The Impact of Monetary Policy on Exchange Market Pressure in Ethiopia

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ABSTRACT

This paper examines the effect of monetary policy on exchange market pressure in Ethiopia. The paper employs Girton and Roper (1977) measure of exchange market pressure—sum of exchange rate depreciation and foreign reserves outflow, to examine the interaction between exchange market pressure and monetary variables. Exchange market pressure is measured as the sum of percentage change of international reserves and percentage change of nominal exchange rate. The sum of domestic credit to the private sector and the government sector is used as the measure of monetary policy. Domestic credit is considered the variable directly controlled by policy makers. The response of exchange market pressure due to shock to domestic credit is significant and negative as expected. This implies that the monetary authority in Ethiopia reduces exchange market pressure by either reducing foreign reserves or depreciating domestic currency. In this research, the researcher used detail empirical and theoretical data review as a source of data to show the effect of monetary policy on exchange market pressure. The monetary policy authorities should establish stable economic condition by creating and implementing monetary policies that appreciated economic condition and also create and implement monetary policy to maintain exchange rate stability when appreciated. The government of Ethiopia should not depreciate the exchange rate in the current situation because more than 50% of commodities are imported from abroad which needs dollar.

INTRODUCTION

Managing exchange rate effectively is very essential to achieve tolerable inflation and sustainable economic growth in the country. Monetary approach to balance of payment is based on fixed exchange rate assumption but, the monetary approach to exchange rate determination is based on flexible exchange rate. In practice many countries including Ethiopia have mixed or managed floating. Exchange market pressure is developed to avoid the limitation of traditional monetary approach to balance of payment and exchange rate by Girton and Roper (1977) for all exchange regimes (fixed, managed and flexible) (Younus 2010). Exchange market pressure arises due to disequilibrium between supply of domestic currency and demand for domestic currency. This is because excess supply of money results excess domestic demand for goods and services which also results outflow of reserve and currency depreciation (Girton and Roper 1977).

The pressure of exchange market is different in free floating, fixed exchange rate and managed floating. For example in free floating exchange rate system, the pressure of exchange market is reflected in changes in exchange rate and foreign reserve becomes zero but in fixed exchange rate it is captured by changes in reserve and change in exchange rate becomes zero. In managed floating, monetary authorities interfere in the exchange market by buying and selling foreign currencies and reserves transactions are not equal to zero (Dornbusch et al. 2011).

In most countries including Ethiopia the level of exchange rate is the concern for central bank. This is because the change in exchange rate affects price stability, trade, real output, investment and capital inflow and out flow (IMF 1984). The above conditions force central banks to interfere in the foreign exchange market. The exchange market pressure is reflected in both changes in exchange rate and change in reserve in managed floating exchange rate system. The term exchange market pressure is referred to the sum of exchange rate depreciation and reserve outflow. The most frequent economic shock is exchange market shock, which is responded by the monetary authorities, investors, international traders as well as other decision makers. Thus the monetary authority will intervene to make the exchange rate to its equilibrium, if there is shock in exchange rate in managed floating system (Weymark 1998). But in free floating exchange system the monetary authorities are not interfere since its equilibrium follows the market equilibrium (Dornbusch et al. 2011:287-289).

The monetary authorities are responsible to establish stable economic condition by creating and implementing monetary policies that appreciated economic condition and also creates and implements monetary policy to maintain exchange rate stability when appreciated. This creates market equilibrium in the economy. The exchange market pressure for Ethiopia over the period was characterized by depreciation pressure (Abebe 2006). Therefore, the aim of this paper is to examine the impact of monetary policy on exchange market pressure in Ethiopia. Specifically, dose Contractionary monetary policies reduce exchange market pressure or not and how monetary policy of Ethiopia respond to the exchange

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market pressure.The paper employs Girton and Roper (1977) measure of exchange market pressure which means the sum of exchange rate depreciation and foreign reserves outflow, to examine the interaction between exchange market pressure and monetary policy. Girton and Roper (1977) revealed that an excess supply of money relative to demand will result in some combination of currency depreciation and an outflow of foreign reserves. A variant of the Girton and Roper model is discussed as follow;

$$M\ d = kPY ....1$$
$$M\ s = A(R + D) ....2$$
$$P=EP* ....3$$
$$M\ d = M\ s ....4$$

Equation 1 represents the demand for nominal balances, P is the domestic price level, Y is real income and k is a fraction of nominal income that people want to hold as cash. Equation 2 is a nominal money supply equation which is the sum of R and D, the net foreign assets and the domestic assets respectively. Equation 3 represents a purchasing power parity condition where E is the nominal exchange rate, which is defined as the domestic currency per unit of foreign currency and P* is the foreign price level. Equation 4 represents money market equilibrium. Substituting equation 1 and 2 into equation 4, it provides;

$$kPY = A(R + D) ....5$$

Replacing P by EP*,

$$\text{Provides } k(EP*)Y = A(R + D) ....6$$

In terms of percentage change and rearranging terms, equation (6) can be rewritten as:

$$r - e = -d + p * + y - a ....7$$

Where, r -the percentage change in international reserves;

e - the percentage change in the nominal exchange rate depreciation;

d -the percentage change in domestic credit;

p* -the percentage change in the foreign price level;

y -the percentage change in domestic real income

a -the percentage change in the money multiplier;

The left-hand side of equation 7 represents the exchange market pressure variable, while the right-hand side represents the variables that may have significant impact on exchange market pressure. Therefore, equation 7 states that, an increase in the exchange market pressure due to an increase in the domestic credit, decrease exchange market pressure either by losing reserves or by devaluing currency. However, an increase in domestic real income, or foreign price level, or money multiplier also increases exchange market pressure.

Objectives of the study
The general objective of the study is to examine the impact of monetary policy on exchange market pressure in Ethiopia. The researcher set the following additional objectives as specific to explore more on the issue; the first is to examine the effect of Contractionary monetary policy on exchange market pressure and the second is to examine the effect of expansionary monetary policy on exchange market pressure.

DISCUSSION AND RESULT
Exchange Rate Regimes in Ethiopia
The exchange rate policy in Ethiopia has passed different regimes. The country was exercised a fixed exchange rate regime before 1992, in which the exchange rate is determined by Ethiopia government. As the National Bank of Ethiopia has responsibility in maintaining the stability of birr exchange rate against other countries' currencies, birr was converted to the US dollar at a fixed rate. The period between 1970s-1980s, the national bank of Ethiopia used to maintain exchange rate stability by making available foreign currency to the market at the fixed rate. For example in1970s-1980s, the country used to have a fixed exchange rate with a rate of 2.07 Birr per US dollar. Some researchers held during 1970s and 1980 birr was overvalued and this results trade deficit and fiscal deficit. To avoid the above problems the transitional government of Ethiopia decided to devalue Ethiopia birr against dollar; birr 5 per US dollar in 1992 (Taye 1999). After the devaluation of birr against US dollar in 1992, Ethiopia implemented an exchange rate policy which is approximate to managed floating; which is reflected by government interference when necessary to stabilize the foreign exchange market (Nega 2015). Later in 2017, Ethiopia birr is devaluing by15%andreachesto USD1/birr 26.91 (https://www.africanews.com/2017)

As a result of massive devaluation in 1992, to attempt to liberalize foreign exchange market; the central bank of Ethiopia has taken a number of initiatives. Accordingly, the fortnightly auction market for foreign exchange was introduced in 1993 with two different rates, the Dutch auction system which is official rate and marginal pricing auction system which is also marginal rate. The change is adopted in the view of achieving supply and demand determined exchange rate. Later in 2001, when the auction system was replaced by daily inter-bank foreign exchange market, it could provide more chance to demand and supply factors to determine exchange rate. But national bank of Ethiopia would manage the exchange rate pressure through reserve. Hence Ethiopia currently exercise managed floating (Tadesse 2015).

Monetary policy in Ethiopia
Monetary policy plays central role in maintaining sustainable development and growth through different instruments. For example, during recession economy where output falls as a result of aggregate demand fall, in such case monetary policy aims increasing demand and hence production. While in economic boom where the demand exceeds production and treat to create inflation, Thus to create stable trade and economic growth monetary policy applies different instruments (direct and indirect) (Johnston and Sundararajan 1999). Direct instrument is that the monetary policy control money supply in the economy through high reserve and liquid asset requirement, direct control of interest rate and selective credit control. While indirect instrument is through market based operation like sell and repurchase

of bonds. But like other developing countries monetary policy instruments, Ethiopia monetary policy instrument is characterized by direct control of prices, interest rate and foreign exchange rates and few public financial institutions (Gray et al. 1996).

Monetary policy in Ethiopia has the following objectives; create sound financial system, price and exchange rate stability. Maintaining exchange rate stability is considered as the principal monetary policy objective of national bank of Ethiopia so as to be competitive in the international trade and to use exchange rate intervention as policy instrument to affect both foreign reserve and domestic money supply (Tadesse 2015).

Monetary control mechanism in Ethiopia mainly follows the financial programming approach applied by the International Monetary Fund (IMF). This involves establishing a ceiling for the growth rate of money supply on the basis of projected growth rate of GDP and targeted inflation, establishing a floor for international reserves and ceilings for net domestic assets of the National Bank of Ethiopia and net domestic government financing. Maintaining exchange rate stability is considered as the principal policy objective of national bank of Ethiopia so as to be competitive in the international trade and to use exchange rate intervention as policy tools for monetary policy to affect both foreign reserve position and domestic money supply (Abebe 2006)

As National Bank of Ethiopia, is one of the monetary authorities in a manner to conduct monetary policy independently and supervise financial institutions in the country, it is responsible to maintains exchange rate stability to avoid excessive exchange rate movement's effect on the domestic economy in one hand; On the other hand, it maintain the equilibrium of the domestic currency supply and demand to prevent excess liquidity to reduce inflation. Therefore, by the two directions, the pressures on central bank to intervene in the foreign exchange market come from changes in exchange rate and the increase in foreign exchange reserves. As per the definition of foreign exchange market pressure, considered the pressure of the foreign exchange market refers to a managed floating exchange rate system, through changes in foreign exchange reserves or changes in exchange rate to avoid the disequilibrium of the monetary market (Girton and Roper 1977).

National Bank of Ethiopia controls the supply and demand for money largely by using direct and indirect monetary policy instruments. These instruments are; floor rate for saving and time deposits, credit ceilings on government borrowings from the banking system, reserve requirements and open market operations (Abebe 2006).

The relationship between exchange rate and monetary policy

The aim of dealing with the relationship between exchange rate and monetary policy is that, the level and movement of exchange rate affects the demand and supply of domestic currency which is managed by monetary policy. The next paragraphs discuss about how exchange rate relates with monetary policy.

Exchange rate is price of one country's currency against other countries currency. There are two types of exchange rate; nominal and real. Nominal exchange rate is ratio of the two countries currency while real exchange rate is adjusted nominal exchange rate to inflation rate. Exchange rate system may be free floating, fixed and managed. Exchange rate system is clean when monetary authorities are free from intervene in the foreign exchange markets, this results that reserves transactions are zero. Exchange rate policy refers a systematic effort on the part of the monetary authorities to influence change of the exchange rate. Different policy instruments are existed to influence the exchange rate, like intervention in foreign exchange market, domestic monetary policy, controls on international trade and capital flows. Exchange rate is the signal of the stance of monetary policy. Weakening of exchange rate may indicate that monetary policy is too loose in relative to foreign currency country; on the other hand strengthening of exchange rate may reflect tight monetary policy (Glick and Hutchison 1989).

The equation raised by Tanner (2001) showed that there is a relationship between exchange market pressure and monetary policy. When real money demand is constant, exchange market pressure and monetary base move together. But to control monetary base central bank set interest rate. This creates difference between demotic interest rate and world interest rate and improves capital inflows which also reduce exchange market pressure.

Different author (Kim, 1985) and (Thornton, 1995) use q (Q=r-1/e-1) where 'r' is interest rate, 'e' is exchange rate; in their monetary model of exchange market pressure to identify whether or not monetary policy absorb exchange market pressure through depreciation or reserve depletion. The monetary authority absorbs more pressure by exchange rate depreciation if Q reflects positive and significant coefficient, but the authority absorb by reserve lose if Q implies negative and insignificant and the monetary policy could not respond if it is insignificant coefficient (Younus 2005).

The effect monetary policy on exchange market pressure.

As theoretical and empirical literature indicated that monetary policy affects exchange market pressure. The equation raised by Tanner (2001) showed that there is a relationship between exchange market pressure and monetary policy. When real money demand is constant, exchange market pressure and monetary base move together. But to control monetary base central bank set interest rate. This creates difference between demotic interest rate and world interest rate and improves capital inflows which also affect exchange market pressure by reducing it (Tanner 2001). However the point here is how to monetary policy absorb exchange market pressure? This is performed through either exchange rate

depreciation or reserve loss. Different author (Kim, 1985) and (Thornton, 1995) conducted on this issue by using (Q=r-1/e-1) in their monetary model of exchange market pressure to identify whether or not monetary policy absorb exchange market pressure through depreciation or reserve depletion. The monetary authority absorbs more pressure by exchange rate depreciation if Q reflects positive and significant coefficient, but the authority absorb by reserve lose if Q implies negative and insignificant and the monetary policy could not respond if it is insignificant coefficient (Younus 2005).

Most of the empirical studies in other countries (Kim 1985, Hall wood and Marsh 2003, Thornton 1995) found that there is negative relationship between the rate of domestic credit creation and the rates of changes in the exchange market pressure. Expansionary monetary policy or high domestic credit creation increases money supply as a result it increases exchange market pressure. Tanner (2001) conducted a research on the interrelation between exchange market pressure and monetary policy and he found that monetary policy reduce exchange market pressure through Contractionary monetary policy. In Ethiopia two contrary studies are conducted by (Andualem 1996, Teferi 2005) and (Melese 2001). The former found that an excess supply of credits is found to be a depreciating impact on the real exchange rate and reduce exchange market pressure. On the contrary, the later found that excess credit results appreciation of the real exchange rate and results high exchange market pressure. A research conducted on monetary approach to the balance of payments in Ethiopia, the objective is to test the hypothesis that increase in domestic credit creation will cause an opposite and equal change in international reserves. Money multiplier and domestic credit have negative effect and the empirical result indicate that increase in domestic credit will result decrease in net foreign assets, which is a proxy for balance of payments (Haile, 2001).

A study conducted by Abebe, D. (2006), on the title exchange market pressure and monetary policy in Ethiopia by using single equation model, the study includes domestic credit, spread, foreign inflation and money multiplier as a variable. He found that increase in percentage changes in growth of domestic credit assumed to be increase exchange market pressure by depreciating domestic currency or reserve depletion; and increase in foreign inflation, increases foreign reserve or appreciate domestic currency, thereby reduce foreign exchange market pressure in Ethiopia. But money multiplier and spread do not have impact on exchange market pressure in Ethiopia. The vector auto regression result of this study also revealed that both increase in domestic credit and money multiplier increases exchange market pressure and increase in foreign price reduce exchange market pressure by increasing foreign reserve. The variable Q is included in the above variables reflected that negative and significant which indicated more of the pressure is absorbed by reserve lose.

Contractionary monetary policy and exchange market pressure

Contractionary monetary policies and expansionary monetary policies are policies that can change the level of money supply in a country. Expansionary monetary policy is a policy which increases the supply of money whereas Contractionary monetary policy decreases the supply of money in a country (Mike Moffatt, 2018).

As the paper discuss does Contractionary monetary policies reduce exchange market pressure or not, the following part provides how it can decrease the exchange market pressure. Contractionary monetary policy is a form of economic policy used to decrease the money supply in a country through different instruments in order to decrease inflation. When the economy is under exchange market pressure, the central bank decreases the money supply by either increase in the discount rate or sale of government bonds or increase in the required reserve ratio. (Obaidullah Jan, ACA, CFA. 2018).

The Federal Reserve System involves a portfolio of government bonds and treasury notes that are sold to commercial banks in exchange for securities. The above strategy forces the banks to charge higher interest rates, thus causing a contraction in the money supply. On the other hand central bank can increase the discount rate. Contractionary monetary policy can reduce money supply by increasing interest rate which discourage borrowing and reduce government spending, to reduce availability of money supply. Thus government exercises Contractionary monetary policy when it seeks to decrease high price or inflation in the country.

The above issues supported by a study conducted by Abebe (2006), on the title exchange market pressure and monetary policy in Ethiopia, the objective of the research is to examine the effect of monetary policy on exchange market pressure revealed that Contractionary monetary policy reduce exchange market pressure.

CONCLUSION

The overall motive of this paper was to examine the effect of monetary policy on exchange market pressure in Ethiopia. More specifically it discussed whether Contractionary monetary policy increase or decrease exchange market pressure.

The monetary policy in Ethiopia exercised managed floating exchange rate regime and Ethiopia exchange market was characterized by depreciation pressure. Countries adopting managed floating exchange rate regime and face by exchange market pressure, the monetary policy should react to reduce the exchange market pressure via reducing domestic credit or Contractionary policy.

As per the empirical literature in Ethiopia domestic credit growth affect exchange market pressure positively and significantly. It implies when domestic credit increases, exchange market pressure increases. On the other hand increase in foreign prices increases the foreign reserves or appreciates the domestic currency and decrease exchange

market pressure.

The monetary policy absorb the exchange market pressure through reserve lose, exchange rate depreciation or both. This is depending on variable Q which is included in the monetary approach model; if Q is positive and significant exchange market pressure is absorbed by exchange rate depreciation and if Q is negative and significant the pressure is absorbed via reserve draw down. As the empirical literature revealed, Ethiopia monetary policy absorb the exchange market pressure more by reserve depletion because the sign of Q is negative and significant.

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