ADDIS ABABA UNIVERSITY
COLLEGE OF BUSINESS AND ECONOMICS
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THE IMPACT OF FOREIGN CURRENCY RESERVE AND EXCHANGE RATE ON MANUFACTURING SECTOR PERFORMANCE IN ETHIOPIA

By

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Declaration

I, the undersigned, declare that this study was original and has been done by myself, the work has not been submitted to any other Institute for any degree or diploma or other professional qualifications, all sources of materials used for the study have been properly acknowledged by citing them in the text and giving their detail information in the reference.

Declared By:

Tewodros Belete	_____	December, 2020
Name	Signature	Date

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This is to certify that the work contained in the thesis entitled “The impact of foreign currency reserve& exchange rate on manufacturing sector performance in Ethiopia”, by “Tewodros Belete”, has been carried out under my supervision and this Research paper has been presented for Examination with my Approval.

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This is to certify that the thesis prepared by Tewodros Belete entitled "The impact of foreign currency reserve & exchange rate on manufacturing sector in Ethiopia" which is submitted in partial fulfillment for the degree of Master of Business Administration (MBA) complies with the regulation of the university and meet the accepted standards with regard to originality and quality.

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ABSTRACT

This study analyzed the impact of foreign currency reserve & exchange rate on manufacturing sector performance using 40 years of data from 1980-2019. The study followed a quantitative approach, explanatory design, and employed secondary time series data. The data was extracted from the annual publications of the National Bank of Ethiopia (NBE), the world development indicator (WDI), and the ministry of industry Ethiopia. The data were tested for stationarity using Phillips–Perron test that makes a non-parametric correction to the t-test statistic test. The data was thereafter analyzed using the autoregressive distributed lag model (ARDL). The ARDL result indicated that foreign currency reserve has a positive and significant effect on manufacturing sector performance in the long run. The 1st lag of foreign currency reserve has also a positive and significant effect on manufacturing sector performance in the short run. Exchange rate maintained a negative and insignificant effect in the long run and no effect at all on manufacturing sector performance in the short run. The research concludes manipulating foreign currency reserve is more effective than manipulating foreign exchange rate to enhance manufacturing sector performance in Ethiopia.

Keywords: Manufacturing sector performance, foreign currency reserve, exchange rate, total Import, Ethiopia.

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Acronyms

ADF	Augmented Dickey-Fuller
ARDL	Autoregressive distributed Lag
BOP	Balance of Payment
ECM	Error Correction Model
ECT	Error Correction Term
GDP	Gross Domestic Product
IMF	International Monetary Fund
LOP	Law Of one Price
NBE	National Bank of Ethiopia
OLS	Ordinary Least Square
PP	Phillips- Person
PPP	Purchasing Power Party
VAR	Vector Autoregressive
WDI	World Development Indicator

CHAPTER ONE

1.1 Background of the study

International trade activity is the main reason for the involvements of different countries' currencies and the emergence of currency exchange in the world economy. Unlike domestic trade, international trade involves more than one currency. Trading of goods and services across the nation needs transfer of money between different currencies that buyers from one country must pay sellers of other countries with the help of currency exchange. Apart from the direct trade relations, there are some business activities like dividend payment across the countries, profit sharing, border-crossing investments, and other types of financial activities that need the involvement of different currency and exchange rates (Ajami&Goodard, 2006).

Foreign currency exchange is defined as the trading of two currencies that have different economic values (purchasing power) across the nation. That means when traders conduct global business they must accept the stated valuation of their currency against their counterparts' currency to perform a business transaction. So traders must have a willingness to accept the price of their country currency against their business partner country currency notes. The need for a foreign exchange rate emanates from the above-stated issues. To sum up, the exchange rate is the value of a foreign currency that can be obtained with one unit of domestic currency (Iminds, 2014). There is no global trade if one's national currency is not valued in another country to allow trade cross-borders (Odili, 2014). To tackle problems during international trade every country has pricing methods of their currency to maintain their international trade and smooth relationship with countries that have different currency notes with them.

According to Degefa (2001), the history of the Ethiopian monetary unit goes back to 1945. The currency proclamation of 1945, announced the country currency unit to be the Ethiopian dollar with an equivalent value of 0.3557459 of fine Gold. Based on the 1944 Breton Woods Agreement, the linkage with fine gold automatically establishes the exchange rate between the national currency and other currencies with the same arrangement. According to that arrangement, the first official exchange rate of the Ethiopian dollar to the United States dollar was established as 2.48 birr per 1 us dollar in July 1945. The Ethiopian dollar to us dollar

valuation was almost fixed until the major devaluation exercised in 1992, which depreciated the value of the Ethiopian dollar value from 2.07 to 5 per the United States dollar. From that date, the birr to a dollar and other currencies' proportional value devaluated continuously including the major devaluation of birr in 2017.

In addition to the currency exchange fluctuation, Ethiopia faced a consistent shortage of foreign currency supply. Evidence from the Historical documents has shown that the country's gross reserve was almost zero in 1991/92. It could have cover 1.3 weeks of import. After two years the reserve elevated to 28.3 & 33.1 weeks of import as June 1994 and 1996, respectively, by the support of foreign donors and export enhancement. In 2005, 2006, and 2007, the reserve diminished to 3.6, 2.3, and 2.2 months of imports respectively, which are almost equal to the IMF minimum requirement level. From the history of foreign currency, Ethiopia experienced so many reserve fluctuations. Also, recent year data showed similar fluctuations which reflect the fact that it is one of the challenges that could entangle the country to meet its foreign currency needs (Lelissa, 2015).

The manufacturing sector plays an important role in the modern world and has a lot of benefits that are ideal for national GDP. In developed nations, the manufacturing sector is a crucial sector for economic enhancement. The sector used to increase productivity with export expansion and import substitution, maintain their trade balance, solving unemployment problems, compete on the global market, producing industrial products, creating foreign exchange earnings capacity, to promote the growth of investments at a faster rate than any other sector in the economy, raising employment opportunity, as well as a wider and more efficient linkage among different sectors (Fakiyesi, 2005) cited on (Ojeyinka, 2019).

On contrary, in developing countries like Ethiopia, the manufacturing sector is at the infant stage inters of expansion and capacity of production. In Ethiopia, most industries frequently used imported raw materials and skilled manpower except for the agricultural foods processing sector. The country's imports increased to 3746.40 USD million in the third quarter of 2019 from 3428.60 USD million in the second quarter of 2019. From this amount, the main shares of imports are foodstuffs, textile, machinery, and fuel. This dependency on the external source of raw material made the manufacturing sector sensitive to foreign currency volatility and shortage

of the currency supply (trading economics, 2019). Based on the above argument the study will try to examine the impact of foreign currency reserve and exchange rate on the performance of the manufacturing sector in Ethiopia.

1.2 Statement of the problem

The relationship between exchange rate and manufacturing sector performance is a little bit complicated. In one situation, if the exchange rates increase, a manufacturer may import raw material at a higher cost that leads to an increase in the cost of goods they produce or become less profitable. In this scenario, if they increase the price of their goods to generate profit the buyer may shift to the imported substitute goods. The second situation is a positive scenario for the domestic industries that produce substitute imported goods. Here if imported raw materials (inputs) become more expensive due to exchange rate change, domestic manufacturers may decide to purchase these inputs from the domestic supplier or they may try to produce those inputs by themselves (Keyser, 2018).

There are several studies conducted on the impact of exchange rate on manufacturing sector performance. However, the studies have conflicting findings. The study conducted by Innocent et al (2013), showed a positive and significant relationship between exchange rate and manufacturing sector performance. The other study examined by Chinyere et al (2018), identify a negative and insignificance relationship between variables. A negative and significant relationship between exchange rate and manufacturing performance has also been reported (see Ezenwakweluet al, 2019). While most studies have revealed exchange rate exerts a positive and insignificance influence on the manufacturing sector's performance (Omotola, 2016; Ayobami, 2019; Otokoni et al., 2018). The mixed results show that the relationship between the exchange rate and the manufacturing sector remains unclear.Besides, all the reviewed studies ignored the effect of foreign currency reserve on the manufacturing sector's performance.

In Ethiopia, based on NBE annual report (2018-2019) the share of imported semi-finished goods and raw materials showed significant raise from 125.6 million USD in 2016/17 to 138 million USD in 2017/18 and 151.5 million in 2018/19. This shows the dependency of the manufacturing sector on imported inputs (raw materials). Contrary to the sensitivity of foreign currency influence to the manufacturing sector in Ethiopia, a large body of research on the influence of

foreign currency reserve and exchange rate on the manufacturing sector performance has not been undertaken in the country.

To the researcher's best knowledge, the studies conducted in the area of foreign currency influence are few in number and their scope. (Reda, 2016) studied on an assessment of foreign currency shortage and its implication on the Ethiopian economy. (Wondimu& Potts) studied the impact of the real exchange rate changes on export performance in Tanzania and Ethiopia. (Bayale, 2011) studied the impact of real effective exchange rate on the economic growth of Ethiopia. (Umer, 2015) studied devaluation and its impact on the Ethiopian economy. All the above and other researchers mainly focused on foreign currency influence on the national economy and importers performance. But the direct influence of foreign currency reserve and exchange rate on the performance of the manufacturing sector in Ethiopia has not been given an emphasis.

The purpose of this study is to clear the result contradiction of exchange rate impact on manufacturing sector performance and fill the existing knowledge gap of foreign currency reserve influence to the manufacturing sector performance in Ethiopia.

1.3 Research questions

Specifically, this study seeks answers to the following questions.

1. What is the relationship between foreign currency reserve and manufacturing sector performance?
2. What is the relationship between exchange rate and manufacturing sector performance?

1.4 Objectives of the study

General objective

To examine impacts of foreign currency reserve & exchange rate on manufacturing sector performance in Ethiopia.

Specific objective

1. To investigate the relationship between foreign currency reserve and manufacturing sector performance.
2. To examine the relationship between exchange rate and manufacturing sector performance

1.5 The hypothesis of the study

Based on the review of theoretical and empirical literature about foreign currency reserve & exchange rate with the performance of the manufacturing sector, the following hypotheses are developed to guide the empirical work of this study:

Hypotheses 1: There is a significance relationship between foreign currency reserve and manufacturing sector performance in Ethiopia.

Hypotheses 2: There is significance a relationship between exchange rate and manufacturing sector performance in Ethiopia.

1.6 Scope of the study

The study specifically focuses on the effect of foreign currency reserve and exchange rate on the manufacturing sector in Ethiopia by using sector-level data. The data covered 40 years of data (1980-2019).

1.7 Limitation of the study

The limitation that was faced by the researcher was the lack of empirical works of literature in Ethiopia on the impact of foreign currency reserve & exchange rate on the manufacturing sector in Ethiopia.

1.8 Significance of the study

The finding of this study will contribute to the following area. First, it will contribute to the literature on foreign currency reserve& exchange rate influence on the manufacturing sector.

Secondly, it is expected to provide evidence on to what extent exchange rate & foreign currency reserve influence manufacturing sector performance. Thirdly, this study can be used as a reference as it helps other researchers to better understand and provide a good picture to understand the effect of the exchange rate and its influence on the domestic industry. Finally, this study can be used as a tool for policymakers and governmental bodies to decide which exchange rate policy best fits to improve domestic manufacturing sector performance and to enhance export.

1.9 Organization of the paper

The study is organized as follows. Chapter one of the studies Contains the research background of the study, statement of the problem, research questions, the objective of the study, the scope of the study, the definition of terms, limitations, and significance of the study. Chapter two of the study presents the review of theoretical and empirical works of literature on foreign currency reserve, exchange rate, and its effect on the manufacturing sector. Chapter three includes the research methodology. Chapter four presents the results and discussion of the study and finally, chapter five presents' conclusions and possible recommendations.

CHAPTER TWO

2 Literature review

The literature review part of the study includes theoretical, empirical review and conceptual framework on foreign currency reserve, exchange rate and manufacturing sector performance.

2.1 Theoretical review

This parts of the literature review include the theoretical aspects of foreign currency reserve, exchange rate, total import, foreign direct investment, inflation, and the dependent variable manufacturing sector performance

2.1.1 Foreign currency reserve

Foreign currency reserves are assets held by once country central banks in the form of foreign currencies and gold. These reserves are used to pay off liabilities, maintain trade balance, and influence monetary policy (Marshall, 2020).

Foreign exchange reserves also can be held by banknotes, deposits, bonds, treasury bills, and other securities that can be easily convertible by physical cash. In the world, countries held some amount of foreign currencies that considered having stable values. Most countries use USD as their reserve due to its acceptance overall the world. Economists advise nations to hold their foreign currency reserve by physical currency instead of gold reserve. The danger of using gold as a reserve is the asset is only has a value that someone else is willing to pay for it. In the world the largest foreign currency reserve holder is china. The country holds 3 trillion of its assets by foreign currency. Most of their reserves are held in USD to minimize trade barriers around the world (Marshall, 2020).

The holding and managing of foreign currency reserves have been assigned to central banks. But the accumulation of foreign exchange reserves not depends only on the central bank's activity but also on the structure of the economy, the level of the trade balance, and attractiveness returns offered in the other currencies. Reserve performance mainly comes from the strong economy and

current and capital account surplus. For developing countries, their main source of the reserve can be supplemented by external borrowing (Marion,2005).

Foreign currency reserves are more important to the countries that are actively engaged in international trade but used currencies other than USD, sterling, EURO. In addition countries with weak currency must accumulate a higher amount of foreign currency reserves to maintain their trade balance. On the contrary countries with a hard currency such as the us dollar, pound sterling and euro have little need to concern on about the level of currency reserve held by their central banks for the reason of their currencies consistency and international level of acceptance (Marion,2005).

Foreign currency reserves can depend on the kinds of economy. It can be classified as an oil economy and non-oil economy. Oil economies, due to its huge amount of foreign currency sourced from global demanding product oil sells, those countries can build reserves. This gives oil exporter countries higher freedom to adopt flexible regimes as they are able more easily defends the floating regime. While non-oil-exporting countries have duties to continuously concern follow with replenishment of foreign currency exchange reserves (Marion, 2005).

The argument on the level or the amount of holding the needed foreign currencies is based on the opportunity cost of holding reserve. Besides its benefit holding excessive foreign currency may forgone investment resources that have been purchase foreign currency reserve instead of investing to build the domestic economy. But for developing economies holding excessive foreign currency is not the issue. Most countries can't fulfill even the necessary foreign currency to maintain their trade balance, support import, and pay the external debt (Marion, 2005).

A healthy foreign currency reserve can support foreign currency exchange by intervention aimed at preventing currency depreciation. Foreign currency intervention has been defined as an operation that has the effect of enhancing the currency price positioning on the public sector. But intervention is not the solution if the continuous deprecation results from weak fundamentals. To meet aimed sustainable appreciation of foreign currency rate, they must have a healthy and competitive level of foreign exchange reserve to support the rate where deems it necessary level for the achievements of economic stability (Marion, 2005).

Hypotheses 1: There is a significance relationship between foreign currency reserve and manufacturing sector performance in Ethiopia.

2.1.2 Overview of exchange rate

An exchange rate is the value of one currency in terms of another currency. It is the relative price of two different currencies. It will be easy to transact domestically with the same currency but the situation of international trade is slightly different from the domestic trade-in for the reason every country may not always produce the same products that possess the same attribute or some countries do not produce some products at all which lead to the need to international transaction and involvement of different currencies. Due to that, the value of one commodity must be expressed in two or more currencies, which reflects the percentage of the unit of currency require to purchase or sell the commodity in one country to the unit of the other currency required to purchase or sell the same commodity in the other country (Wang,2009).

The ordinary definition states, foreign currency as the value of one currency in terms of another currency usually represents a nominal exchange rate. On the contrary, the real exchange rate is defined as the relative national price levels between two economies with corresponding nominal exchange being supplemental to convert the unit of an account such that two price levels are valued in one currency. The real exchange rate is the nominal exchange rate that is adjusted to some economic variables and considers inflation differentials among the countries into account. Besides, it is used as an indicator of competitiveness in the foreign trade and export capacity of a country (Bill &Zing, 2015, Kipici&kesriyeli, 1997).

The relationship b/n foreign currency supply and exchange rate fluctuation and manufacturing sector performance is a little bit complicated. In one situation if the exchange rate increase manufacturer may import raw material at a higher cost that leads to an increase for the cost of goods they produce or become less profitable. In this scenario, if they increase the price of their goods to generate profit the buyer may shift to the imported substitute goods. It also affects ManGDP (manufacturing as a percentage of gross domestic products), defined as the share of manufacturing to a country's gross domestic product, including wages, taxes, and profits. A decrease in profits or a decrease in production means a decrease in value-added per dollar of production. The second situation is the appositive scenario to the domestic industries that

produce substitute imported goods. Here if imported raw materials (inputs) become more expensive due to exchange rate change, domestic manufacturers may decide to purchase these inputs from the domestic supplier or they may try to produce those inputs by themselves (Keyser, 2018).

An exchange rate can adversely affect manufacturing sectors' ability to import the needed raw materials that are important for production. Exchange rate fluctuations and low reserves of foreign currency will cause instability in purchasing power of those industries and negatively impact investment in the import of manufacturing inputs. On the other side, the effect on manufacturing sector output capacity and general income level will also affect investment in the import of inputs and invariably the exchange rate. This is for reason among the determining factors of the rate of exchange, demand, and supply for the foreign currency being influenced by the overall productivity level of the economy (David et al, 2010).

In Ethiopia, the economy is highly dependent on the outdated agricultural sector. The manufacturing sector is not that much supportive of the national economy as planned. According to Mingistu et al (2017), most firms in the country are locally owned and concentrated in a few low skills labor-intensive sectors such as textiles, garments, leather products, basic agro-processing, and furniture making. Input manufacturer industries, apart from unprocessed raw materials like cotton and timber, are mostly non-existent. Similarly, most agricultural activity is subsistence or far from advanced technology supports, and of the commercial agricultural activity, much of it is focused on the export of low value-added products such as cut flowers or fruits, oilseeds, unprocessed leather products, and vegetable does not generate the expected foreign currency to the country economy.

Ethiopian manufacturers import intermediate inputs, they export agricultural products, final goods, or inputs that are not differentiated, such as lightly processed leather. Therefore, manufacturing firms are not producing inputs that are specific to the production processes of their customers (Mingistu et al, 2017). This tells us the manufacturing industry is highly exposed to the fluctuation of the exchange rate and they don’t have sufficient foreign currency to support their imported raw material that is used for the production process. Mostly the reserve amount of foreign currency in the country depends on the balance between demand and supply of foreign

currency needs; however, the demand and supply of foreign currency need are unbalanced. The foreign currency demand in Ethiopia is high compared to the amount of foreign currency collected from different sources

Hypotheses 2: There is significance a relationship between exchange rate and manufacturing sector performance in Ethiopia.

2.1.2.1 Theories on the exchange rate

2.1.2.1.1 The Mint Parity Theory

The earliest theory of foreign exchange has been the mint parity theory. This theory was applicable based on the same standardized metallic material like gold or silver. Under the gold standard, countries had their common standard currency unit either of gold or it was easily convertible into the gold of a given purity. Based on this theory the value of currency unit under gold depends on the weight and purity contained in it. The national bank of the country was always willing to buy and sell gold up to an unlimited extent at the given price. To sum up, the value at which countries' currency convertible into gold at a given price was called mint price (Ahana, n.d).

2.1.2.1.2 The purchasing power parity theory

The main point of PPP (purchasing power party) is the law of one price (LOP). This law states that once converted to a common currency, the same good should sell for the same price. In other words, for any goods I,

$$Pi = P^{*}iSi$$

Where Pi, is the domestic price for goods I, P*I is the foreign price for good I, and Si is the nominal exchange rate expressed as the domestic price for the foreign currency. The expression states that the same material should have the same price across the countries if the price is stated in the same price across the nations. The assumption assumes that there is perfect competition among traders across the border, exclude tariffs, other trade barriers, and transportation costs (Taylor, 2013).

2.1.2.1.3 The balance of payments theory

The balance of payments theory of exchange rate describes that one's currency is determined with other currency by the factors like internal price level and money supply. According to this theory, the rate of exchange is influenced more by the balance of payment position of the country. In the balance of payment if the countries' demand for foreign currency exceeds the supply for the given rate of exchange deficit of balance payment will exist. The demand for foreign currency beyond the supply may happen due to the demand for currency is above the demand for goods and services. If a BOP (balance of payment) deficit exists, there will be a high demand for foreign currency notes. The high demand could results in an appreciation in the exchange value of other currencies and high deprecation of the home currency exchange rate (Ahana, n. d).

2.1.2.1.4 Monetary approach

The origin of the monetary approach associated with Johnson and his followers, which maintains that the balance of payments is essentially a monetary phenomenon and that the payments imbalances come in the relationship between the demand for and the supply of money to the total exclusion of other elements. That means, contrary to BPO the monetary theory advocate that the exchange rate determined by the balancing between total demand and supply of the national currency in each country The base for the monetary approach is that the flexibility is unnecessary and that balance of payment disequilibrium can only be corrected by policies that rectify the disequilibrium in domestic money markets (Jimoh, 2004).

2.1.2.1.5 The Portfolio Balance Approach

The portfolio balance approach brings trade explicitly into the analysis for determining the rate of exchange. It considers the domestic and foreign financial assets such as bonds to be imperfect substitutes. The essence of this approach is that the exchange rate is determined in the process of equilibrating or balancing the demand for and supply of financial assets out of which money is only one form of asset. The approach proposes that an increase in the supply of money by the home country causes an immediate fall in the rate of interest. This decision can shift the asset portfolio from domestic stocks to home currency and foreign stocks. The substitution of domestic stocks by foreign stocks causes depreciation of the home currency (Ahana, n. d)

2.1.2.2 Foreign exchange regimes

2.1.2.2.1 Hard peg regimes

Hard peg regime includes currency board, currency union dollarization, soft peg, crawling narrow band, crawling peg, pegged within bands and fixed peg

2.1.2.2.1.1 Currency board

It is a regime that sets a fixed rate for a specific currency by the support of monetary policy on legislative committees. It issues domestic currency only against foreign exchange. There is almost no room for independent monetary policy. Countries with higher inflation, unhealthy monetary policy, and incredible policymakers may benefit more. The regime helps those countries by providing maximum credibility for the economic policy, minimize excessive inflation and stable interest rate. Apart from its benefit, the currency board has different drawbacks like higher liquidity risk and no shack absorptive capacity (Yagci, 2001).

2.1.2.2.1.2 Currency union dollarization

Currency union dollarization means using other countries' currency notes as the only legal tender or countries that share a common legal bending currency by forming currency union. No autonomous monetary policy is allowed among the members of the union. It will be better for countries that have already developed extensive trade and small countries integrated (depended) on larger countries by eliminating inflationary bias. But it is going to be difficult and uneconomical for the countries that want to leave the union to develop their monetary policy (Yagci, 2001).

2.1.2.2.2 Soft peg regimes

It refers to currencies that maintain a fixed value against anchor currency (a currency kept in reserve by the government for paying international trade) or different currencies. The exchange price can be pegged to the anchor within a narrow (+1 or -1 percent) or a wide (up to +30 or -30) range (Mark et al, 2008). It is most appropriate for developing countries with a lower export flow; poor (lower) financial structure, lack of credible monetary institution, and less interaction with international trade. Besides, countries that rehabilitate from the higher financial crisis can use this regime to stabilize the excessive inflation. The soft regimes are having the following

benefits. It can maintain a stable and competitive foreign currency market if the peg is credible and lower interest rates. Additionally as stated above countries that have a high risk of inflation may benefit from these regimes to moderate their financial crisis (Yagci, 2001).

2.1.2.2.2.1 Crawling narrow band

The exchange rate is maintained around a central rate within a narrow band that can adjust periodically at a predetermined fixed exchange rate based on the differential between the target inflation and the expected inflation. The adjustment target to keep the exchange rate competitive (Yagci, 2001).

2.1.2.2.2.2 Crawling peg

The foreign exchange rate will be revised periodically based on a set of indicators. The movement of the exchange rate is decided by a predetermined fixed rate or below the estimated inflation differentials. Maintaining a credible crawling peg imposes constraints on monetary policy (Yagci, 2001).

2.1.2.2.2.3 Pegged within bands

Here the exchange rate fluctuates slightly around the normal de-facto fixed rate. The fixed-rate expressed weather in terms of a single currency or a basket of currencies. The regime experienced with limited monetary policy depends on the bandwidth (Yagci, 2001).

2.1.2.2.2.4 Fixed peg

The exchange rate stabilizes for one or more currencies. The peg is possibly adjusted only if the incorrect arrangement becomes non-sustainable. The monetary authorities protect the fixed rate by direct intervention or issuing the monetary policy that defends the fixed-rate fluctuation. Conventional central banking activities may be possible with limited monetary policy discretion (Yagci, 2001).

2.1.2.2.3 Intermediate regimes

It is a regime that places between the extreme fixed exchange rate and free-floating exchange rate determination methods. The regime is more appropriate for rising market economies and other developing nations with a strict microeconomic policy with comparatively stronger

financial management trends. The advantage of his regime is allowing some absorption of severe shock due to its limited flexibility. Besides its benefit, intermediate regimes have no transparency and credibility on rules and regulations to set currency prices. For this reason, their flexibility level is not easily identifiable. This may lead to uncertainty and low trustworthiness. Besides, it may require a high reserve of a foreign currency or equivalent gold (Yagci, 2001).

2.1.2.2.3.1 Managed float

It is more related to floating except the monetary authority interfere directly (sterilized or none sterilized) or indirectly (through changing interest rates) without specifying or pre-committing to a predetermined path for the exchange rate (Yagci, 2001).

2.1.2.2.3.2 Crawling broadband

It is a method of maintaining the exchange rate within broadband around the central rate by adjusting periodically with a predetermined fixed rate to keep the exchange rates competitive. The common rule of adjustment is the same with crawling narrow bands except for the high degree of policy independence functioned in crawling broadband (Yagci, 2001).

2.1.2.2.4 Floating regimes

As the name indicates floating regimes are a regime that allows demand and supply of currencies to determine the price of foreign currency. It is more convenient for developed countries that have a relatively close relationship with international trade. Besides, countries have diversified trade partners and a deep (strong) financial sector that can manage a higher level of fluctuation it may happen at floating regimes can use the regime effectively. It is more easily deflect and absorb diverse shocks, not easily prone to the financial crisis because the main source of the floating exchange rate is financial market variables. It doesn't need a high foreign currency reserve. Apart from its much benefit, the regime can cause high short-term currency price volatility but the problem may be solved by a lightly managed floating system. Besides, discretion in monetary policy may create inflation bias (Yagci, 2001).

2.1.2.2.4.1 Lightly managed float

The exchange rate is determined by floating with demand and supply proportion but with some direct and indirect interference aimed to moderate excessive inflation. Monterey policy is largely used to guide the domestic economy (Yagci, 2001).

2.1.2.2.4.2 Managed float

The price of a foreign currency is determined only by the proportion of demand and supply. The foreign currency market allowed floating freely without the intervention of monetary authority. The monetary policy of the country is independent of the exchange rate regime and can be used to steer the domestic economy (Yagci, 2001).

2.1.2.3 Exchange rate regime determinants

Although there are so many reasons mentioned as factors of exchange rate regimes choice the most common exchange rate regime determinants fall into four major categories.

2.1.2.3.1 OCA factors

OCA is advocates there is no single exchange rate regime that can be followed by every country in the world (Mundell, 1961, cited on Fegheh, 2014). The main ideology of OCA theory was the openness of the monetary (economic) policy; economic size, inflation rate; economic development level, and level of financial development among the countries are more important determinants of the other factors of exchange rate determinants. The open economy may have a higher risk of vulnerability to shock (collapse) of the economy of those countries that use a floating exchange. This shows that open economies countries may benefit more from fixed exchange rate regimes than floating rates (Fegheh, 2014).

On contrary, the countries with a higher level of economic and financial development can easily manage a higher level of financial shock that may happen by using floating exchange rate regimes and oppose to this side developing countries lower degree of financial and economic development likely use fixed regime. These choices of regime reflect the size of the economy. That means a large economy can lower the vulnerabilities of the country against international shocks (shocks that can be transferred with foreign exchange) and a small economy uses a fixed regime to cope up with those possible shocks that will come with exchange rates (Fegheh, 2014).

2.1.2.3.2 Risk of currency crisis

The risk of currency crisis is an effective tool for exchange rate determination. To choose a suitable exchange regime the level of an international reserve for foreign must be considered. That means choosing a fixed exchange rate regime needs more international reserve than using a floating exchange rate regime (Fegheh, 2014). The thought advocate that countries choose foreign currency exchange regimes based on their exposure of currency crisis to the anchor currency.

2.1.2.3.3 Political economy

It is the parts of exchange rate determination advocates on standard political economy (the balance between credibility and competitiveness) in choosing exchange rate regimes. That means countries may get credibility by setting their currency on currencies with lower inflation risk. The monetary authority of any government could get its credibility (anti-inflatory credibility) by supporting low inflation and higher purchasing power. On the other hand, competition is defined as governments using nominal rates (non-market origin rates) to affect tradable goods positively and non-tradable goods negatively to influence or getting an advantage on international competitive traders. In a political economy the tradeoff between credibility and competitiveness is one of the hardest tasks for decision-makers. For example, pegging exchange rate is the better regime for higher inflation country to maintain credibility. It may decrease inflation but may mount the pressure on importers and exporters that lead to rising real exchange rate which in turn inflict damage on the tradable sector and push payment balance. Apart from its effect on the tradable sector governments encouraged to determine exchange rate according to political economy by balancing credibility and competitiveness). That means governments decide on pegging exchange rate and rising real exchange rate according to political leverage of producers of tradable goods (Fegheh, 2014)

2.1.2.3.4 Tradable factors

Tradable factors assumption emphasized on industrialization difference between countries. The countries with the more industrial sector have a large potential to affect the exchange rate. It is highly dependent on tradable sectors. Producers of the industrial sector prefer a more flexible exchange rate regime. To sum up countries with smaller industrial sectors prefer fixed exchange

rates; on the contrary countries with large industrial sectors prefer more floating exchange rate regimes (Fegheh, 2014).

2.1.3 Foreign direct investment (FDI)

Foreign direct investment is an investment made by a company or investor by one country into another country's business. It is different from portfolio investment because FDI investment is an establishment of foreign business from a foreign company. However, a portfolio is a merely purchasing of securities (stocks) from a foreign-based company (Chen, 2021)

Foreign direct investment can affect the output and performance of the manufacturing sector of every country. The influence is higher in number for developing nations. Foreign Direct investment has attracted a great number of opportunities for developing nations since the development of manufacturing is set towards investment in capital and technology. The performance or output of the manufacturing sector enhances with the help of foreign direct investment inflow. The firms that are coming for investing may have competitive advantages and their technological advancement impact them favorably by the learning effect to upgrade their level of operations (Eza etal, 2019).

2.1.4 Total Import

An import is one part of international trade that goods or services bought in one country that was produced in other countries. Countries are mostly import goods and services that cannot be produced in their territory or not efficiently (cheaply) as the exporting country (Segal, 2021).

2.1.4.1 Balance of payment

Balance of payment is a conventional record of transactions between its residents and foreign residents over a certain period. The transactions are recorded with the principles of double-entry of accounting. Both sides of the entries should be the same to maintain the account balance. But in the business world, there are no situations that the sum of both sides is zero. There is always an imbalance between these entries. During this imbalance, trade deficit and surplus created (Norman, 1996).balance of payment divided into three broad categories

2.1.4.1.1 Current account

Current accounts are where international capital transfers can be recorded, For example, acquisition or disposal of non-financial assets. The current account is divided into goods and services, income, and current transfer (Reem, 2019).

2.1.4.1.2 Goods, services, and income

It includes the acquisition of an asset by the economy from any part of the world. The inflows that can be recorded as credit are exports of goods and services and other product sales. The outflow can be recorded as debits are the acquisition of goods and services from the whole world (imports of goods and services). In this category, three components of transactions can be performed such as a change in ownership, the performance of service, and accrual income (IMF, 1996).

2.1.4.1.3 Current transfers

It is a transaction that can be performed for the purchase of consumptions that can be immediately consumed shortly after the transfer. There is a direct relationship between current transfer and consumption that is closely related (IMF, 1996).

2.1.4.1.4 Capital account

The capital account is an account that includes the acquisition and disposal of non-financial assets and non-produced assets like land (a physical asset that which are none-produced /natural by its nature (Reem, 2019). It also includes non-produced and non-financial assets like patents, licenses, and copyrights. The account is different from the current account by its separation from the production process and by its non-consumption characteristics. Any transaction can be included in the capital account if the transaction by itself a capital transaction (transaction performed to purchase those financial assets) or financial transactions directly linked to the purchase or disposal of capital assets (IMF, 1996)

2.1.4.1.5 Financial account

It includes assets included in international monetary flow-related businesses, investments, purchase of stocks, bonds, or financial documents and also includes financial assets owned by

the central bank of a country like foreign currency reserves, bonds, and gold's (Reem, 2019). It is the main source of economies' financial assets and liabilities. It shows the net effect of countries saving and expenditure on the financial sector. If the saving less than an investment there will be an imbalance of export and import. The net import of the country must be financed by direct financial inflows (export of goods and services) to have a healthy financial account balance. Besides, assets owned by foreigners must include in these financial accounts (IMF, 1996).

2.1.4.2 Balance of trade vs. balance of the current account

The balance of trade is a measurement of earnings from the foreign market (export) and payments to the goods imported. It includes only visible parts of import and export. However, the balances of the current account include both visible and invisible import exports (Thiriwall& Heather, 1992)

2.1.5 Inflation

Inflation is a consistent increase in the general level of goods and services over some time. The theories on the relationship between inflation and output are not convergent. The aggregate supply-aggregate demand framework explains that there is a positive relationship between inflation and output growth. That means when the output increases inflation increases as well and viz. Despite, the above assumption when the efficiency is undermined by inflation it brings a negative effect. This effect observed when inflatory tendencies make future profitability and return improbable. In this situation, investors might become conservative in their decision, which eventually leads to a decline in investment and manufacturing sector performance (Judith &Chijindu, 2016).

2.1.6 Overview Ethiopian foreign currency and manufacturing sector

This section of the literature review specifically concentrates on overview status of Ethiopian exchange rate management and manufacturing sector performance.

2.1.6.1 Ethiopian exchange rate regime

Ethiopia uses restrictive foreign currency control compared to other developing nations. This restrictive control bears complex challenges such as the wading balance of payments deficit, shortage of foreign currency reserve and diminishes export expansion that can help for economic

development. The country follows so many restrictions on a foreign exchange like payments and transfers that are not followed international standards and principles stated by the international monetary funds. The restrictions are no end by those payment and transfer hindrances, besides it limits inflows, outflows, and the amount of currency that can be held by a single individual. These restrictions appreciate birr value but increase trade deficit due to imbalance between export and import. The unreal appreciation of birr affects domestic manufacturers by giving the chance for the importer to import cheap substitute goods. This can reduce domestic production incentives (Tom, 2014).

Besides, the Ethiopian foreign exchange reserve has suffered by the National Bank of Ethiopia(NBE) strategy deplete foreign reserve capacity by the sale of the foreign reserve to withdraw excess liquidity from the domestic market instead of achieving its goal by the issuance of government securities (Tom,2014).

The other rule of control that can influence the life of Ethiopians is the extent that governmental bodies view foreign workers can generate foreign currency for the economy. This belief partially affects the price of domestic products due to the higher expenditure of foreigners. This expenditure can drive up the price of goods and services in the domestic market (Tom, 2014).

All the stated tight control of the foreign currency market by NBE results from an increase of money laundry and terrorism financing. These illegal acts are particularly performed by Diasporas or other foreign workers to find alternative markets, to get better prices, and manage their Owen foreign currency needs.

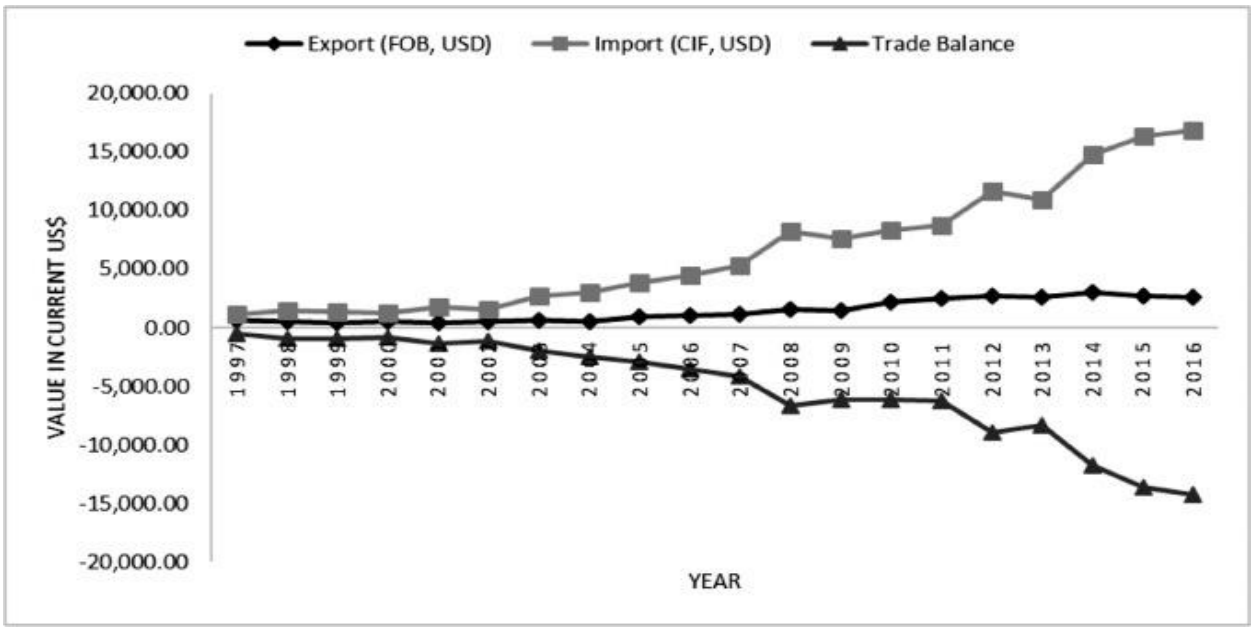
2.1.6.2 Remittances

Remittance is the foreign currency transfer from one country to the other using two different currencies. Remittances are significant contributors to national economic development. The source from IMF suggests that remittance contributes more than 4 percent annually. Besides, it generates nearly 4 billion USD annually. It is difficult to measure the exact amount of currency that can be sourced from remittance annually to excessive use of illegal market called black market by Diasporas (Tom, 2014).

Remittances are not fully used for the development of the country. This incapability comes from countries' foreign exchange control regimes that hindering broad economic development and likely reduced the value of remittance compared to the real exchange rate. The tight control leads to overvaluation of birr and undervaluation of foreign currencies once they are converted to birr. The final result of the tight control may force the currency holder to the illegal market for getting an improved price (Tom, 2014).

2.1.6.3 The trade deficit in Ethiopia

Although the foreign currency shortage is a common problem for every developing nation in the world, Ethiopia experienced wider current account deficits and a more fluctuating foreign currency reserve. In Ethiopia, the demand for foreign currency increasing time to time due to higher investment needs and public and private investment booms. On the contrary, the strength of generating foreign currency to supply expenditures is due to low export sector performance and erratic foreign inflows. This widening gap between demand and supply can cause a trade deficit in the country. From the national income side, the current account deficit means the country's spending is beyond national income (GNP). The need for foreign currency is to finance total imported goods. In the Ethiopian context, the demand for foreign currency is higher because of an increasing need for investment and developments (Lelissa, 2015)



Source: scienceDirect.com

2.1.6.4 Overview manufacturing development in Ethiopia

Manufacturing sector performance is essential for the development and enhancement of countries' economies. Also, it can help for technological advancement, capacity building, and capital accumulation. However, the situation in Ethiopia was slightly different. The role of manufacturing for employment creation, export, and national income contribution is not significant. The sector contribution for GDP is small compared with the agriculture and service sector (Tadesse, 2020). For example, based on the data compiled from the World Bank development indicator, the manufacturing value-added from 1980-2019 had a mean value of 4.74 percent contribution.

2.1.6.4.1 Historical development of Ethiopian manufacturing sector

The modern Ethiopian manufacturing sector development started following with the formulation of the first five-year plan (FFYP) during the imperial regime, followed by derg regime and EPRDF regimes.

2.1.6.4.1.1 Imperial regime

The first industrial growth began in the 1950s with the formulation first five-year plan (FFYP) that covered from 1958-62. The plan was versioned to accomplish the development of the manufacturing sector through the establishment of import-substituting light industries that produced consumer goods for the domestic market. Foreign direct investments were given the main role in the development of the sector. During the regime manufacturing sector, emergence contributes to the development of infrastructures. The driving philosophy of the industrial policy in the imperial period was characterized by private sector priority but this philosophy created a gap in the government role they should be played in the sector (Gebreeyesus, 2020).

2.1.6.4.1.2 Derge regime

The 1974 revolution interrupt the successive plans of the imperial regime. The derge government nationalizes most of the private industries and also declared a socialist economic policy that restricted different private sector participation. Besides, the military regime restricts private investments to half-million Ethiopian birrs, import highly regulated birr to dollar rate decided to be fixed. The philosophy of the government was the public sector was considered as the main

actor for the progress of the industry. Despite efforts to substitute imported goods with domestic production, the manufacturing sector didn't fulfill the government's expectations because of the shortage of foreign exchange, working capital, and raw materials (Gebreeyesus, 2020).

2.1.6.4.1.3 The EPRDF regimes

The transition government announced the country will going to use a market-oriented economy. The first 10 years had a higher reform to liberalize restrictions that derge regime used to control the economy. The manufacturing policy was emphasized more with sub-sectors development strategies and some successive development plans. Despite high growth and development effort, the manufacturing sector's contribution to the national economy remains unchanged (Gebreeyesus, 2020).

2.1.6.4.2 Ethiopian manufacturing sector performance

According to Oqubay (2018) manufacturing sector in Ethiopia is with ongoing development to become a key driving sector to the economic development. Despite its contribution to the national economy, there has been no comparable growth in manufacturing exports and employment creation. The main focus of the sector is the production of low-value products from textile and leather processing. The export share of the sector remained less than 13 percent of the annual export performed by the country. Employment creation by the sector has an annual growth rate of 4.8 percent. From which the construction industry has the highest share.

One of the key characteristics of the Ethiopian manufacturing sector is the dependency on the imported raw materials. The ratio of imported raw material to the overall raw material used for the manufacturing process is 50 percent. The ratio was consistent from 1995/96 to 2015/16. However, the dependency level was different between the sub-sectors. For example leather, food and beverage, textile had 75, 57, and 38 percent of raw material dependency on raw materials respectively (Oqubay, 2018).

2.2 Empirical review

In this part of the literature review different practical researches conducted on the relationship between exchange rate and manufacturing sector performance included. In some studies, the shortcomings found were identified and discussed apart from a mere report.

Ugwu (2017) studied the impact of exchange rate fluctuation on the performance of manufacturing firms in Nigeria using firms' profitability as an indicator of performance. In his study, the multiple regression method based on the OLS technique was used to identify the nature of the relationship between variables. ADF test was also conducted to avoid the incidence of spurious estimates. A long-run relationship between exchange rate fluctuation and the manufacturing firm performance was founded at the Janssen test. His Findings showed that there is a statistical significance between Exchange rate fluctuations on the manufacturing firm's performance in Nigeria. While the study contributes significant findings but there is a limitation on his study that using profitability as the indicator has a shortcoming effect due to profitability can only measure the gross operating profit of manufacturing business as a percentage of income from the sales of goods and services by the industry. It is not a good indicator of the performance of manufacturing sector performance like output and percentage of share on GDP, which describe the overall effect of the industry at the country level.

Innocent et al (2013) examined the effects of exchange rate fluctuations on the manufacturing sector in Nigeria over 25 years (1985 – 2010). Their work employed four (4) variables as manufacturing gross domestic product (MGDP), manufacturing foreign private investment (MFPI), manufacturing employment rate (MER), and Exchange rate (ER). They used an ex-post facto research design for this study. The final results of the analysis showed that the exchange rate has a significant and positive relationship with MGDP. But their research has drawbacks using small sample data. So it will be difficult to generalize based on those small numbers of year's data.

Omotola (2016) examined the effect of exchange rate fluctuations on manufacturing sector output in Nigeria from 1986 to 2014, a period of 28 years. The data were analyzed through multiple regression analysis using Autoregressive Distribution Lag (ARDL) to examine the effect of exchange rate fluctuations on the manufacturing sector. Using ARDL it was discovered

that exchange rate fluctuations have a long-run and short-run relationship on manufacturing sector output. The result showed that the exchange rate has a positive relationship with manufacturing sector output but not significant.

Another study by Ayobami (2019) examined the effect of exchange rate volatility on the performance of the manufacturing sector in Nigeria. He used the unit root test and ARDL technique of estimation to show variable relationships and direction of relationship respectively. The result from Bounds Test for cointegration revealed evidence of the long-run relationship between all used variables like the manufacturing sector's value-added, exchange rate, exchange rate volatility, interest rate, inflation, import, and gross capital formation. Outcomes from the study identified that the effect of exchange rate volatility (fluctuation) on the manufacturing sector's performance is positive and significant both in the long-run and short-run. Furthermore, his study findings indicated that the effect of the exchange rate on the manufacturing sector's output is negative and significant in the short-run while its impact is positive but not significant in the long-run.

Ezenwakweluet al (2019) examined the effects of exchange rate management on the performance of Nigerian Manufacturing Firms. The study findings from the multiple regression and correlation coefficient suggest that exchange rate fluctuations had a significant negative effect on the productivity of the manufacturing firms.

Nkemjika et al (2018) studied on macroeconomic implications of exchange rate fluctuation on manufacturing sector performance in Nigeria between 1981 and 2016. They used Variables such as manufacturing capacity utilization; manufacturing value-added and manufacturing output is to represent the independent variables of manufacturing sector performance while the exchange rate was used as the explanatory variable. The vector autoregression estimation technique was used to analyze the data and GARCH was used to determine exchange rate volatility. The initial test made by using the Johansen cointegration test confirmed that there was a long-run relationship exists between the variables used in the study. Empirical analysis result confirmed that exchange rate depreciation has a positive impact on manufacturing output and manufacturing value-added while it enhances manufacturing capacity utilization

Abdul-Mumuni (2016) studied the effect of exchange rate variability on manufacturing sector performance in Ghana. By using the autoregressive distributed lag (ARDL) approach, the empirical results show that there was both a short and long-run positive relationship between exchange rate and manufacturing sector performance. In his finding the result suggests exchange rate appreciation can improve the manufacturing sector performance and on the contrary as it depreciates, the sector is adversely affected.

Otokoni et al (2018) studied the impact of exchange rate deregulation on manufacturing output performance in Nigeria by using time series data from the period 1980 to 2016. To test variables' long-run relationship between exchange rate and manufacturing output normalized cointegration technique was used. Also, the granger causality test was used to check the direction of causality between them. The ad also error correction model (ECM) was used to calculate the speed of adjustment of the model to short-run disequilibrium condition and ascertain the short-run relationship between variables. Their study findings showed that the exchange rate has a non-significant positive long-run effect on manufacturing industry output. Finally, the researcher recommended that in discharging the mandate of exchange rate management, the monetary authorities should create a policy to stabilizing the exchange rate.

Chinyere et al (2018) studied the impact of exchange rate policy on manufacturing output, using data from Nigeria for the period 1981-2016. Johansen cointegration test and Vector Error Correction (VECM) model were employed in their analysis. An aggregate Time series data obtained from the Central Bank of Nigeria, data's on manufacturing output, exchange rate, manufacturing sector capacity utilization, and import was used during the investigation. By using this data they performed the necessary integration, co-integration, and correcting the error in the estimated equation, a causality analysis via Granger causality test among the relevant variables was undertaken to verify the relationship between exchange and manufacturing sector output growth in Nigeria. Their empirical results suggest that growth increasing the quantity of naira exchanged for the dollar caused a fall in the manufacturing output in Nigeria. However, its impact was found to be insignificant. Thus, exchange rate volatility does have a significant impact on the growth of manufacturing output in Nigeria. Their study recommends that the policymakers should create macroeconomic policies that will keep the exchange rate stable low rate.

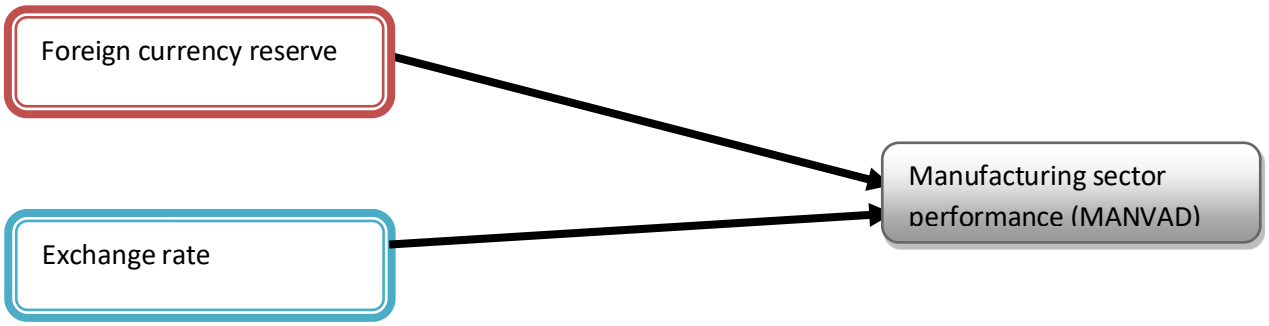
Godwin &Idaraobog (2019) examined the effect of exchange rate deregulation and manufacturing sector output in Nigeria. Their study used annual time series data from 1986-2017. Autoregressive Distributed Lag (ARDL) was employed. Their ARDL results indicated that exchange rate deregulation affect negatively manufacturing output in Nigeria but its effect was significant only in the third-period lag. Besides, the study further found that the inflation rate related negatively to the productivity of the manufacturing sector at a 10% significance level in the long run. It showed that increased labor employment increased productivity and gross capital formation has a significant relationship with manufacturing output while increased capacity utilization of the manufacturing sector improved its productivity. The study recommended the policymaker to improve the productivity of the manufacturing sector to grow the Nigerian economy and emphasis should be given on export promoting policies, import-substituting policies, capacity utilization.

In Ethiopia, some researchers are concerned about exchange rates but studies on the impact of exchange rate fluctuation impact on the manufacturing sector are not found as needed. From those studies, Mengistu et al (2017) have some relation with this study title. They examined the impacts of exchange rate movements on prices and trade in a low-income country setting. Using a novel decomposition and detailed customs data for the universe of Ethiopian firms, they found two main findings. (1) Ethiopian birr movement against the major currencies especially, USD decides more on price and quality than the movement of birr against a trading partner. (2) The level of rate of exchange transit and trade volume impact is different across the sector, which means we should focus on the impacts of exchange rate on different sectors instead of focusing on one sector to analyze the overall influence on countries' trade capacity.

Besides the lack of studies particularly on foreign currency's effect on the manufacturing sector in Ethiopia, the other countries researcher’s findings conflicted with each other. Most of the studies were conducted by using ManGDP (manufacturing share of gross domestic product) or MANVAD (manufacturing value-added) as an indicator for manufacturing sector performance. The finding of their study contradicted each other. Most of the findings support exchange rate fluctuations had a significant positive effect on ManGDP or outputs but some researcher’s findings suggest a significant negative effect or positive non-significance relationship between variables. This study will try to adopt the situation for the Ethiopian context to identify the

direction of the relationship between manufacturing sector performance, foreign currency supply, and exchange rate.

2.3 Conceptual framework



CHAPTER THREE

3 Research methodology

This section outlines the research methodology used to meet the objective of the study. It includes research design used in this study, the content of the sampling design and techniques, data source and type, the data collection techniques and procedures, and data analysis method that used in the study

3.1 Research approach

The research approach is the type of inquiry with three different methods are the qualitative, quantitative, and mixed approach which provide insights for procedures in the research design. Quantitative research is an approach used for testing objective theories by examining the relationship between variables by using data that can be expressed numerically, and those data can be analyzed using the statistical procedure. Qualitative research is an approach for examining and understanding the meaning individuals or groups attribute to a social or human problem. Mixed research is an approach as the name implies it involves both quantitative and qualitative kinds of data to analyze studies (Creswell, 2014). Due to the objective of the study, a quantitative approach was used.

3.2 Research design

To satisfy the research objectives and answer the specified questions causal research design (explanatory) was employed. According to Creswell 2014, the causal design is designed by investigators to use correlation statistics to describe and measure the degree of association or relationship between two or more variables (dependant and independent variables). The study used this design to explain the impacts of foreign currency reserve & exchange rate on manufacturing sector performance.

3.3 Data source and collection method

Based on the research design secondary data source were used. The secondary data collected from the annual publications of the National bank of Ethiopia (NBE), the world development indicator (WDI), and the ministry of industry Ethiopia.

3.4 Sample design

The study used 40 years of secondary data. The time-series data selected is based on the availability of the data from the stated sources. The study may generate a better result if more years of data available from the sources.

3.5 Data analysis method

To meet the specified research objective, the data collected using the publication of different organizations were analyzed and interpreted based on its nature. The main objective of the study is to analyze the impacts of foreign currency reserve& exchange rate on manufacturing sector performance from 1980-2019. To meet that objective, the autoregressive lag (ARDL) was employed. The ARDL model was used because we didn't know about the nature of our data whether stationary or non-stationary. According to Nkoro&Uko 2016, the ARDL model is an ordinary least square (OLS) based model which is applicable and useful for both non-stationary time series and for time series with mixed order of integration

3.5.1 Unit root test

To evaluate the nature of the non-stationary unit root test was conducted by using Phillips-Perron (PP). This approach is non-parametric with respect to nuisance parameters and it has the advantage to use a very wide class of time series models in which there is a unit root (Phillips &Perron, 1986).

3.5.2 ARDL cointegration approach

Cointegration is an econometric concept that mimics the existence of long-run equilibrium among economic time series that converges over time. That means the cointegration establishes a

stronger statistical and economic basis for the empirical error correction model, which brings short and long-run information's in modeling variables.

Due to the existence of some advantages in the model compare with the other approaches the study conducted using the ARDL technique considers each of the underlying variables stands as a single equation, that endogeneity is less of a problem because it is free of residual correlation. When there is a single long-run relationship, the ARDL procedure can distinguish between dependent and explanatory variables. The other major advantage of this approach lies in its identification of the cointegrating vectors where there are multiple cointegrating vectors (Nkoro&Uko, 2016).

Steps of the ARDL Cointegration Approach

Nkoro&Uko (2016) identify steps of ARDL that must be followed in the study.

- Firstly, Compute the Bound F-statistic (bound test for cointegration) to test the existence of a long-run relationship among the variables to establish a long-run relationship among the variables. The test is carried out on each of the variables that will use in the study by dividing them as endogenous and exogenous variables. The null of the non-existence of the long-run relationship is defined by;

  Ho: $\delta 1 = \delta 2 = 0$ (null, i.e. the long-run relationship does not exist)

  H1: $\delta 1 \neq \delta 2 \neq 0$ (Alternative, i.e. the long-run relationship exists)

  Irrespective of whether the variables in the system are I (0) (lower critical bound) or I (1) (upper critical bound), the distribution of this F-statistics is non-standard. There are two different sets of critical values.

✓ One set assuming that all the variables are I(0)(i.e. lower critical bound which assumes all the variables are I(0), interpreted as that there is no cointegration among the underlying variables) and

- ✓ Another assuming that all the variables in the ARDL model are I (1) (i.e. upper critical bound which assumes all the variables are I (1), interpreted as that there is cointegration among the underlying variables).

- Secondly, if there is cointegration among the underlying variables we will estimate the long-run coefficient of variables by using the ARDL approach

- Finally, an Error Correction Model (ECM) estimate obtains directly from the ARDL model result. The regression equation only gives only short term relationship between dependent and independent variables. The long-run behaviors of parameters did not exist on regression. This situation contradicts the researcher's need to estimate the long-run relationship. Due to that ECM estimate is very important to fill this gap. The ECM provides the means of reconciling the short-run behavior of an economic variable with its long-run behavior.

3.6 Variable identification

Dependent varaiable

Manufacturing value added

Manufacturing value added used to proxy the performance of manufacturing sector. It is the net output of the sector after adding all output and subtracting intermediate inputs.

Using value added as performance measure is useful to overcome the weakness of accounting measure of performance such as ROE (return on equity), ROA (return on asset) and profitability, lack in their ability to evaluate the future profit potential of such practices (Carini etal, 2017). Ayobami (2019) used manufacturing value added as proxy of manufacturing sector performance in his study.

Independent variables

In addition to foreign currency reserve and exchange rate, other macro-economic variables which can determine manufacturing sector performance are included.

Foreign currency reserve

It is a reserve that held by national bank of Ethiopia to maintain foreign trade and used to allocate the foreign currency to the most necessity goods. The national level of foreign currency reserve can affect manufacturing sector imports of raw materials.

Exchange rate

It is the price of Ethiopian birr against international trade partner. Mostly exchange rate in Ethiopia expressed in terms of USD. Based on NBE, annual reports Ethiopian birr experienced continuous deprecation against foreign currencies.

Import

Import was used as independent variable to identify its effect on the manufacturing sector performance. According to Oqubay (2018) the effect of import to the manufacturing sector operation is material. Its effect on manufacturing sector was stated by the ratio of imported raw material to the overall material used for manufacturing process. The ratio was 50 percent of from the total raw material used. It was consistence from 1995/6 to 2015/16. Ayobami (2019) used import as independent variable in his model and found a negative effect to the manufacturing sector performance. That means as imports increase the contribution of the manufacturing sector to GDP reduces.

Foreign direct investment

The higher inflows of foreign direct investments are expected to expand the manufacturing sector performance. According to Eza etal (2019) the performance or output of the manufacturing sector enhances with the help of foreign direct investment inflow. The firms that are coming for investing may have competitive advantages and their technological advancement impact them favorably by the learning effect to upgrade their level of operations. The empirical

evidence from Abdul-Mumuni (2016) that used FDI as independent variable on his study revealed a Negative effect on the manufacturing sector performance.

Inflation

The effect of inflation is also another important determinant of manufacturing sector performance. Higher inflation can make the transaction difficult by overpricing materials used for manufacturing process. The empirical evidence from Ayobami (2019) found inflation a negative and significance effect on manufacturing sector performance

3.7 Model specification

The model employed for this study was adopted from Abdul-muami (2016) with some modifications.

$$MANVAD_t = \alpha_o + \alpha_1 FCR_t + \alpha_2 EXRATE_t + \alpha_3 FDI_t + \alpha_4 IMP_t + \alpha_5 + INF_t + \mu_t$$

Dependent variables

MANVAD- represents manufacturing as a percentage of value-added. It is a measure of manufacturing output as the share of the country's economy.

Independent variable

FCR- represents foreign currency reserve. It is a reserve of a foreign currency controlled by the national bank of Ethiopia

EXRATE- represents nominal exchange rate.

FDI- foreign direct investment

IMP- total imports

INF- inflation rate

μ–the error term

CHAPTER FOUR

4 Result and discussions

The purpose of this chapter is to present research results and discussions. In addition, it includes steps of data analysis and diagnostic tests

4.1 Descriptive statistics

Before processed to inferential statistics we must do descriptive analysis. In table 4.1 the descriptive analysis of mean, median, maximum-minimum, std. deviation, skewness, and sum square deviation presented to test the normality of variable used in the model.

Table 4.1 Descriptive Statistics

	MANVAD	**FCR**	**EXRATE**	**FDI**	**IMP**	**INF**
Mean	4.743200	1.152773	9.777825	0.637189	5.981810	9.153050
Median	4.631500	0.593400	8.337000	0.221700	1.834000	7.705500
Maximum	7.301000	3.987000	29.07000	4.143000	20.00000	44.39100
Minimum	3.114000	0.051100	2.070000	0.001010	0.755100	-9.809000
Std. Dev.	0.893746	1.182879	7.802589	1.123438	6.868262	10.86312
Skewness	0.441503	1.104879	0.909005	2.078620	1.127400	1.161373
Kurtosis	3.100387	2.840134	2.754164	6.110949	2.698452	5.173716
Jarque-Bera	1.316298	8.180985	5.609325	44.93441	8.625087	16.86699
Probability	0.517809	0.016731	0.060527	0.000000	0.013399	0.000217
Sum	189.7280	46.11090	391.1130	25.48755	239.2724	366.1220
Sum Sq. Dev.	31.15252	54.56892	2374.336	49.22236	1839.748	4602.287
Observations	40	40	40	40	40	40

SOURCE: researcher compilation from Eviews 10

4.2 Unit root test

Before estimating the long-run relationship between the dependent and independent variables and the ARDL model, performing a stationary test is critical. To perform this test we employed Phillips- person unit root test method. Although its measurement, interpretation, and its asymptotic distribution are the same as the Augmented Dickey-Fuller (ADF) test, the Phillips-person (pp) test is more useful to overcome the ADF test weakness of detecting autocorrelation in the error process (Nkoro&Aham, 2016). In other words, the pp test is non-parametric. That means it doesn't need to specify the form of serial correlation of Δyt under the null hypothesis (Min &Guna 2018). The result of the unit root test using the Phillips- person (pp) test is presented in Table 4.2 as follows.

Table 4.2 Unit root test using Philips-perron (pp) test

Variables	Level				First difference				Order
	intercept		trend & intercept		intercept		trend & intercept		
	T stat	Pro	T stat	Pro	T stat	pro	T stat	Pro	
ManVAD	-2.4920	0.1251	-2.5142	0.3200	-7.1517	0.000	-7.0639	0.0000	(I)
FCR	-0.5231	0.8757	-2.4795	0.3359	-7.8353	0.000	-12.275	0.0000	(I)
EXRATE	-0.3311	0.9109	-3.4041	0.0655	-11.843	0.000	-27.927	0.0000	(I)
FDI	-0.9029	0.7768	-1.8009	0.6850	-4.4204	0.001	-4.3326	0.0075	(I)
IMP	1.5287	0.9991	-0.9656	0.9373	-4.8156	0.000	-5.5326	0.0003	(I)
INF	-4.8891	0.0003	-5.2167	0.0007	-14.037	0.000	-13.743	0.0000	(0)

SOURCE: researcher compilation from Eviews 10

Based on the test result all our variables are included either on order (0) (stationary at level) or order (1) (stationary at first difference) at a 5% significance level. The dependent variable MANVAD and the other four variables except INF are stationary at first difference. That means there was no variable stationery at order (2). This result shows that it is possible to perform an ARDL model to find the long and short-run relationships between variables.

4.3 ARDL bound test for co-integration

After checking the existence of stationary of our variables the next step is examining the existence of the long-run relationship to perform our ARDL model test. According to Min and Guna (2018), the method selected for an appropriate model is based on the unit root test result. That means the stationary of variables is the basis for method selection. If all variable interest is stationary (stationary at level, I (0)), ordinary least square (OLS), or vector autoregressive (VAR) models can estimate without bias. If all variables interest non-stationary (stationary at the first difference I (1)), OLS or VAR may not appropriate to analyze the relationship between variables, instead, the Johansen test will be appropriate. Finally, if variables are mixed integrated, i.e. some are stationary at level, I(0) and others are non-stationary (stationary at the first difference, I(1)), the ARDL method will be the best fit to estimate the relationship between in both long run and short run.

Furthermore, the ARDL approach has an advantage over other cointegration methods (such as the fully modified OLS, dynamic OLS, and Johansen, 1988) in that it performs better in small samples (Pesaran& Shin, 1999) cited on Abdul-Mumuni (2016). Based on the result of the pp test our variables are mixed integrated, so it is possible and useful to use the ARDL model of estimation.

4.3.1 Bound test

Table 4.3 result from the bound test shows that there is a long-run relationship between manufacturing sector performance, exchange rate, foreign currency reserve, total import, foreign direct investment, and inflation.

Table 4.3: Bound test

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	6.0088925	10%	2.08	3
		5%	2.39	3.38
		2.5%	2.7	3.73
		1%	3.06	4.15

SOURCE: researcher compilation from Eviews 10

Based on the f-bound test result the F-statistic value (6.0088925) is greater than the upper critical bound value (3.38) at a 5% significance level. So the null hypothesis that states no levels of relationship exist was rejected and the long-run relationship between variables was ascertained.

4.3.2 Long run coefficients

The test of the result in table 4.4 suggests the effect of foreign currency reserve is positive and significant at a 5% significance level (t-statistic=2.872424 and α=2.129398).The other main variable exchange rate effect on manufacturing sector performance is negative but insignificance (t-statistics=-0.150895 and α=-0.005701).

Table 4.3 Long-run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FCR	2.129398	0.741324	2.872424	0.0098
EXRATE	-0.005701	0.037784	-0.150895	0.8816
FDI	1.215664	0.395489	3.073822	0.0062
IMP	-0.548450	0.161670	-3.392397	0.0031
INF	-0.074675	0.022765	-3.280195	0.0039
C	5.137562	0.273566	18.77997	0.0000

SOURCE: researcher compilation from Eviews 10

The study also shows a positive and significant result (t-statistics=3.073822 and α=1.215664) from FDI with one unit increase can lead to 1.21 unit enhancements to the performance. On contrary, the result shows that a negative and significant (t-statistics=-3.392397 and α=-0.548450) result from import. Also, Inflation has a negative and significant relationship with manufacturing sector performance (t-statistics=-3.280195 and α=-0.074675). The negative coefficient from imports suggests that the imported manufactured substitute goods may affect annual domestic sales of the manufacturing sector.

4.3.3 Estimated short-run coefficient

The test result of ECM in table 4.5 revealed that the coefficient of error correction term (ECT) is -.0724734 result is >-1 (oscillatory). This implies there is a possibility of a high long-term adjustment. The speed of adjustment is 72.4% percent per unit time in the long term.

Table 4.4 Short-run Coefficient

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(MANVAD(-1))	-0.237374	0.109324	-2.171285	0.0428
D(FCR)	0.064501	0.170987	0.377229	0.7102
D(FCR(-1))	-0.743913	0.231043	-3.219804	0.0045
D(FDI)	-0.281494	0.230956	-1.218823	0.2378
D(FDI(-1))	-0.766531	0.279107	-2.746371	0.0128
D(IMP)	-0.074055	0.082764	-0.894776	0.3821
D(IMP(-1))	0.347291	0.100694	3.448967	0.0027
D(IMP(-2))	0.437289	0.104084	4.201330	0.0005
D(IMP(-3))	0.271407	0.092833	2.923616	0.0087
D(INF)	-0.021327	0.005915	-3.605730	0.0019
CointEq(-1)*	-0.724734	0.097418	-7.439426	0.0000

SOURCE: researcher compilation from Eviews 10

The exchange rate result gets absorbed by a long-run equation. The result tells us technically the exchange rate has a zero lag and doesn't have a short-run effect on manufacturing sector performance. The short-run result of total import for three years lag is positive but the only year two and three significance. Foreign direct investment has negative lags but insignificance. The last variable inflation does not have the lag result. This implies that the previous inflation rate does not affect the current manufacturing sector performance

4.3.4 Diagnostic tests

Diagnostic tests of heteroskedasticity test and autocorrelation were performed by using Breusch-Godfrey. The test has a comparable and statistically more powerful measurement than Durbin's M test for sample sizes greater than 25 years of time-series data.

4.3.4.1 Heteroskedasticity test

The heteroskedasticity test performs in table 4.6 shows a probability value is 0.9717 for the model. The result indicates the p-value is insignificance and the null hypothesis rejected. We conclude the model is homoskedastic.

Table 4.5: Heteroskedasticity Test: Breusch-Pegan-Godfrey

Null hypothesis: There is heteroskedasticity			
F-statistic	0.290601	Prob. F(16,19)	0.9921
Obs*R-squared	7.077750	Prob. Chi-Square(16)	0.9717
Scaled explained SS	5.516561	Prob. Chi-Square(16)	0.9925

SOURCE: researcher compilation from Eviews 10

4.3.4.2 Autocorrelation

To check the regressed variables autocorrelation we perform Breusch- Godfrey serial correlation LM test. The result in the table shows a probability value is 0.1694 for the model.

Table 4. 6:Breusch-Godfrey Serial Correlation LM

Null hypothesis: There is serial correlation			
F-statistic	0.930027	Prob. F(2,17)	0.4137
Obs*R-squared	3.550464	Prob. Chi-Square(2)	0.1694

SOURCE: researcher compilation from Eviews 10

The result indicates the p-value is insignificance and the null hypothesis rejected. There is no autocorrelation problem between variables on the model.

4.4 Discussion

The previous section of the chapter presented steps of analysis and overall results of the study. Hence, this section presents the discussion and detailed interpretation of the result. Besides, the discussion evaluates the statistical findings of the study to the given hypothesis.

Foreign currency reserve

The long-run result of foreign currency at a 5% significance level (t-statistic=2.872424 and α=2.129398) was positive and significant. The result was under the expected alternative hypothesis **H1**: There is a significance relationship between foreign currency reserve and manufacturing sector performance in Ethiopia. These results suggest that a unit increase in foreign currency reserve has 2.12 unit increases in manufacturing sector performance. The result interpreted as follows, as stated in the literature Ethiopian manufacturing sector is highly dependent on imported raw materials and capital goods. Based on this information, as the country's foreign currency reserve is enhanced the industry can easily get the foreign currency to import the required raw materials for their manufacturing process and industry expansion.

To illustrate more, based on NBE reports, before 2019 the highest priority from imported goods was given to vehicle oil importers. The manufacturing of raw materials was given third priority. That means when the volume of foreign currency reserve goes down, the foreign currency amount that will be allowed to the manufacturing sector may decrease. In this situation, the sector may be forced to reduce imports that are essential for their process. This reduction of the essential goods can affect their performance and contribution to the national GDP. On the other side, when the reserve level is enhanced the industry may get the required foreign currency and can improve its performance.

The short-run coefficient of foreign currency reserve is insignificance but positive. Besides, its effect at one year lag is negative and significant. It means one unit increase in the previous year's foreign currency diminishes manufacturing sector performance by 0.743 units in the short run.

Exchange rate

The long-run result of the exchange rate was (t-statistics=-0.150895 and α=-0.005701) was negative but insignificance. The result was inconsistent with **H2:** There is significance a

relationship between exchange rate and manufacturing sector performance in Ethiopia. The insignificance result shows that the exchange rate is not the main concern for the manufacturing sector compared with the scarcity of foreign currency nationwide. This result is consistent with Chinyere et al (2018), which found the growth increasing the quantity of naira exchanged for the dollar caused a fall in the manufacturing output in Nigeria. However, it contradicts with studies by Motorola (2016) and Otokoni et al (2018) which have a positive and insignificance impact on the manufacturing sector.

However, in the short run, the exchange rate result gets absorbed by a long-run equation. We didn't have a result for the exchange rate in the short run. The result tells us technically the exchange rate has a zero lag and doesn't have a short-run effect on manufacturing sector performance. So, we should reject the alternative hypothesis **H2**: There is significance a relationship between exchange rate and manufacturing sector performance in Ethiopia and ascertains exchange rate and manufacturing sector performance does not have a relationship in the short run.

Foreign direct investment

The result of the long-run coefficient indicated that foreign currency reserve has a positive relationship with manufacturing sector performance was statistical significance (p-value=0.0062). The result implies one unit increase can lead to a 1.21 unit increase in performance. The possible reason could be in the long run, the investment made by foreign investors enhances the overall output (performance of the sector).

In the short run, a coefficient of -0.281494 indicates that all factors remain constant 1 unit increase in FDI will lead to a decreased manufacturing sector performance by 0.281494 unit but statistically insignificant at a 5% significance level.

Total Import

Likewise, the long-run result indicated that import had a negative relationship with manufacturing sector performance and statistical significance (P-value=0.0031) at 5% level. The long-run coefficient of -0.54845 indicates that all factors remain constant 1 unit increase in total import will diminish manufacturing sector performance by 0.54845. This result showed that an

increase in total imports has a negative impact on the manufacturing sector's performance. The possible reason could be since most of the imported materials in Ethiopia were finished industrial products. These imported industrial products could minimize the market share of domestic industries. The results were consistent with studies results by Abdul-Mumuni (2016) and Ayobami (2019). The short-run coefficient of import (-0.074055) was still negative but statistically insignificance (P-value=0.3821) at 5% level.

Inflation

The long-run coefficient reveals that inflation had a negative relationship with manufacturing sector performance and statistical significance (p-value= 0.0039) at a 5 % significance level. The long-run coefficient -0.074675 implies a unit increase in inflation will diminish the manufacturing sector by 0.074675. The possible reason is that inflation may affect the manufacturing sector's purchasing ability of raw materials. This may lead to a reduction inthe output of manufacturing industries. The results were consistent with studies results by Abdul-Mumuni (2016) and Ayobami (2019). The short-run coefficient of inflation (-0.021327) was negative and statistically significant (P-value=0.0019) at a 5% level.

CHAPTER FIVE

5 Conclusion and policy implication

This chapter represents the conclusion and policy implications that are generated from the findings of the study.

5.1 Conclusion

The study examines the impact of foreign currency reserve and exchange rate on manufacturing sector performance in Ethiopia by using annual time series data sourced from world development indicators of the World Bank and the National Bank of Ethiopia (NBE). To check variables stationary unit root test was conducted by using Phillips- person unit root test method. After checking the stationary of the variables bound test of the co-integration test was conducted and the result showed evidence of long-term relationship among manufacturing sector value-added, exchange rate, foreign currency reserve, total import, foreign direct investment, and inflation. This result revealed all variable has signed to move on the same direction to the long –run.

Findings of the study suggest that foreign currency reserve impact on the manufacturing sector is positive and significant in the long run but positive and insignificance in the short run. On contrary, the impact of the exchange rate is negative and insignificance in the long run but it doesn't affect the short-run model.

Foreign direct investment was found to have a positive significant effect on manufacturing sector performance in the long run. The sign changed to negative but not significant in the short-run model.

Total import has a negative and significant effect on manufacturing sector performance in the long run but negative and insignificance. Finally, the finding on inflation shows consistency in both the short and long-run models. In both scenarios, the impact of inflation on manufacturing sector performance was negative and significant.

5.2 Policy implication

Based on the findings of the study, the researcher suggests the following recommendations that may help the decisions of policymakers.

- Based on the study finding foreign currency reserve has a positive and significant effect on manufacturing sector performance. So the government should give high consideration to currency reserve enhancement by the export of finished goods, manufacturing products, and controlling illegal remittance. Also, the concerned organ must work on minimizing the dependency of the manufacturing sector on imported materials and machinery by focusing on domestic innovation.

- The impact of exchange rate insignificance effect on manufacturing sector performance. So, the policymaker should consider the devaluation of birr currency price to the real exchange rate value. The devaluation can discourage imports of domestic manufactured substitutive goods and minimize the severe effects of import on manufacturing performance

- Although the effect of inflation nationwide, excessive inflation can affect the manufacturing sector's purchasing power for raw materials. So the government should work to minimize inflation to single-digit

- Finally, based on the analysis result in the long run the incoming of foreign direct investment can enhance the sector performance. From the result, we can conclude the sector will benefit from financial and human skill inflow. So the government should improve facilities and good governance to attract investors from abroad.

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