocated to priority imports and non-priority imports.

Hypothesis:

Foreign currency allocation control has negative effect on performance of commercial banks in Ethiopia.

2.4 Conceptual Framework

Conceptual model for the study is presented as follows in Figure 2.1. The foreign currency control has followed the rationing method. It is indicated by allocation of foreign currency to priority imports and non-priority imports.
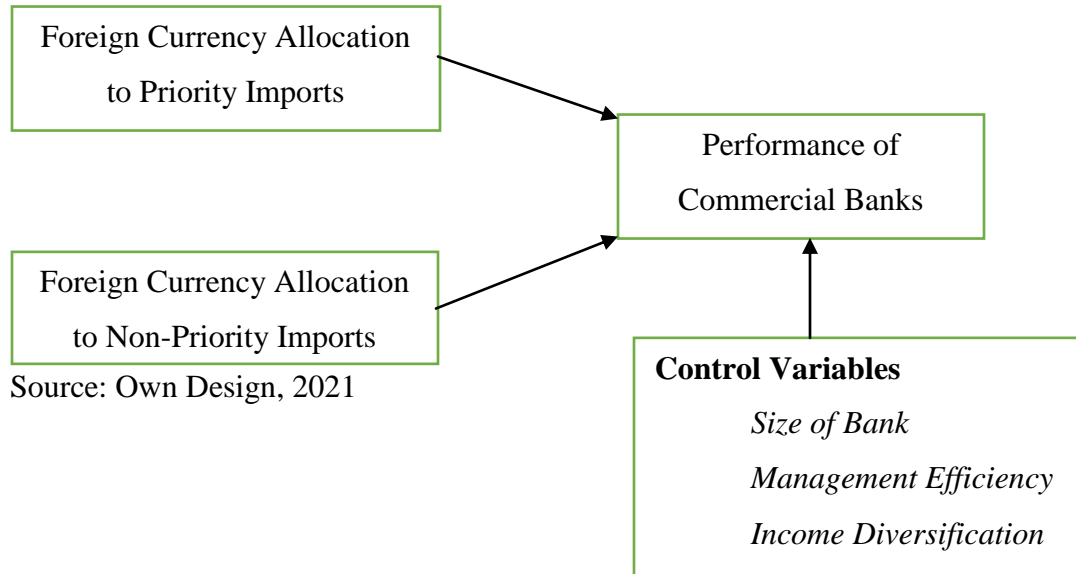

Source: Own Design, 2021

Figure 2. 1 Conceptual Framework

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Design

Burns & Grove (2001) stated that research designing is intended to plan and implement the study in a way that enables to obtain intended results, thus, increasing the chances of obtaining information that could be associated with the real situation. As a method of analysis, this study follows descriptive and explanatory research designs to examine effect of foreign exchange on performance of commercial banks in Ethiopia. Before running the explanatory analysis, the descriptive design is intended to describe about variables in the study. The explanatory design is applied to examine the effect of foreign exchange control on performance of the banks. Further, the explanatory analysis was conducted based on panel data analysis strategy because the dataset contains cross-section of commercial banks in Ethiopia and yearly data about foreign exchange allocation and other control variables. The control variables were components of CAMELS model that includes Capital adequacy, Asset quality, Management efficiency, Earning power, Liquidity and Sensitivity which covers how particular risk exposures can affect institutions. This study has included most inter-linked components of the CAMEL model with FCY allocation. These components include size of banks, management efficiency and earning power. The performance of the banks was represented by financial performance indicators such as Return on Asset (ROA) and Return on Equity (ROE).

3.2 Data Type and Source

This study has used both primary and secondary data. The primary data was collected from the responsible organs that handle the responsibility of foreign exchange control in the commercial banks. This data was collected through semi-structured interview to get detailed information about the impacts of FCY allocation on performance of the banks and the practice of FCY allocation. Different organs are responsible for exchange control in the commercial banks but it is mainly responsibility of managers of foreign currency in the banks. Therefore, managers of foreign currency allocation were source of primary data in the commercial banks.

The secondary data was collected from annual reports of the banks. The study mainly uses balance sheet of the banks. Since NBE has compiled data about the balance sheet items of the banks, the secondary data was collected from NBE.

3.3. Sampling Techniques and Sample Size

The study includes all commercial banks in Ethiopia that are currently in operation. There are 17 operational commercial banks in Ethiopia (NBE, 2020). But among these commercial banks, Commercial Bank of Ethiopia (CBE) provides foreign currency only to priority imports, thus, it is excluded from the study. Therefore, the study includes only private commercial banks in Ethiopia.

Private commercial banks in Ethiopia have different establishment period. To follow balanced panel data analysis, the study follows the period the recently established bank. According to NBE (2020) most recently established commercial bank in Ethiopia is Enat Bank S.C which is established in 2013. The bank has annual report since 2014. But the directive of transparency in foreign currency allocation is effective since 2016. Thus, the time includes 4 years (period from 2016 to 2019). In addition, the cross-section includes 16 commercial banks. Therefore, the study was conducted using 64 observations; 16 banks and 4 years.

3.4. Data Analysis Techniques

This study has used 4 year data from 16 commercials banks in Ethiopia. As a result, this study has followed panel data analysis methods. The study data was analyzed by using Stata 14.

Descriptive and regression analyses methods were employed to analyze the data. The descriptive analysis includes mean, minimum, maximum and standard deviation. The regression analysis was used to show interdependence of independent variables and dependent variable based on the Panel Data analysis strategies. Appropriate panel model was selected based on Hausman Test and LM test. Both the strength of the relationship between variables and the influence of independent on dependent variable and statistical significance was assessed.

Since this study followed panel data analysis methods, the model for the study is specified as follows.

$$ROA_{it} = \beta_0 + \beta_1 FCYPr_{it} + \beta_2 size_{it} + \beta_3 NII_{it} + \beta_4 NIE_{it} + \varepsilon$$

$$ROE_{it} = \beta_0 + \beta_1 FCYPr_{it} + \beta_2 size_{it} + \beta_3 NII_{it} + \beta_4 NIE_{it} + \varepsilon$$

$$ROA_{it} = \beta_0 + \beta_1 FCYNP_{it} + \beta_2 size_{it} + \beta_3 NII_{it} + \beta_4 NIE_{it} + \varepsilon$$

$$ROE_{it} = \beta_0 + \beta_1 FCYNP_{it} + \beta_2 size_{it} + \beta_3 NII_{it} + \beta_4 NIE_{it} + \varepsilon$$

Where;

ROA_{it} is Return on Asset of Bank i at time period of t

ROE_{it} is Return on Equity of Bank i at time period of t

$FCYPr_{it}$ is percentage of foreign currency allocated by bank i at period t to priority imports

$FCYNP_{it}$ is percentage of foreign currency allocated to non-priority imports by bank i at period t

$size_{it}$ is size bank i at period t is measured as natural logarithm of total asset of a bank i at a period t.

NII_{it} is non-interest income of bank i at period t which is measured as ratio of non-interest income to gross revenue of a bank at period t

NIE_{it} is non-interest expense of bank i at period t which is measured as ratio of non-interest expense to gross revenue of a bank at period t

CHAPTER FOUR

RESULT AND DISCUSSION

4.1 Introduction

This study was conducted to examine effect of foreign exchange control on performance of commercial banks in Ethiopia. Foreign exchange control focuses on allocation of foreign currency to priority areas. Banks included in the study are only private commercial banks that the control strategy is not implemented on CBE because the foreign currency is allocated to priority sectors. Allocation of foreign currency to priority and non-priority areas was used while examining the effect of the currency control. The study period includes year from 2016 to 2019 that exchange allocation directive was implemented in 2016. The performance of the banks was assessed by using ROA and ROE. In addition, the study has used control variables to control variation of performance within the banks. The study was conducted by using secondary data about the financial performance of the banks and allocation of exchange within the sectors. Panel data analysis method was followed as the study data include time and cross-section of the banks. This chapter presents result of data analysis and discussion on the results. The first section of the presents results of descriptive analysis and the second section presents result of regression analysis.

4.2 Descriptive Analysis

The study has included 16 private commercial banks in Ethiopia and the period of 4 years; 2016-2019. As a method of data analysis the study has followed panel data analysis method. Thus, the data analysis was conducted by using 64 observations. In this section, the result of descriptive analysis is presented by using descriptive statistics such as mean, standard deviation, minimum and maximum. It was mainly conducted for performance indicators, the allocation of FCY by the banks and controlled variables.

allocation of FCY is computed by using proportion of foreign currency allocated to priority and non-priority sectors. The result of summary statistics about proportion of

currency allocation is summarized and presented in Table 4.1 below. Further, the trend of allocation of the currency is presented graphically in Figure 4.1.

Table 4. 1 Allocation of Foreign Currency

| Year	Allocation	mean	sd	min	max
2016	Priority	33.672	10.236	3.811	44.783
	Non-priority	66.328	10.236	55.217	96.189
2017	Priority	35.941	9.873	8.017	48.652
	Non-priority	64.059	9.873	51.348	91.983
2018	Priority	58.163	24.358	15.392	100
	Non-priority	41.837	24.358	0	84.608
2019	Priority	72.573	14.57	49.96	100
	Non-priority	27.427	14.57	0	50.04
Overall	**Priority**	**50.087**	**22.454**	**3.811**	**100**
	Non-priority	**49.913**	**22.454**	**0**	**96.189**

Source: Own Computation, 2021

As shown in Table 4.1 above, in the period when the foreign currency allocation directive was implemented, 33.7% of the currency was allocated to priority sector and 66.3% of the currency was allocated to non-priority sector. In 2016, it is observed that there are banks that allocated only 3.8% to the priority sectors. The maximum allocation of the currency is only 44.8%. On the other hand, minimum of 55.2% of the currency was allocated to non-priority sectors. There are banks that allocated 96.2% of the currencies to the non-priority sectors. Further, the summary shows minimum allocation for the priority was observed in 2016. This indicates the banks were preferring the non-priority sectors to the priority sectors while providing foreign currency. In addition, it is indicated that the banks were poor implementing the directive during the beginning of the implementation. therefore, this implies the banks have low willingness to implement the directive.

In the following year, 2017, allocation to the priority sector has grown to 35.9% and allocation to the non-priority sector fall to 64.1%. in addition, the minimum allocation by the banks was also changed. It raised to 8% for priority sectors and decreased to 51.3%

for the non-priority sector. The maximum allocation in this year was 48.7% that showed improvement from previous year with allocation of 44.8%. The maximum allocation for the non-priority sector is 92%. Further, the result of trend analysis shows that the proportion of allocation to priority sector in 2017 has increased from 2016; on the other hand, allocation of the currency to the non-priority sector has decreased from the previous year.

Figure 4. 1 Trend of Currency Allocation
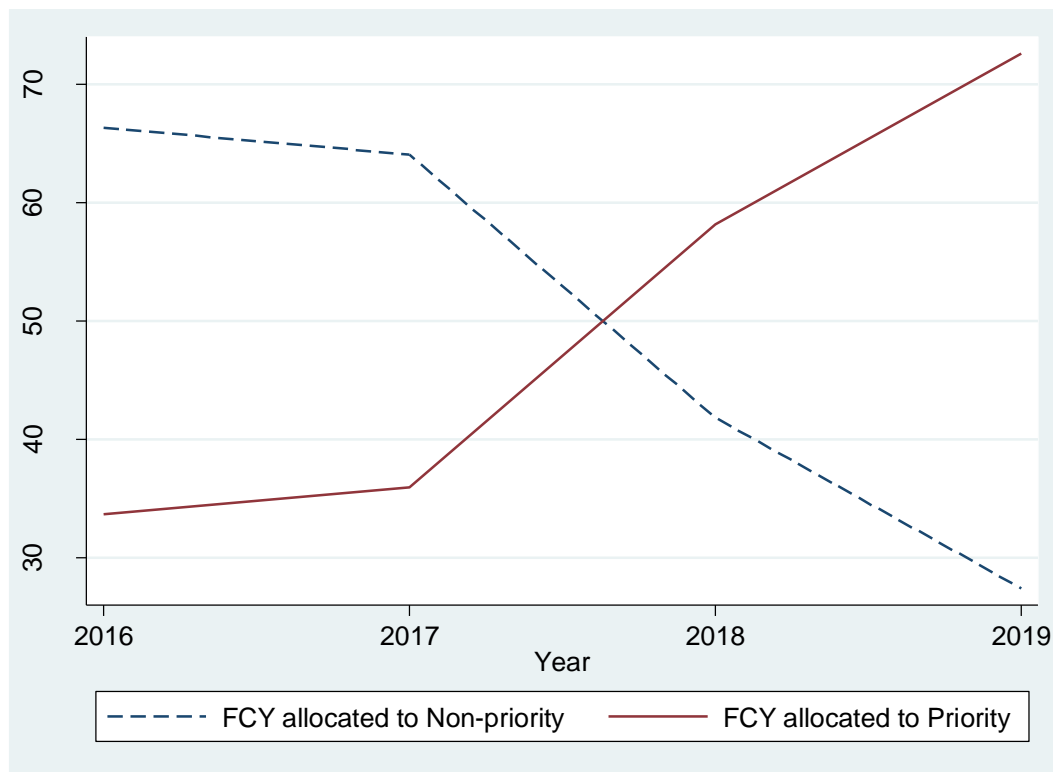
Source: Own Computation, 2021

Therefore, as depicted in Table 4.1 and Figure 4.1 above, there is improvement in allocation of the directive. But the value of standard deviation suggests that there is variation in the banks to comply the directive. This indicates although the implementation of the directive is improved, the banks are not willingly allocating the directive.

In 2018, allocation of the currency to priority sector is larger than allocation to the non-priority sector. On overall, the directive is appropriately implemented since 2018 that more than 50% of the currency allocated to priority sector. Allocation to the priority sector comprises 58.2% of the currency and to the non-priority sector comprises 42.8% of

the currency. But in this years also there are banks that not complying the obligations of the banks to allocate at least 50% of the foreign currency to priority sector. For example, Abay Bank allocated only 15.4% the currency which is minimum allocation to priority sector in 2018. In addition, Zemen Bank, Bunna Bank and Wegagen Bank allocated below the minimum. Zemen Bank and Bunna Bank allocated only 26.6% and 37.6% of the currency allocated respectively. On the other hand, Dashen Bank and BOA, respectively, allocated 100% and 89.9% of the currency to priority sectors.

In 2019, almost all banks were meeting the obligation by the directive that allocation to the priority sector is 72.6% ranging from minimum of 49.96% and maximum of 100%. The minimum allocation is provided by Abay Bank. This bank also has high improvement from the previous year allocation of 26.6% for the priority sector. Further, as shown in Figure 4.1 above, the proportion of allocation of currency to priority sector is increasing from previous years. The allocation proportion for the currency in comparison with previous years and minimum allocation expected by NBE indicates that the commercial banks comply the directive of NBE to allocate minimum of 50% to priority sectors.

To summarize implementation of the directive, foreign currency is equally allocated to priority sectors that mean value is 50% although minimum of 3.8% was observed in 2016. It took three years to effectively implement the directive.

Performance of the Banks

Association of level of allocation of the currency to the performance of commercial banks in Ethiopia is not empirically identified. But there are opinions of the banks that restricts on allocation of the currency negatively affects performance of the banks. According to interview conducted with selected banks, the banks failed to meet demand of customers in non-priority sectors although the customers are strategic targets. Therefore, it is important to examine the effect of restrictions of currency allocation on performance of the banks. Before examining the effect, the study assessed performance of the banks and analyzed by using descriptive statistics. As indicators of performance, the study has used ROA and ROE and summarized in Table 4.2 below.

Performance of the banks is measured by using ROA and ROE. ROA and ROE are measured as percentage of net profit after tax from asset and capital of a bank respectively.

Table 4. 2 Descriptive Statistics of Performance of the Banks

Variable		Mean	Std. Dev.	Min.	Max.	Obs.
ROA	Overall	2.77	.76	.32	4.82	N = 64
	Between		.62	1.32	4.02	n = 16
	Within		.46	1.77	3.98	T = 4
ROE	Overall	19.48	5.60	2.66	41.09	N = 64
	Between		3.76	14.05	29.40	n = 16
	Within		4.24	6.75	31.17	T = 4

Source: Own Computations, 2021

As shown in Table 4.2 above, mean value for ROA is 2.77 and mean value of ROE is 19.48. the banks are using asset of value of Birr 100 to generate net income of Birr 2.77. It is computed that standard deviation of the banks is small in subject to all statistics; overall, between, and within. It suggests commercial banks in Ethiopia have similar level of profitability from investment in assets. Trend of the performance of the banks is presented in Figure 4.2 below.

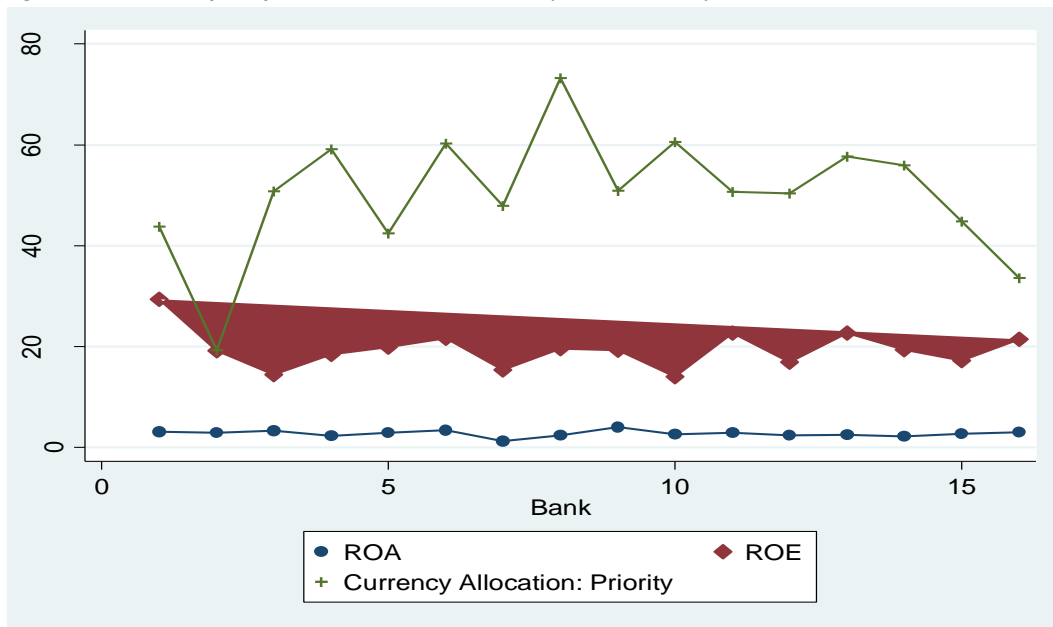*Figure 4. 2 Trend of Performance of the Banks*
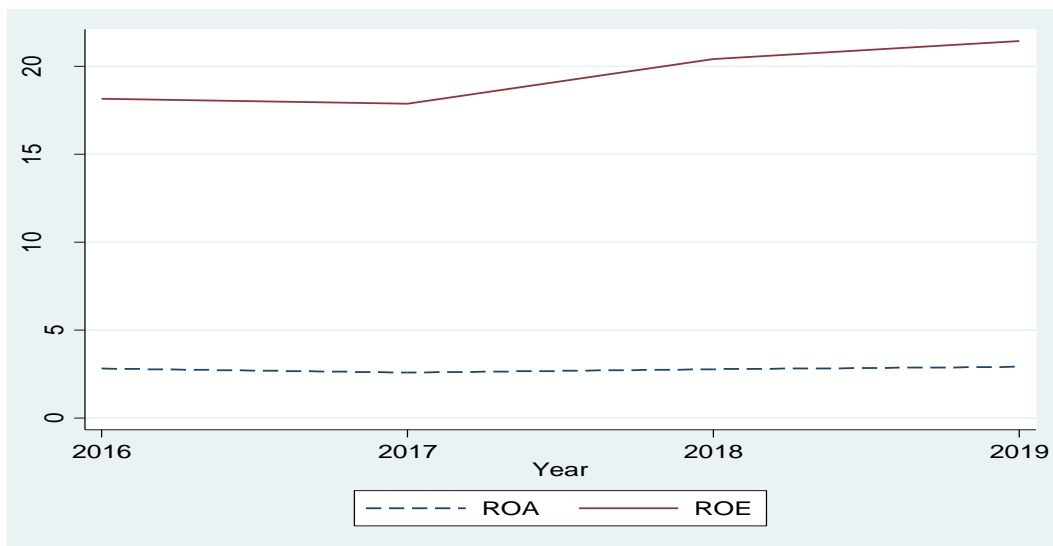
Source: Own Computation, 2021

As it is shown on Figure 4.2 above, the overall ROA of the banks is closer to constant value but the currency allocation is varying from year to year. But the study suggests ROA is more sensitive to a bank than a time. In relation to variation of allocation of the currency, the banks have small variation of profit despite highly varying level of allocation of the currency. It is not generalizable as the mean score are overall results for the banks and the time that fail to make association in each year.

In addition, the mean of ROE suggests the banks are generating net profit of 19.48 birr by using capital of 100 birr. There is high value of standard deviation for mean of ROE suggesting that return from investment in a bank varies from bank to bank. the most profitable bank earns a net profit of 41.09 birr from 100 Birr investment. On the other hand, least profit bank earns net profit of 2.66 Birr from 100 Birr investment. In relation to the finding about allocation of foreign currency through the descriptive statistics, ROE has small variation among the banks but allocation of the currency varies from year to year.

Figure 4. 3 Trend of Performance and the currency Allocation by Banks

Source: Own Computation, 2021

Trend of performance and the currency allocation is presented in Figure 4.3 above. As shown in the Figure 4.3 above, currency allocation highly varies among the banks. The

performance indictor, ROA has small variation among the banks and ROE is moderately varied between banks.

4.3 Regression Analysis

This study was mainly conducted to examine the effect of foreign currency allocation on performance of commercial banks in Ethiopia. Since the study used panel data, panel data analysis method was for the regression analysis. Therefore, the study has implemented random and fixed effect models based on the econometric procedures of panel data analysis.

For the purpose of robust regression with an intention of controlling effects of important determinants of performance and reducing omitted variables bias, this study has included control variables to the estimation model. These variables include size of the banks, management efficiency and business diversification. The size of banks is measured by using total assets of a bank. non-interest expense is used proxy to management efficiency and non-interest income is used proxy to diversification.

The first procedure of the study was conducting model selection. To select appropriate model between random and fixed effect model, Hausman specification test was conducted for both ROA and ROE models. The null hypothesis of this test is random effect is appropriate model that assumes unique errors (ui) are not correlated with the repressors. The result Hausman test is presented in Table 4.3 below.

Table 4. 3 Hausman Test

Test statistics	ROA	ROE
Chi-square	2.499	8.387
P-value	.645	.078

Source: Own Computation, 2021

As shown Table 4.3 above, Chi-square values for both ROA and ROE models are not statistically significant. Therefore, this study fails to reject the null hypothesis and it implies that random effect model is appropriate model that suggests ROA and ROE of commercial banks in Ethiopia varies from bank to bank. Consequently, this study has adopted the random effect model.

As a second procedure while specifying model, the study has conducted Breusch-Pagan Lagrange multiplier (LM) to decide between a random effects regression and a simple OLS regression. The null hypothesis in the LM test is that variances across entities are zero, no significant difference across units (i.e. no panel effect).

Table 4. 4 LM Test for Random Effects

Test statistics	ROA	ROE
Chi-square	18.85	10.86
P-value	.000	.001

Source: Own Computation, 2021

As shown in Table 4.4 above, p-values are statistically significant and it is rejected that variances across entities is zero. Instead, it is concluded that there is significant difference across commercial banks in Ethiopia; hence, there is panel effect. This implies random effect model is appropriate model to simple OLS model.

Based on the results of Hausman test and LM test, random effect model is used conduct the regression analysis. The summary result of estimation is presented in Table 4.5 below (for details see Appendix).

Table 4. 5 Estimation Result

VARIABLES	ROA	ROE	ROA	ROE
FCYPr	0.00695**	0.0133		
	(0.00347)	(0.0308)		
size	-0.133	3.585***	-0.133	3.585***
	(0.145)	(1.251)	(0.145)	(1.251)
NIIGR	0.0302***	0.155*	0.0302***	0.155*
	(0.00969)	(0.0873)	(0.00969)	(0.0873)
NIEGR	-0.0492***	-0.341***	-0.0492***	-0.341***
	(0.00924)	(0.0819)	(0.00924)	(0.0819)
FCYNP			-0.00695**	-0.0133
			(0.00347)	(0.0308)
Constant	4.815***	-5.934	5.510***	-4.605
	(1.707)	(14.94)	(1.721)	(14.97)
Observations	64	64	64	64
Number of BANK	16	16	16	16
R-sq	0.5014	0.3175	0.5014	0.3175
F-test	0.0000	0.0000	0.0000	0.0000

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

As shown in Table 4.5 above, coefficients of allocation of foreign currency are significant for ROA models but they are not significant on ROE of models. Coefficient of allocation of currency to priority sectors is positive. In contrary, coefficient of allocation of the currency to non-priority sectors has negative value.

Coefficient of the control variables are significant; coefficient of size of banks is positive and significant in ROE model at 0.01 significance level; non-interest income is significant at 0.01 and 0.1 significance level in ROA and ROE models respectively; and coefficient of non-interest expense is negative and significant at 0.01 significance level in both ROA and ROE models.

4.4 Discussion

This study was mainly conducted to examine the effect of foreign currency allocation regulation on performance of commercial banks in Ethiopia. Based on this general aim, this study has assessed implementation status of the regulation; assessed allocation of foreign currency in priority sectors and non-priority sectors; examined effect of allocation of foreign currency to priority sectors on performance of the banks; and examined effect of allocation of the currency to non-priority sector on performance of the banks. Data collected from secondary and primary sources were analyzed by using descriptive statistics and econometric estimation.

NBE enforced directive to control foreign currency allocation to priority and non-priority sectors in 2016 with directive number of FXD/45/2016. This directive was entitled as "Transparency in Foreign Currency Allocation and Foreign Exchange Management". In the allocation of foreign currency, a bank shall give priority to the selected import items and payments. The main area of the priorities are essential goods to the economy, i.e., fuel, fertilizer and other agricultural inputs, pharmaceutical product, factories' requests for procurement of machineries, equipment, spare parts, raw materials and accessories; and import of nutritious food for babies. The directive requires commercial banks in Ethiopia to allocate at least 50% of foreign currency to the priority goods. Thus, the maximum allocation to import the non-priority goods is 50% of the currency allocated by a bank. The directive requires the banks to surrender the currency to NBE if requests to import priority goods are below 50%.

Although the directive was implemented in 2016, the banks were not appropriately implementing the directive. There were banks that were not implementing the directive appropriately till 2019. The responses of the banks indicated that there are few requests for import of goods in priority categories. On the other hand, there are very high requests for foreign currency to import goods in non-priority categories. This is mainly faced by new banks that they have few customers in business of non-priority goods and services. They were providing the currency to import of goods in non-priority categories not to lose their customers. This became sever due to competition in the market that customers move to other banks in search of the currency that have high balance of the currency. The banks were poor implementing the directive during the beginning of the implementation. Currently, implementation of the directive seriously considered by the banks because of strict follow-up by NBE and customer expansion by the banks.

On overall, foreign currency is equally allocated to import priority goods that mean value is 50% although minimum of 3.8% was observed in 2016. It took three years to effectively implement the directive. The banks were preferring the non-priority sectors to the priority sectors while providing foreign currency. In the first year, 33.7% of the currency was allocated to priority areas and in the following year this raised to 35.9% by showing good improvements. In the third year, 2018, proportion of currency allocation to priority areas became 58.2% and recently it became 72.6% of total allocation of the currency.

Foreign currency allocation to priority imports is positive and significant on performance of commercial banks in Ethiopia. When the banks allocate 1% additional foreign currency to priority imports, asset of the bank generates additional 0.01% net profit. This may be due to financing the priority imports is more practiced by large banks than small banks. To minimize this effect, the study has controlled the effect of size of the banks. In addition, the effect of management efficiency and income from service charges and commissions were controlled. Although the small banks are complaining the directive as it is negatively affects performance of the banks because of idle resource, it is contributing positively to the profitability of the banks. Customers of the banks that imports the priority goods are large and profitable companies that enables to form

strategic relationship and contributes to performance of the banks through interest income from loan and advances and non-interest income from commissions and service charges. This finding is inconsistent to finding of Cecilia and Gekara (2016) that indicated government control negatively affected performances of commercial banks in Kenya that the control reduced efficiency of the banks and concept of competitive market. But Kairu (2016) in Tanzania indicated positive effect of foreign currency control through rationing on performance of commercial banks in the country that regulation of currency improved an overall economy and improved performance of the bank.

On the other hand, allocation to non-priority imports has negative effect on performance of the banks. The non-priority goods are imports that have low demand in the country. These imports are requested by small companies that are less profitable because of low demand. An average 1% decrease of allocation to non-priority goods result on increase of 0.01% of ROA of the banks. This effect is expected by management of larger banks than the smaller banks that importers in priority areas are strategic customers of the banks. In addition, this finding supported the objective of the directive that the directive is intended to stabilize the economy that in turn improves performance of commercial banks through profitable businesses and overall economic improvements. Similar to this finding, Rao and Lakew (2012) indicated allocation of foreign currency to non-priority areas decreased performance of commercial banks that this sector is less profitable due to high tax and other restrictions.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of Major Findings

This study was conducted to examine effect of foreign exchange control on performance of commercial banks in Ethiopia. The foreign currency exchange control focuses on transparency of allocation of foreign currency to priority areas. It is implemented through directive to commercial banks in Ethiopia by NBE since 2016. The study was conducted by using secondary data about the financial performance of the banks and allocation of exchange within the sectors and included expert opinion from selected commercial banks. Panel data analysis method was followed and the study indicated that allocation of the foreign currency is increasing from year to year and currently meet the minimum requirement of 50% of allocation of foreign currency to priority area. The result of econometric estimation indicated that allocation of foreign currency to the priority sectors have positive effect on performance of the banks. On the other hand, allocation of the currency to non-priority sector has negative effect on performance of the banks.

5.2 Conclusions

Based on the majority findings, following conclusions are drawn by the study.

- Although directive of transparency of foreign currency allocation and management is enforced in 2016, NBE has made amendments for easy implementation and control based on realities in the foreign currency market in the country. Consequently, implementation of the directive is improved from year to year and currently the banks are operating according the specifications in the directive. Further, willingness of the banks to comply the obligations has improved because of economic conditions in the country.

- During the beginning year of implementation of the directive, compliance to responsibilities in the directive were at low level. in the first and second years of implementation, only 33.7% and 35.9% of the currency was allocated to priority areas respectively. Recently, the banks allocated to 72.6% of foreign currency to

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priority areas. NBE made realistic amendments and willingness of the banks is improved that contributed for improvement to allocation to the priority area. Compliance to the proportion is also contributed from shortage of the foreign currency.

- Allocating the currency to the priory imports have improved performance of commercial banks in Ethiopia. Higher demand for goods in priority imports has improved performance of customers of the banks. Allocation of the currency to these areas has reduced cost of import, hence, higher demand for the goods.

- In contrary to allocation to priority imports, allocation of foreign currency to non-priority sectors has resulted negative effect on performance of commercial banks. Non-priority imports have lower demand than demand for goods of priority imports. Thus, financing non-priority imports is financing less profitable businesses that results low profitable of the banks.

5.3 Recommendations

Based on the conclusions drawn, following recommendations are provided mainly to management of commercial banks, especially for foreign currency management.

Currently, commercial banks in Ethiopia are meeting the minimum requirement of allocation of foreign currency between priority and non-priority sectors. Based on importance of the priority imports for overall economy and the banks, commercial banks in Ethiopia are suggested to increase allocation to the priority imports.

Importers of the priority goods have potential of export and some the companies involve in export businesses. Strategic relationship with these companies helps the banks to increase inflow of foreign currency. Therefore, it is recommended to form strategic partnership with companies that involve in import of priority goods.

Allocation of foreign currency to priority imports and non-priority imports became important source of performance of commercial banks in Ethiopia; allocation to the priority imports have positive role to improve performance of the banks; in contrary, providing foreign currency to non-priority areas reduce performance of the banks.

Therefore, commercial banks in Ethiopia to improve their performance, they have to prefer the priority sectors to non-priority sectors.

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Appendices

Appendix A: List of Banks

S/N	Name of Bank
1	Abay Bank
2	Addis International Bank
3	Awash Bank
4	Bank of Abyssinia
5	Berhan Bank
6	Bunna Bank
7	Cooperative Bank of Oromia
8	Dashen Bank
9	Debub Global Bank
10	Enat Bank
11	Lion International Bank
12	Nib International Bank
13	Oromia International Bank
14	United Bank
15	Wegagen Bank
16	Zemen Bank

Appendix B: Interview Guiding Questions

1. If you are not complying directive of transparency of foreign currency allocation and currency management, why could not you comply the directive?

2. Do you think the directive is important for commercial banks in Ethiopia in general and your bank in particular?

3. If there are negative effects of the directive on the bank, what are the effects?

4. What are positive effect of the directive on performance of your bank?

5. What are your suggestions to National Bank of Ethiopia regarding the directive?

Appendix C: Stata Outputs

Descriptive Statistics

Variable		Mean	Std. Dev.	Min	Max	Observations		
ROE	overall	19.48178	5.602716	2.657746	41.08975	N =		64
	between		3.757717	14.05138	29.40281	n =		16
	within		4.235846	6.748892	31.16872	T =		4
FCYPr	overall	50.08724	22.45411	3.810951	100	N =		64
	between		12.31307	19.29495	73.26095	n =		16
	within		18.96827	16.01702	87.9232	T =		4
size	overall	9.560701	.8658797	7.172729	11.22037	N =		64
	between		.8107456	7.87613	10.77025	n =		16
	within		.3517663	8.831926	10.2948	T =		4
NIIGR	overall	31.90451	11.01028	.4677667	54.95581	N =		64
	between		9.230369	18.4733	53.18052	n =		16
	within		6.331176	10.89755	44.32969	T =		4
NIEGR	overall	42.47251	8.495105	26.27154	75.22619	N =		64
	between		6.865665	30.51959	59.41839	n =		16
	within		5.22246	32.78087	65.56678	T =		4

B1: Fixed Effect Model: ROA

```
Fixed-effects (within) regression          Number of obs     =          64
Group variable: BANK                       Number of groups  =          16

R-sq:                                      Obs per group:
    within  = 0.4924                                        min =          4
    between = 0.5153                                        avg =        4.0
    overall = 0.4979                                        max =          4

                                           F(4,44)           =      10.67
corr(u_i, Xb)  = -0.2863                   Prob > F          =     0.0000
```

ROA	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
FCYPr	.007411	.0049301	1.50	0.140	-.002525	.017347
size	-.1852919	.2475467	-0.75	0.458	-.6841896	.3136057
NIIGR	.0296401	.0113464	2.61	0.012	.006773	.0525073
NIEGR	-.0561835	.0116322	-4.83	0.000	-.0796267	-.0327403
_cons	5.60559	2.587684	2.17	0.036	.3904547	10.82073

sigma_u	.45488319	
sigma_e	.39550426	
rho	.56948695	(fraction of variance due to u_i)

```
F test that all u_i=0: F(15, 44) = 4.68              Prob > F = 0.0000
```

B2: Random Effect ROA

```
Random-effects GLS regression              Number of obs      =          64
Group variable: BANK                       Number of groups   =          16

R-sq:                                      Obs per group:
    within  = 0.4909                                    min =           4
    between = 0.5199                                    avg =         4.0
    overall = 0.5014                                    max =           4

                                           Wald chi2(4)       =       56.74
corr(u_i, X)    = 0 (assumed)              Prob > chi2        =      0.0000
```

ROA	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
FCYPr	.0069503	.0034674	2.00	0.045	.0001544	.0137462
size	-.1330349	.1448793	-0.92	0.358	-.416993	.1509232
NIIGR	.0302088	.0096881	3.12	0.002	.0112204	.0491971
NIEGR	-.0492261	.0092437	-5.33	0.000	-.0673435	-.0311087
_cons	4.81541	1.707412	2.82	0.005	1.468943	8.161876
sigma_u	.41478877					
sigma_e	.39550426					
rho	.52378596	(fraction of variance due to u_i)				

B3: Fixed Effect ROE

```
Fixed-effects (within) regression          Number of obs      =          64
Group variable: BANK                       Number of groups   =          16

R-sq:                                      Obs per group:
    within  = 0.4965                                    min =           4
    between = 0.0497                                    avg =         4.0
    overall = 0.2135                                    max =           4

                                           F(4,44)            =       10.85
corr(u_i, Xb)   = -0.4365                  Prob > F           =      0.0000
```

ROE	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
FCYPr	.0298875	.0448304	0.67	0.508	-.0604622	.1202373
size	1.62793	2.25098	0.72	0.473	-2.908621	6.164481
NIIGR	.151293	.1031744	1.47	0.150	-.0566413	.3592273
NIEGR	-.479971	.1057736	-4.54	0.000	-.6931438	-.2667983
_cons	17.97929	23.5302	0.76	0.449	-29.44272	65.40129
sigma_u	4.5062301					
sigma_e	3.5963796					
rho	.61089276	(fraction of variance due to u_i)				

```
F test that all u_i=0: F(15, 44) = 3.89                     Prob > F = 0.0002
```

B4: Random Effect: ROE

```
Random-effects GLS regression              Number of obs      =         64
Group variable: BANK                       Number of groups   =         16

R-sq:                                      Obs per group:
    within  = 0.4794                                     min =          4
    between = 0.1937                                     avg =        4.0
    overall = 0.3175                                     max =          4

                                           Wald chi2(4)       =      40.91
corr(u_i, X)   = 0 (assumed)               Prob > chi2        =     0.0000
```

ROE	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
FCYPr	.0132866	.03076	0.43	0.666	-.0470018	.0735751
size	3.584558	1.250805	2.87	0.004	1.133025	6.036092
NIIGR	.1551364	.0872646	1.78	0.075	-.0158991	.3261719
NIEGR	-.3406949	.081899	-4.16	0.000	-.501214	-.1801758
_cons	-5.933991	14.94022	-0.40	0.691	-35.21628	23.3483

sigma_u	3.1218831					
sigma_e	3.5963796					
rho	.4297227	(fraction of variance due to u_i)				

Fixed Effect Model: ROA Non-priority

```
Fixed-effects (within) regression          Number of obs      =         64
Group variable: BANK                       Number of groups   =         16

R-sq:                                      Obs per group:
    within  = 0.4924                                     min =          4
    between = 0.5153                                     avg =        4.0
    overall = 0.4979                                     max =          4

                                           F(4,44)            =      10.67
corr(u_i, Xb)  = -0.2863                    Prob > F           =     0.0000
```

ROA	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
FCYNP	-.007411	.0049301	-1.50	0.140	-.017347	.002525
size	-.1852919	.2475467	-0.75	0.458	-.6841896	.3136057
NIIGR	.0296401	.0113464	2.61	0.012	.006773	.0525073
NIEGR	-.0561835	.0116322	-4.83	0.000	-.0796267	-.0327403
_cons	6.346689	2.77837	2.28	0.027	.7472521	11.94613

sigma_u	.45488319					
sigma_e	.39550426					
rho	.56948695	(fraction of variance due to u_i)				

```
F test that all u_i=0: F(15, 44) = 4.68                 Prob > F = 0.0000
```

Random Effect: ROA-Non-Priority

```
Random-effects GLS regression              Number of obs      =          64
Group variable: BANK                       Number of groups   =          16

R-sq:                                      Obs per group:
    within  = 0.4909                                   min =           4
    between = 0.5199                                   avg =         4.0
    overall = 0.5014                                   max =           4

                                           Wald chi2(4)       =       56.74
corr(u_i, X)   = 0 (assumed)               Prob > chi2        =      0.0000
```

ROA	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
FCYNP	-.0069503	.0034674	-2.00	0.045	-.0137462	-.0001544
size	-.1330349	.1448793	-0.92	0.358	-.416993	.1509232
NIIGR	.0302088	.0096881	3.12	0.002	.0112204	.0491971
NIEGR	-.0492261	.0092437	-5.33	0.000	-.0673435	-.0311087
_cons	5.51044	1.721367	3.20	0.001	2.136623	8.884258

sigma_u	.41478877	
sigma_e	.39550426	
rho	.52378596	(fraction of variance due to u_i)

Hausman Test: ROA

	Coefficients			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	roafe	roare	Difference	S.E.
FCYPr	.007411	.0069503	.0004607	.0035048
size	-.1852919	-.1330349	-.052257	.2007222
NIIGR	.0296401	.0302088	-.0005687	.005906
NIEGR	-.0561835	-.0492261	-.0069574	.0070613

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

    Test:  Ho:  difference in coefficients not systematic

                chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                        =         2.50
                Prob>chi2 =       0.6448
```

Hausman Test: ROE

```
                ── Coefficients ──
                  (b)          (B)          (b-B)      sqrt(diag(V_b-V_B))
                 roefe        roere       Difference           S.E.

   FCYPr       .0298875     .0132866       .0166009           .0326127
    size        1.62793     3.584558      -1.956628           1.871469
   NIIGR        .151293     .1551364      -.0038434           .0550439
   NIEGR       -.479971    -.3406949      -.1392762           .0669374
```

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

    Test:  Ho:  difference in coefficients not systematic

              chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                      =          8.39
             Prob>chi2 =        0.0784
```

LM Test: ROA

```
Breusch and Pagan Lagrangian multiplier test for random effects

        ROA[BANK,t] = Xb + u[BANK] + e[BANK,t]

        Estimated results:
                              Var        sd = sqrt(Var)

                ROA        .5779185        .7602095
                  e        .1564236        .3955043
                  u        .1720497        .4147888

    Test:   Var(u) = 0
                           chibar2(01) =     18.85
                       Prob > chibar2 =    0.0000
```

LM Test: ROE

```
    ROE[BANK,t] = Xb + u[BANK] + e[BANK,t]

  Estimated results:
                          Var        sd = sqrt(Var)

            ROE        31.39043        5.602716
              e        12.93395         3.59638
              u        9.746154        3.121883

  Test:   Var(u) = 0
                       chibar2(01) =     10.86
                   Prob > chibar2 =    0.0005
```

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