Research Article
Volume 10:10, 2021

International Journal of Economics & Management Sciences

ISSN: 2162-6359 Open Access

The Monetary Policy Frame Work of National Bank of Ethiopia

Abera Fekadu Hailemariam*

Department of Economics, National Bank of Ethiopia, Addis Ababa, Ethiopia

Abstract

Monetary policy in a simplified analysis amounts to the determination of "optimal" quantity of money or in a dynamic sense the optimal growth rate of the money stock. Monetary policy also refers to how the central bank uses interest rates and the money supply to guide economic growth by controlling inflation and stabilizing currency (Islam, 2010). Central banks are the highest authority of the government who is responsible for formulation and implementation of monetary policy in a way to achieve certain economic objectives of a given country. National Bank of Ethiopia (NBE) is the government authority who is mandated to formulate monetary policy in Ethiopia (Monetary and Banking Proclamation of 1994).

During the command economic era, monetary variables were under direct control of the government and banking sector is totally dominated by the public ownership. However, since the start of economic reform, the financial sector has undergone reforms and the private sector was allowed to invest in the sector (only for nationals). Consequently, private banks and insurances started to flourish soon after the enactment of a Monetary and Banking Proclamation of 1994. The reform enables the National Bank of Ethiopia to use indirect market based instruments along with direct instruments to control or influence the supply of and demand for money.

In Ethiopia, a monetary policy frame work is set according to sequential set of action for designing and formulating monetary policy. The frame work is based on certain knowledge (assumption) of stable money demand function, transmission mechanisms and money supply process. The final targets of monetary policy in Ethiopia are to maintain price and exchange rate stability and support sustainable economic growth. In achieving these objectives, the NBE sets money supply as an intermediate target. The current target is to ensure that the money supply growth is in line with nominal GDP growth rate. The growth of base money/reserve money is being used as an operational target of the National Bank of Ethiopia. These intermediate and operational targets are connected with different policy instruments like Open Market Operation, A standing central bank credit facility, Reserve

Requirement, setting of floor deposit interest rate (until interest rate is fully deregulated), Direct borrowing/lending in the inter-bank money market and introducing re-purchase agreement (repo/reverse repo operations), Use of selected credit control when necessary, and Moral Suasion.

The recent history of Ethiopia provides abundant evidence on the role played by the monetary factors in the macro economy. It can demonstrate that changes in the money supply exert profound influence on inflation, output growth and other financial activities. Therefore, the success of monetary policy depends on the degree of predictability, measurability and controllability that the monetary authority has over money supply.

Keywords

Macroeconomic• Depository• T-bills• Currency and Coins• Foreign Assets• Time Deposit

***Address to correspondence:** Abera Fekadu Hailemariam, Department of Economics, National Bank of Ethiopia, Addis Ababa, Ethiopia; E-mail: fbernabas@gmail.com*

***Copyright:** © 2021 Hailemariam AF, et al. This is an open-access article distributed under the terms of the creative commons attribution license which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited.*

Received: 04 October, 2021; **Accepted:** 18 October, 2021**; Published:** 25 October, 2021

Introduction

Monetary Policy is the process by which the government, central bank, or monetary authority of a country controls supply of money, availability of money and cost of money or rate of interest. In the words of Harry G. Johnson, "It is a policy of Central Bank to control the supply of money with the aim of achieving macroeconomic stability".

The monetary policy frame work of National Bank of Ethiopia identifies sequential set of action for conducting monetary policy in Ethiopia. The principal objective of the monetary policy of the National Bank of Ethiopia is to maintain price and exchange rate stability and support sustainable economic growth of Ethiopia. Price stability as a proxy for macroeconomic stability and exchange rate stability is considered as the principal policy objective 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.

Monetary policy is framed in such a way that money supply (M2) has been targeted to grow in line with the expected or planned growth of nominal GDP. Targeted rate of inflation (single digit) adopts Reserve Money (RM) and Broad Money (M2) as operating and intermediate targets, respectively. The practice of targeting reserve money is based on the assumption that there will be a stable money demand function in the economy. Monetary policy targeting is formulated in terms of a real growth target plus a CPI or a core-CPI target (Figure 1).

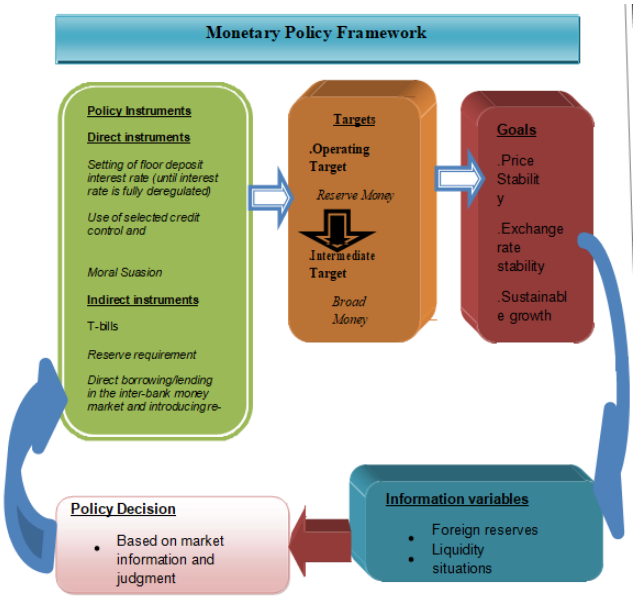

Figure 1: Flow chart 1: Monetary Policy Framework of National Bank of Ethiopia.

Materials and Methods

The money supply process in Ethiopia

Money supply is the amount of money in circulation of the economy at any point of time. It not only includes the currency and coins in circulation, but it also includes demand and time deposits of banks, post office deposits and such related instruments. Valuation and analysis of the money supply helps the economist and policy makers to frame the policy or to alter the existing policy of increasing or reducing the supply of money. The understanding of money supply is important as it ultimately affects the business cycle and thereby affects the economy.

In the money supply process there are three key players:

- The central bank-government organization that oversees the whole system and is responsible for the conduct of monetary policy.
- Depository money banks (DMBs)-these are the financial intermediaries which accept deposit from individuals and organization and make loan to same.
- Depositors-individuals and institutions that hold deposits in DMBs.

In Ethiopia the central bank is called National Bank of Ethiopia (NBE). DMBs are commercial banks. Of the three players, the National Bank of Ethiopia is responsible for the conduct of monetary policy. Monetary policy involves action that affects balance sheet (holding of asset andliabilities).

Results

To understand the money supply process in Ethiopia it is a must to closely study the balance sheet of NBE (Table 1).

Asset	Liabilities
Net foreign Asset	Reserve money
Net Domestic Asset	Currency
Net Domestic credit	Currency held in banks
Net Claims on Government	Currency in circulation
Claims on DMBs	Deposit of DMBs
Claims on the Private sector	Other deposits
Other Items net	

Table1: Analytical balance sheet of the central bank.

Net foreign Asset includes the following items: On the asset side it includes Cash foreign currencies, Balance with foreign correspondents, foreign securities Gold and Special Drawing Rights (SDR). On the liability side it includes, short term liabilities to foreign central banks, long-term debt, such as country's use of IMF credit and Other foreign asset and liabilities not included in the definition of official reserves. Net domestic asset include both net domestic credit and other items, net. Net domestic credit includes: claims on DMBs, net claims on government (Table 2).

Asset	Liabilities
Net Foreign Asset	Deposit
Reserves	Demand
Currency in Vault	Time
Deposit with central bank	Foreign currency

Domestic Credit	Liabilities to the central bank
Net claims on government	
Claims on private sector	
Other items, net	

Table2: Analytical balance sheet of DMBs.

On the liability side of the central bank balance sheet: Reserve money sometimes called high powered money, base money or monetary base including the following items: Currency in circulation and reserve of DMBs with the central. Reserve of DMBs with central banks includes their deposit with central bank plus currency that is physically held by the banks (vault cash). The total assets always be equal to liability as per accounting principles.

The monetary survey

The monetary survey, sometimes referred to as the banking survey is a framework for the analysis of monetary aggregates. The monetary survey combines the balance sheet of the monetary authority with that of the banking system in order to arrive at the ex-post determinants of money supply, which are the liabilities of the banking system as a whole.

Monetary survey presents data on a monetary and credit developments for the entire banking system in a timely fashion. As the monetary authority, NBE is the only institute in the country responsible for the compilation of monetary statistics. And so NBE compiles it using mainly the balance sheets of commercial banks along with that of itself. The core components of monetary statistics are money supply (with its components) and its determinants, namely, net foreign assets and domestic credit (Table 3).

Assets	Liabilities
Net Foreign Assets	Broad money
	Narrow money
Net Domestic Asset	Currency in circulation
Net claims on the government	Demand deposit
Claims on the private sector	Quasi money
Other items, net	Time and saving deposit
	Foreign currency deposit

Table3: Analytical balance sheet of DMBs.

Narrow money (M1): M1 consists of:

- Currency in circulation (C) which includes note and coins that we use plus,
- Demand Deposit (DD) in the banking system.

So it is possible to write the equation as, M1=C+D

Quasi money (QM): Consists of time (TD) and saving account (SD)

QM= TD+ TS

Broad money (M2): Broad money includes all liabilities of the banking system. It is equal to Narrow money plus quasi money.

M2= M1+QM or M2=M1+ TD+ TS

Balance sheet equation of the monetary survey states that total liabilities are equal assets. It implies broad money (M2) is identical to net foreign assets (NFA) plus net domestic assets (NDA):

M2= NFA+ NDA

Since NDA = COG + COP - ONI where, COG is claims on government COP claims on private sector and ONI is others items net

M2= NFA + COG + COP - ONI

The monetary variables that are closely scrutinized are money supply, quasi-money, broad money, foreign assets (net), and total domestic credit. It is a consolidation of the statement of conditions of the National Bank of Ethiopia and the commercial banks (Deposit Money Banks).

Sources of money supply (M2)

Sources of money supply (M2) depends on several components, such as Net Foreign Assets (NFA), Net Domestic Assets (NDA), NDA including government net credit along with other public sectors credit and private sector credit, also NDA consists of total domestic credit and Net Other Assets which creates broad money (M2).

Particulars	2007	2008	2009	2010	2012	2013	2014
Broad Money (M2)	56652	68182	82510	1E+05	189399	235314	3E+05
(1+2)							
	22.15	20.35	21.01	26.57	30.28	24.24	26.53
(1) NFA of the banking	13340	11666	17977	27190	39788	45649	46079
system							
	10.16	-12.55	54.1	51.25	-28.36	14.73	0.94
(2) NDA of the	43312	56517	64533	77243	149611	189665	3E+05
banking system							
(a +b + c)	26.39	30.49	14.18	19.69	66.53	26.77	32.68
(a)	30338	33076	32787	33013	21557	21966	26631
Claims on							
Government	20.07	9.03	-0.87	0.69	-24.76	1.89	21.24
(b) Claims on	18533	23453	24670	27171	39470	43739	48075

private +sector	31.12	48.84	20.31	26.56	56.71	26.21	29.16
(C) Other asset	18533	23453	24670	27171	39470	43739	48075
(net)	23.32	26.55	5.19	10.14	-13.65	10.82	9.91

Table4: Sources to change the broad money.

Table 4 shows the composition and sources of broad money and credit and their movement over time. Broad money has shown a robust growth as explained above over time regardless of its sources NFA and NDA. The trend of broad money supply indicates that credits to the government sector further decreased in FY 1996 by (-) 12.91 than the previous year (-) 5.81 percent. After wards credit to the government sector has persistently increase up until 2008, the highest growth rate being 54.16 percent in the FY 2000. After 2009 credit to the government sector has shown high decrement for four consecutive years. This period of high government sector credit decrement coincides with the high inflationary period of Ethiopia. Due to inflationary problem, NBE has decreased advances to the government and tried to lower the growth of broad money to combat the high inflation the country faced at the time. But for the last two years credit to the government has shown an upward trend again after four consecutive years of decrement, 21.24 percent in the FY 2014.

Calculating the contributions to the growth of money supply

This model remains the work of a team of academic researchers to measure quality of service and productivity in the service sector. The Servqual model assumes that an unswerving affiliation occurs between service aptness, service delivery and service effectiveness According to the model is tagged and anchored on the following scopes: Tangibility which is physical facilities; apparatus, and attendance of personnel. Reliability encompassing capacity to realize service consistently and precisely.

Responsiveness which involves the willingness towards assisting customers and staff in rendering timely services. Assurance which stands for employees courtesy plus the talent to motivate self-assurance and empathy comprising of considerate personalized attention the establishment delivers.

Calculating the Contributions to the Growth of Money Supply

A change in M2 stems from change in NFA, or in NDA, or both $\Delta M2=\Delta NFA+\Delta NDA$ this can be rewritten as

$$\Delta M2=\Delta NF +\Delta COG +\Delta COP -\Delta ONI$$

To determine the primary determinants of the growth in the money supply lets divide the above identity by the stock of money at the end of the previous period.

$\Delta M2/ M2t\text{-}1=\Delta NFA/ M2\ t\text{-}1+ \Delta NDA/ M2\ t\text{-}1$ this equation can be rewritten

$$\Delta M2/ M2t\text{-}1=\Delta NFA/ M2t\text{-}1 + \Delta COG/ M2t\text{-}1 + \Delta COP/ M2t\text{-}1 - \Delta ONI/M2t\text{-}1$$

Using the above equation we may calculate the contributions of the NFA and of NDA to the percentage changes in the money supply for Ethiopia.

	2006	2007	2008	2009	2011	2012	2013	2014
Asset								
Net Foreign Asset	12110	13340	11666	17977	55535	39788	45649	46079
Net Domestic Asset	34268	43312	56517	64533	89842	149611	189665	251653
Liabilities								
Broad Money	46377	56652	68182	82510	145377	189399	235314	297732
Contribution to Broad Money								
Change in Net Foreign Asset								
(%)	-3.79	2.17	-2.46	7.65	19.5	-8.31	2.49	0.14
Change in Net Domestic Asset								
(%)	19.7	19.5	23.31	11.76	12.06	41.11	21.15	26.34
Change in Broad Money (%)	15.33	22.15	20.35	21.01	39.21	30.28	24.24	26.53

Table5: Contributions to the growth of M2 supply.

Over the sample period, money supply (M2) shows a robust growth. The growth of net foreign asset (NFA) and net domestic asset (NDA), work together as driving force behind the growth of M2. M2 attain the lowest growth in FY 1999 (4.38%) and the highest growth in the FY 2011 (39.21%). In the sample period the contribution of NFA was negative in FY1997, 2000, 2006, 2008 and 2012. NFA has the highest contribution at 25% in the FY1994 this was happened mainly due to low and negative growth NDA. The second highest contribution of NFA to the money supply was 19% in the FY 2011, this might happened due to high export earning of the country which increase NFA.

On the other hand, NDA has a moderate changes over the period considered and had a great contribution on money supply in FY 2012 which was highest contribution to money supply (41.11 percent). This is mainly because of the low and negative contribution of NFA (8.31 percent). M2 has grown by 39.21 percent during FY of 2011 the highest in its history over the sample period, of which NFA contributed 19.5 percent and NDA contributed 12.06 percent.

NDA has almost consistent and robust growth over the sample period though the growth of NFA fluctuating, therefore, M2 has increasing trend over the whole period regardless of what has happened on NFA.

End of period	Change of NFA	Contribution of NBE to NFA	Contribution of government sector to total domestic credit	Contribution of private sector to total domestic credit
	(percent)	(percent)	(percent)	(percent)
1993	-	18.5	78.46	21.54
1994	334.64	56.89	75.19	24.81
1995	51.55	52.63	63.11	36.89
1996	9.22	78.6	51.19	48.81
1997	-9.79	51.02	48.29	51.71
1998	3.65	37.14	47.82	52.18
1999	4.41	41.42	47.69	52.31
2000	-21.64	41.24	56.24	43.76
2001	0.62	35.28	55.06	44.94
2002	62.97	48.56	58.02	41.98
2003	41.25	56.88	61.09	38.91
2004	17.64	67.28	61.66	38.34
2005	6.69	69.15	53.75	46.25
2006	-12.68	59.11	51.25	48.75
2007	10.16	58.39	49.05	50.95
2008	-12.55	50.92	41.36	58.64
2009	54.1	65.83	36.75	63.25
2010	51.25	56.58	31.62	68.38
2011	104.25	59.16	21.14	78.86
2012	-28.36	53.42	11.4	88.6
2013	14.73	53.99	9.41	90.59
2014	334.64	18.5	8.88	91.12

Table6: Contribution of the sources of money supply (M2).

The above table3.6 depicts NFA fluctuate over time. NBEs contribute the lion share to NFA. On the other hand, private sector playing the pivotal role on domestic credit and contribution of government sector to domestic credit is declining over times, which indicate large portion of credit is flowing to the private sector. The central players in credit are the DMBs.

Behavior of money supply

Under this section we try to investigate the behavior of money supply in details over the sample period 1993-2014 in Ethiopia. This chapter discusses the trends of different factors and ratios how their trend and growth impact the development of money supply.

Figure 2 below depicts behavior of M1 and M2. Comparing the growth of M1 and M2 growth of M2 dominates that of M1 most of the time. During 1994-1998 M2 growth relatively higher than of growth of M1, in 1999 and 2000 become equal and in 2008 and 2011 growth of M1 was higher than that of M2. But immediately after 2011 the growth of M1 decline faster than M2.

For fast decrease of M1 in recent years, many factors have played a role. To mention the use of ATM by many banks, more importantly aggressive branch expansion of bakes primarily by Commercial Bank of Ethiopia and the others are also following the footsteps of this bank. And this result told us financial sector development is flourishing in Ethiopia hence demand for cash (M1) is decreasing and people will gradually shifts to noncash economy (Figure 2).

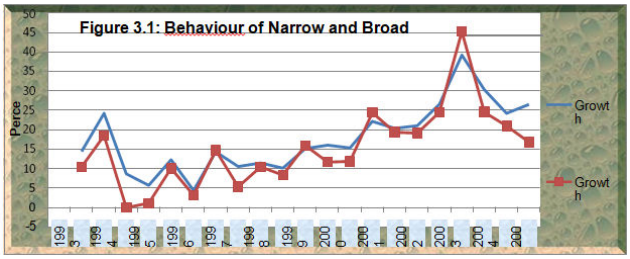

Figure2: An analysis of components of broad money shows that in those periods where growth M1 is higher than broad money, demand for currency is relatively higher than previous years which show strong currency demand due to inflation expectation.

Demand to Time deposit: Though we have seen the behavior of narrow and broad money growth it is also possible to illustrate *via* the following ratio analysis (Figure 3).

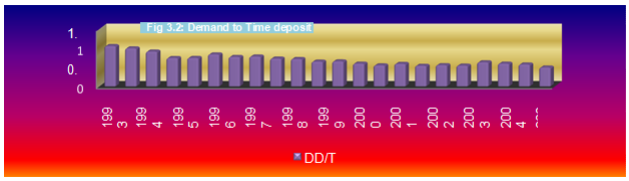

Figure3: Indicate the ratio of demand to time deposit2 is gradually declining over the sample period. The higher growth of time deposit partially indicate the higher opportunity cost of holding money due to attractive returns on different terms deposits.

Narrow money (M1) to broad money ratio (M2): M1 to M2 ratio indicates the liquidity performance of the economy. The ratio is on high level from 1993 to 1995 tough a bit declining the after wards up until 2003. It gradually declined for the other years except 2011 FY which was a bit higher. Then it remains constant around 0.5 and it keeps on decaling gradually (Figure 4).

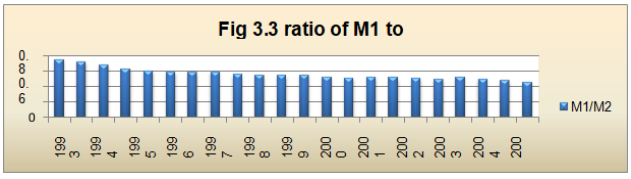

Figure4: Ratio of M1/M2.

The reason for the decrease in M1 to M2 ratio would be due to a decrease in demand for holding currency or demand deposit, which may be due to the innovation of ATM, cost of holding money is higher and new entrants of banks as well as branch expansion by banks. On the other hand, the increase in the ratio might be due to increase in

demand for holding currency and demand deposit as higher inflation expectations.

M2 to GDP ratio

One important aspect of the economy is the development of Money supply to GDP ratio. Before FY1999 M2 to GDP ratio is more or less constant but after FY 2000 to 2007 the ratio of M2 to GDP increase in general. The cause of higher money expansion is principally driven by NDA. The pattern of M2 to GDP shows higher monetization of the economy through increasing financial intermediation. But after 2009 onwards it shows little slowdown but remains around 0.25. Since it does not make sense to say that Ethiopia is more monetized in 2002 than 2014, where there was immense effort was exerted for financial sector development in the country for instance number of banks increases, branch expansion was made aggressively, financial sector innovation was introduced such as ATM. The reason for the decline of M2 to NGDP ratio may be is not the decline of M2 as indicated above, however, it might be on account of GDP re-basing or faster growth of NGDP that make NGDP higher than M2. For instances the average growth rate of NGDP from FY 2004 to 20013 is 28.4 percent but that of M2 is 22.9 percent (Figure 5).

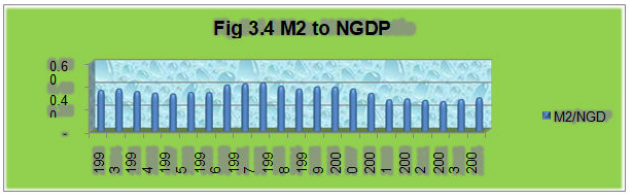

Figure5: M2 to NGDP.

Factors determining the money supply in Ethiopia

The monetary base or reserve money: The monetary base (also base money, money base, high-powered money, reserve money is defined as the portion of the commercial banks' reserves that are maintained in accounts with their central bank plus the total currency circulating in the public (which includes the currency, also known as vault cash, that is physically held in the banks' vault) [1].

The monetary base (RM) is called high-powered because its increase will typically result in a much larger increase in the supply of demand deposits through banks' loan-making; a ratio called the money multiplier (Figure 6).

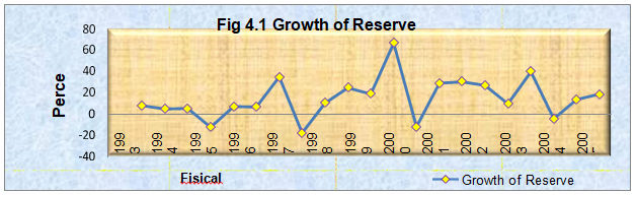

Figure6: Growth of reserve.

The monetary base and monetary policy are typically controlled by national institution, usually the central bank. These institutions change the monetary base through open market transactions: the buying and selling of government bonds. Typically, they can also influence banking activities by manipulating interest rates and setting reserve requirements (how much money banks must keep on hand instead of loaning out to borrowers).

Figure 6 Depicts the growth rate of RM, nevertheless, Reserve money of NBE fluctuate over the sample period, over all it shows upward trend except FY 1997, 2001, 2006 and 2012 where the growth were negative. The growth rate 66.47 percent is the highest during 2005 FY. Again fall down drastically at -11.84 percent in the FY 2006 then rises steadily up to 2010 increase in a bit lower rate than the previous years before it dramatically fall in to 4.44 an percent then starts to increase again.

An analysis of the components of reserve money (RM) growth shows that the growth of currency outside banks was negative for the FY of 1996 to 1998 and near zero in the FY 2001. Currency outside bank for the rest of the time grows positively at a steady rate on average by 16.60 and hence it seems predictable. Bank deposit is the most fluctuating components of reserve money and this is due to fluctuation of excess reserves of banks. The highest growth rate of bank deposit is 170.29 in 2005 FY this is the same year that reserve money attained the highest growth rate. Currency held by banks is the second most fluctuating components of reserve money next to bank deposit. Bank deposit together with currency held by banks explains the fluctuation of reserve money (see annex for details).

Sources of reserve money (RM): The higher percentage growth of RM was in the FY 2000 is due to positive contribution of NDA of NBE by 53.5 percent and partly by Other Asset Net by 69.89 percent despite the fact that NFA has decreased. The highest of all point in growth of RM money which was 64.47 in the FY 2005 was due to mainly by Other Asset Net increase by 236.27 percent and partly by NDA 65.49 and NFA increased by 21.20 percent. In years except FY of 2012 where NFA fall drastically, it contributed a significant share for the growth of RM. However, for the last two years 2013 and 2014 the contribution to RM growth was moderate (see figure 6).

To analyze the source of reserve money we look at the ratio of NFA to NDA. Looking carefully to this ratio it tells interesting story. The ratio of NFA to NDA fluctuates over a given period, for certain three to four years; the ratio raises then for the first one to four FY and for the next three to four years the ratio falls and it is cyclical. For instance, from FY 1993 to FY1996 for four years the ratio NFA to NDA increases, and then from the FY 1997 to 2000 FY it dramatically declined and then again stated to rise for four years and so forth see (Figure 7).

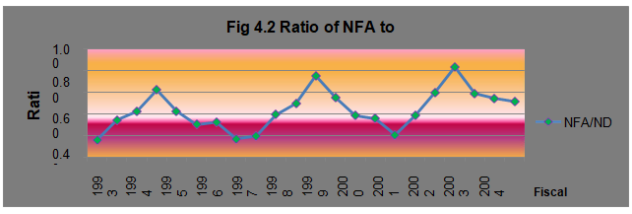

Figure7: Ratio of NFA to ND.

The money multiplier

In the model of money supply the Central Bank, DMBs and depositors directly influence the money supply. The central bank influences the money supply by controlling monetary base, reserves and required reserve ratio. The central bank can control the monetary base much more precisely than it can control reserves; it makes sense to model the money supply process by linking the money supply to the monetary base (RM) or high-powered money. Depositors influence the money supply through their decisions about their holding of currency, while banks influence the money supply with their decision about excess reserves. However, because depositors' behavior influences bankers' expectations about deposit outflows, which affect banks' decisions to hold excess reserves, depositors are also listed as a player determining factor in excess reserves.

To understand how the money supply process works, we can derive all the results described above using a concept called the money multiplier, denoted by mm, which tells us how much the money supply changes for a given change in the monetary base. The relationship between the money supply, the money multiplier, and the monetary base is described by the following equation:

$M = mm \times RM$

Where, mm = money multiplier.

The money multiplier mm tells us what multiple of the monetary base is transformed into the money supply. Because the money multiplier is larger than 1 is logical: a Birr 1 change in the monetary base leads to more than a Birr 1 change in the money supply. Also mm will depend on depositors' decisions about holdings of currency and banks' decisions about holdings of excess reserves.

Factors that determine the money multiplier: A model of money supply

The money supply is the sum of currency (C) and deposits (D) M= C+D… (1)

The Reserve Money (RM) is the sum of currency (C) and bank reserves (R) RM= C+R… (2)

Dividing the first equation by the second, we obtain M/RM = C+D/ C+R… (3)

Then we divide the numerator and denominator on the right side by D M/RM= (C/D+1)/(C/D+ R/D) (4)

Where, C/D is the currency-deposit ratio and

that R/D is the reserve-deposit ratio. Multiplying by RM on both side of equation (4), we obtain M=(C/D+1)/(C/D+ R/D) ×RM (5)

Equation (5) shows how money supply depends on the three exogenous variables, reserve money, currency-deposit ratio and reserve-deposit ratio. We can now see that the money supply is proportional to the reserve money. The factor of proportionality, (C/D +1)/(C/D+R/D), is denoted by mm and is called the money multiplier. We can write

M= mm×RM (6)

Each Birr of monetary base produces mm Birr of money, because, reserve money has a multiple effect on the money supply.

Determinants of money multiplier in Ethiopia

The stability of money multiplier is important for conducting monetary policy. According to Monetarist school the central bank can be abele to control the growth of money supply provided that money multiplier is predictable or stationary in the short run if this is not the case broad money and reserve money should at least be co integrated, for central bank to control the broad money in the long run. Money multiplier for Ethiopia is not stationary3 and it is volatile over the sample period. The volatility as measured by standard deviation shows a higher trend. The movement of mm depends on certain factors (Table 8), (Figure 8).

Fiscal year	2006	2007	2008	2009	2011	2012	2013	2014
Reserve Money	46377	56652	68182	82510	145377	189399	235314	297732
(In Millions of Birr)	-11.85	28.95	30.16	26.88	39.69	-4.45	13.6	18.69
Broad Money	46377	56652	68182	82510	145377	189399	235314	297732
(In Millions of Birr)	15.33	22.15	20.35	21.01	39.21	30.28	24.24	26.53
Money Multiplier	2.19	2.07	1.92	1.83	2.11	2.87	3.14	3.35

Table 8: Money Multiplier, Reserve Money and Broad Money.

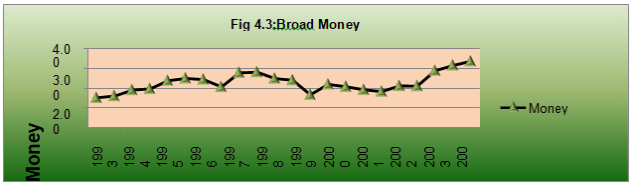

Figure 8: Broad money.

Broad money multiplier increases due to, either broad money (commercial bank money) increased or reserve money (central bank money decreased), the reverse also holds true. Though there are fluctuations over time in broad money multiplier, it in general depicts an increasing trend. This has important implication about the money creation process in Ethiopia; shows monetization is under gone in a healthy way. That means, in our observation and evidence from the data money is being created by the commercial banks rather than fiscal monetization (printing by the central bank) [2].

Behavior of currency to deposit ratio (C/D): Lower C/D means people prefer to hold less currency than to deposit which is an increase in the deposit of banking system. The higher deposit means banks can lend it for further investment and thus through money multiplier effect expand money supply. The currency to deposit ratio dramatically decline in Ethiopian economy. In 1993 it were 0.9 decline continuously, the average C/D ratio is around 0.31 from 1998 to 2010 FY. After wards, further reduces to an average of 0.25 in 2014 FY.

There are three key players in the money supply process, the public, central bank and the DMBs. Among the three key players the public demand for currency is not as such controllable by the central bank but as can be seen from figure 9 below, the variability of C to D ratio is very less and this shows it is predictable. This is good input for predictability and controllability of money supply. As currency outside bank and deposit are components of broad money (Figure 9).

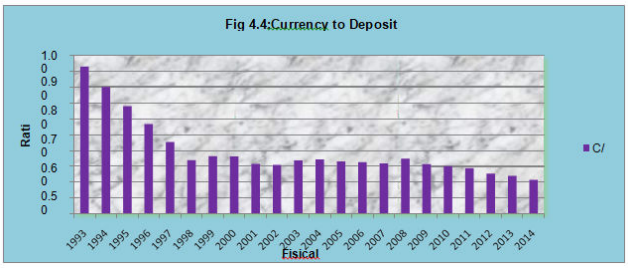

Figure 9: Currency to deposit.

As can be seen from figure 9 currency to deposit ratio is continually declining. The reason behind are financial innovation, bank branch expansion. This trend is expected to continue in the future as other financial products come to the market such as mobile and agent banking, further expansion of ATM and POS that will facilitate the payment system.

Changes in required reserve to deposits ratio (R/D): Reserve to deposit ratio is one of the main instrument of monetary policy of NBE to achieve its goals. It is a good instrument to control base money and money supply as well. The lower reserve to deposit ratio, the more banks made and the more money banks create from every Birr of reserves. Thus a decrease in reserve-deposit ratio increases the money multiplier and the money supply and the reverse decreases money supply. By applying different ratio of reserve to deposit the central bank controls the money creation of commercial banks.

Though one cannot say reserve-deposit ratio is not fluctuating, it relatively stays constant over a certain periods (see Figure 10 below). It only changes whenever NBE wants to alter the money creation of commercial banks occasionally. A dramatic change of reserve-deposit ratio was during the high inflation time from 2007 FY and 20011 NBE changes it from 5 percent to 15 percent and NBE lowers it in 2012 to 10 percent and after wards bring it to its historical point to 5 percent after it makes sure that inflation is within the bank's target (Figure 10).

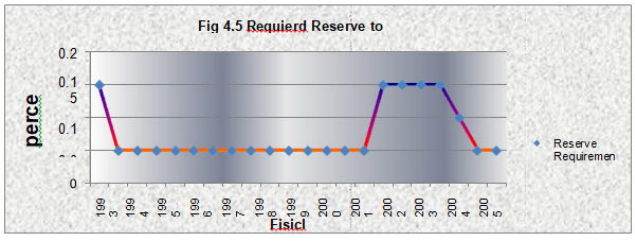

Figure 10: Required reserve to perce.

Changes in excess reserve-deposit ratio: Excess reserve to deposit measures the behavior of banks. Banks hold excess reserve primarily for meeting unexpected outflow of deposit. Excess reserve does not earn an interest, so the tendency of the bank would be to minimize cost through adopting efficient fund management. Because the opportunity cost of holding excess reserve is so crucial for fund management by the banks (Figure 11).

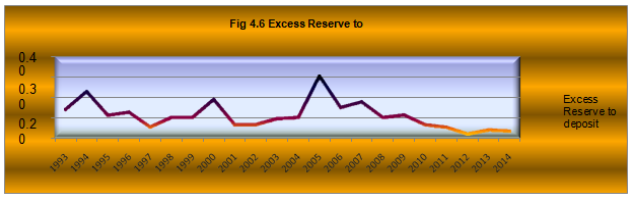

Figure 11: Excess reserve to deposit.

To sum up, it is well understood that, NBE has enormous interest in controlling the money supply in the economy. The results on trend and behavior of the ratios, which affect money multiplier in Ethiopia, over the study period shows that, required reserve is more or less stable over a certain time interval and currency to deposit ratio also shows a predictable trend, this impels that the main source of money multiplier in Ethiopia is excess reserve to deposit ratio [3].

Deposits and credits

Figure 12 below indicates the trend of total deposit of the banking system and credit (including the credits given by NBE) over our sample period. Most of the time growth of deposit and credit follow similarly trend but, deposit is higher than that of credit, except for the FY 2000, 2005, 2006 and 2007 this is the period associated with high inflation in Ethiopia and indicate that public credit increases. A point that is noteworthy is, in those years of inflation, credit by the NBE has influenced inflation as can be seen from below Figure 12 growth of credit of DMBs were below the growth of deposit which implies fiscal monetization has taken by the central bank.

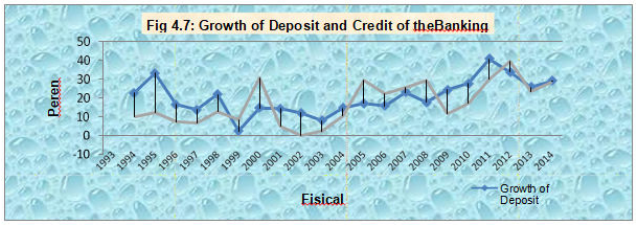

Figure 12: Growth of deposit and credit of the banking.

Except for the beginning sample period's deposit of DMBs has shown robust growth (see Figure 13). Comparing to credit deposit is less volatile during the study period. Except for the FY 1996, 2002, 2007, 2013 growth deposit of DMBs were higher than that of credit they provided. This particular year's shows credit particularly by the private sector has increased (Figure 13).

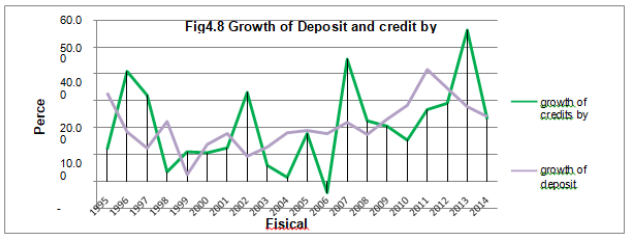

Figure 13: Growth of deposit and credit by.

Credit to the public and private sector

Figure 14 depicts the growth of domestic credit components namely Claims on government and private sector. In the beginning of the sample period and for consecutive three years government credit grows negatively. But growth of private sector is very high. After FY 1998 credit to government and private sector grows proportionally but FY 2000 is exceptional, credit to government reaches its highest point historically 54.16 percent, this has happened due to high government borrowing from the central bank 53.12 percentage higher than the previous year(See annex for details. Similarly though the share of commercial bank claims on the government decline the amount of claim was high in the same FY. It is to note this FY year is the end of Ethio-ertrian war. After credit for the government shows a robust growth, even though the growth was less than the private sector credit, it shows a big decline even it was negative for two consecutive FY 2011 and 2012. For the current FY i.e. 2014 it regained inertia and shows an improvement.

During FY 2002 and 2003 private sector credit is negative in contrast to government credit, because of the decline of the commercial banks credit to the sector. Though growth of credit to private sector is increasing in general, it is very volatile and fluctuates between years (Figure 14).

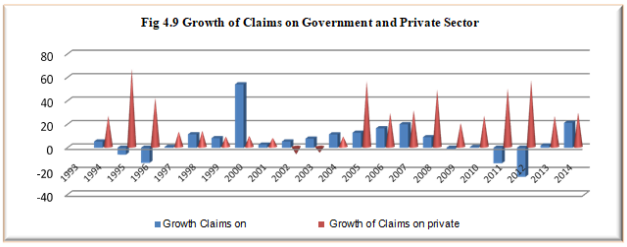

Figure 14: Growth of claims on Government and private sector.

Figure 14 shows Ethiopian government obligation with including its different components. Among the four components of government obligation, the share of direct advances from the National bank of Ethiopia is the highest, averaging 68 percent over the sample period. Though declining from time to time the share of non interest bearing special bond takes the second position. The use of government bonds is declining and recently takes insignificant share from the total government obligation (Figure 15) [4].

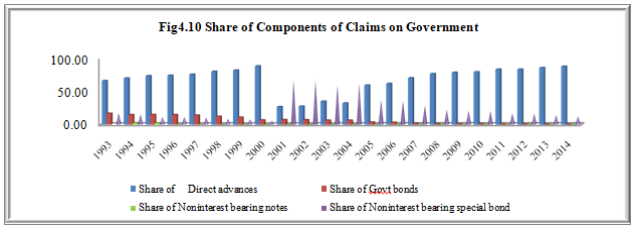

Figure 15: Share of components of claims on Government.

Discussion

Conclusion

The principal objective of national bank of Ethiopia's monetary policy is to maintain price and exchange rate stability and support sustainable economic growth. Monetary policy is framed using nominal GDP growth rate, which has been targeted to grow in line with the expected or projected growth of nominal GDP. Assuming that there will be stable money demand, NBE uses Money supply (M2) as intermediate target and reserve money as operational target. In doing so, the NBE uses both direct and indirect instruments. Among the direct instrument, selected credit control, moral suasion and setting of floor deposit interest rate are some and NBE also uses some indirect instruments like reserve requirement and T-bills (t-bill is not direct instrument).

The study investigates the behavior of broad money, reserve money and money multiplier and their sources, trend, contribution and impact on money supply in Ethiopia and its implication for monetary policy. In addition the study addresses how NBE exercises its monetary policy: the monetary instrument used. Analysis of available statistical data from NBE and World Bank covering 1993-20014 using descriptive analysis is used to come with the conclusion of the study.

NBE has introduced many indirect instruments (interbank money market, Discount window facility, OMO) but they are less functional. This is mainly due to the underdeveloped financial sector in Ethiopia. For example, because banks are much liquid and hold excess reserve money so that they do not encounter liquidity shortage so that, they cannot participate in the inter-bank money market and use the discount window facility to borrow from the NBE.

The sources of broad money supply are the NFA and NDA. NFA is the very unstable sources of broad money supply over the study period. NDA is relatively stable than NFA, its components credit to government and private sector shows fluctuation which goes to broad money supply. However, NFA causes the highest instability to broad money hence money supply process in Ethiopia.

Chapter four of this study analyzes the factors determining money supply in Ethiopia. The result reveled that, factors determining various components of money supply affects broad money in the same way. The ratios C/D, ER/D and RR/D changed mm as well as RM and this in turn reflected on money supply. Excess reserve to deposit ratio is the most fluctuating determinant of money multiplier and hence plays a significant role for nonstationary of money multiplier. Broad money multiplier though fluctuating it increases in

general and this shows money is created by commercial bank and monetization is undergone healthy.

The study also analyzed IRS among PCBs and Government commercial banks and with similar African economies like Kenya Tanzania and even with Asian and Latin American economy. The study found that IRS of PCBs is higher than that of government commercial banks. But in general average IRS of Ethiopia is very much less than that of similar African economies but very much higher than some Asian countries Latin American country as well [5].

In addition the chapter analyzes the trend of government browning and financing budget deficit. Government finances its deficit from both domestic and external sources in recent years and past except for the FY 200-2009 which coincides with the inflationary period and 1999-2001, when government mainly financed it deficit from the domestic sources and for the rest of the period external sources were mainly used. Close observation of government obligation divulge that highest share of claims on government is from the NBE and the share of commercial bank claims against government is declining sharply. From the claims of NBE advances to the government accounts the lion share. This has obviously important implication for money supply process and monetary policy.

Recommendation

Government borrowing from NBE

Close observation of government obligation divulge that, highest share of claims on government is from the NBE. From the claims of NBE advances to the government accounts the lion share. This has obviously important implication for money supply process and monetary policy. As it is noted that government borrowing has an impact on Reserve Money (RM) and domestic financing crowds out private investment which could fuel inflation. Some evidences' were discovered during the study, that government direct borrowing is a problem to efficient monetary policy formulation of NBE and healthy process of money creation for some years. Money multiplier was dominated by money created by NBE for example during recent inflationary session of 2007 to 2009 money creation process of Ethiopia was dominated by NBE's money (reserve money) which is more or less related to government direct advance there was a fiscal monetization. To support the above argument at the said period of inflation in Ethiopia government has financed it budget deficit mainly from the domestic sources (advances from the central bank) which has potential on domestic inflation.

Though government deficit is at its manageable sizes at recent years below 3 percent, but was above the thresholds level for most of the past years before FY2007. Government is financing its deficit from non-inflationary sources most of the time NBE. However NBE may advice government to find other additional sources other than browning from the banking system in case of high budget deficit.

Interest rate spread in the banking sector: In general it is well noticed that IRS in Ethiopia is very minimum with the standard of similar African economies. But IRS of private commercial banks is higher than that of government owned banks. This might reflect, inefficiency, lack of competition and existence of market segmentation in the banking system. NBE shall minimize these problems by creating competitive environment and support the banks to minimize their administrative cost by capacity building to reduce level of inefficiency.

References

1. Beyene, Sisay Demissew, and Balázs Kotosz. "Is Fiscal or Monetary Policy More Effective on Economic Growth? an Empirical Evidence in The Case of Ethiopia." (2020).
2. Demilie Basha, Hailu, and Fikru Debele. "The Effect of Monetary Policy on the Private Sector Investment in Ethiopia: ARDL co-Integration Approach." Economic 4, (2015): 22.
3. António, Afonso, and João Tovar Jalles. "Fiscal Composition and Long-Term Growth." Appl Econ 46, (2014):349-358.
4. Peter, Bofinger, Julian Reischle, and Andrea Schächter. "Monetary Policy: Goals, Institutions, Strategies, and Instruments." Oxford University Press on Demand, 2001.
5. Hollander, Den Marcel C, Conny A Bakker, and Erik Jan Hultink. "Product Design in a Circular Economy: Development of a Typology of Key Concepts and Terms." J Ind Ecol 21, (2017): 517-525.

How to cite this article: Fekadu Hailemariam, Abera. "The Monetary Policy Frame Work of National Bank of Ethiopia." *Int J Econ Manag* 10 (2021) : 609.