Challenges to Monetary Policy Transmission to Consumer Prices in Ethiopia

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Abstract

The study examines challenges to monetary policy transmission, focusing on the National Bank of Ethiopia's (NBE) price stabilization policies. The NBE's monetary policy framework aims to maintain price and exchange rate stability while supporting economic growth. However, controlling the broad money supply (M2) poses obstacles. For instance, excess reserves in the banking system and anomalous negative real deposit and lending rates complicate the matter. The study extensively analyzed the Consumer Price Index (CPI) to identify the drivers of price growth, understand how bank financing flows into it, and the implications for monetary policy transmission—examining the CPI basket's composition and its linkages to the financial system. Ethiopia could enhance its ability to ensure price stability by fostering a more developed interbank money market. To accomplish this goal, the central bank can implement a system of credit guarantees and design mechanisms to channel excess financial reserves into productive uses, thereby strengthening the supply side of the price mechanism. Collaborating with fiscal authorities, particularly in acquiring government guarantees for bank lending in sectors like agriculture and food, can facilitate this process.

Keywords: Consumer Price Index, inflation, bank, excess reserves, monetary policy, budget deficit

JEL classification: E31, E4, E5, E6

1. Introduction

Between 1960 and 2003, Ethiopia's economy consistently maintained price stability, with an average inflation rate of 3.58 percent. However, there were a few exceptions during drought and conflict, leading to higher inflation rates. Notable instances include the 1984 drought, the 1999 border conflict with Eritrea, and the 2003 drought, as mentioned by Loening (2009) and supported by World Bank Data. Despite achieving price stability during the periods mentioned (1960-2003), the Ethiopian economy did not attain sustained GDP growth throughout that timeframe (Figure 1).

The achievement of price stability is often attributed to the imperial regime's strict fiscal and monetary policies in the 1960s and early 1970s, the direct price control policy of the socialist government from 1974 to 1991, and the prudent macroeconomic stabilization policy of the current government from 1993 to 2003.

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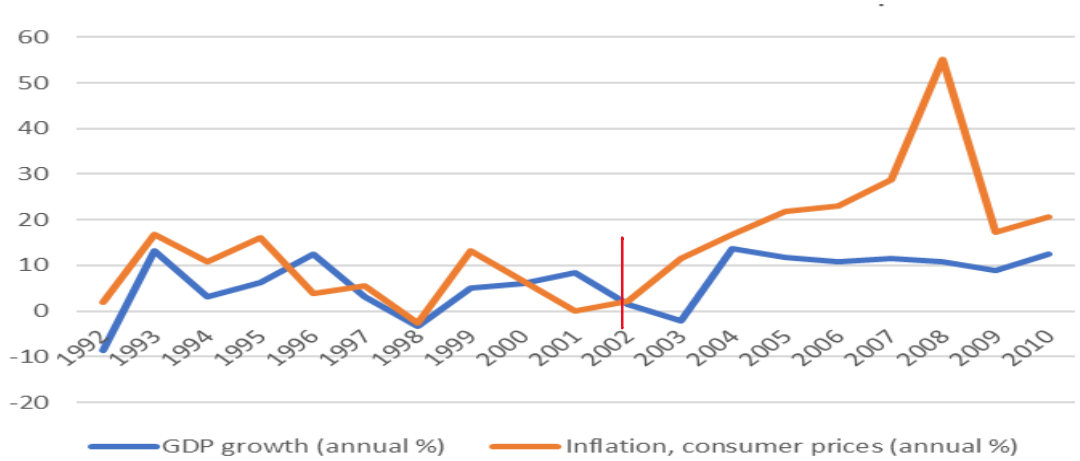
Figure 1 Real GDP and Inflation Trends in Ethiopia



Source: World Bank's World Development Indicators

In recent years, Ethiopia has experienced a significant departure from its historical patterns of stable prices and low GDP growth, notably observed after 2002. This deviation, marked by inflation persisting despite stable conditions without war or drought and concurrent economic growth, has drawn the interest of researchers. Consequently, empirical studies have examined various causes of inflation in Ethiopia and proposed remedies to reestablish price stability.

Among the frequently mentioned causes are the switch to less stringent monetary policy, resulting in monetary growth, budget deficit financing, inflationary pressures from domestic and global food and non-food factors, and the growth of aggregate demand surpassing supply in the wake of recent economic growth. To regain price stability, experts suggest implementing remedies such as adopting a tighter monetary policy and reducing budget deficit financing, among other measures.

The existing literature on monetary policy in Ethiopia has shown limited emphasis on analyzing the challenges associated with transmitting monetary policy shocks to the specific components of the Consumer Price Index (CPI) basket. Additionally, a crucial aspect that requires further investigation pertains to the determination of the money supply and the role of money demand in influencing inflation. Understanding the degree of control, the NBE has over the money supply can provide valuable insights into the mechanisms driving inflation.

In line with the existing monetary policy framework of the NBE, this study takes a comprehensive approach to investigate the transmission challenges hindering monetary policy from effectively influencing the CPI, thereby impeding efforts to curb inflation. Specifically, the study delves into the composition of the CPI basket and examines the key elements responsible for determining inflation.

The structure of the paper is as follows: Section 2 presents a synthesis of the literature on inflation. Section 3 provides an overview of the CPI basket and the monetary policy framework. Section 4 delves into the intricacies of monetary policy transmission challenges—finally, Section 5 offers concluding remarks.

2. Synthesizing the literature on Inflation in Ethiopia

The literature on inflation in Ethiopia highlights various factors that impact price dynamics. Influential factors documented in the literature include agricultural supply shocks, inflation expectations, money supply growth, exchange rate changes, and international food and non-food price levels. The findings of selected papers are presented below.

Loening et al. (2009) specifically identify agricultural supply shocks, inflation expectations, and money supply growth as short-term determinants of inflation in Ethiopia. They emphasize the significance of exchange rate changes and international food and non-food price levels in determining long-term price movements.

Yemane (2008, pp. 8-10) contributes to the discussion by emphasizing the role of rapid money supply growth and budget deficit financing for long-term price instability. He associates Ethiopia's three decades of price stability before 2003 to the tight monetary and fiscal policies and reliance on external sources for budget deficit financing. However, the subsequent shift to domestic borrowing and monetization of the deficit accelerated money supply growth, triggering the current inflationary pressures. Yemane suggests that implementing coordinated monetary and fiscal policies could help reduce monetary growth and inflation.

Alemayehu and Kibrom (2008) provide additional insights by differentiating between short- and long-term food and non-food inflation determinants. They highlight the long-term significance of factors such as money supply growth, inflation expectations, changes in global food prices, and increased demand for food. In the short term, fluctuations in money supply, interest rates, world market prices, wages, exchange rates, inflation expectations, and food supply shortages contribute to price dynamics in food and non-food items. The authors recommend implementing tight monetary and fiscal policies, particularly by reducing the monetization of the public deficit, to address inflationary pressures effectively.

The IMF country report (2008, pp. 1-4) further examines the rise in money supply growth since 2005 and its implications for inflation. It highlights direct central government borrowing from the National Bank of Ethiopia (NBE) and public sector borrowing from the banking system as drivers of increased money supply during that period. However, the report suggests that the external sector has a minimal share in the current inflation and lacks a clear mechanism, warranting further investigation.

Access Capital's annual Macroeconomic Handbook of Ethiopia (2009) sheds light on the principal sources of inflation in the country, attributing them to loose monetary and fiscal policies combined with significant budget deficit financing. The handbook emphasizes the limited impact of global fuel and food prices on the domestic price level, suggesting a weak transmission mechanism of world prices to the Ethiopian economy.

The Economist Intelligence Unit's country report (EIU, 2010) implicitly points to a decrease in the supply of food relative to demand as a major determinant of inflation in Ethiopia. It highlights the overall decline in inflation from its peak in 2008 to 2009, primarily driven by improvements in food supply following a successful crop harvest.

The IMF recommends flexibility in the nominal exchange rate to address the loss of international competitiveness resulting from the appreciation of the real exchange rate. Additionally, tightening fiscal and monetary policies are advised to curb inflation (IMF, 2008).

Considering the review of different explanations for inflation in Ethiopia, money supply growth, particularly through government budget financing, emerges as a key factor. National and international advisory institutions propose implementing tight fiscal and monetary policies as potential remedies. However, their effectiveness within Ethiopia's unique context requires further investigation. As a result, the current study aims to explore the transmission challenges that hinder the effective implementation of monetary policy in curbing inflation.

3. Ethiopia's CPI Basket & Monetary Policy Framework

3.1 Measuring the CPI in Ethiopia

This section provides an overview of the fundamentals of the CPI, including the computation method, representative items, and weights assigned to the components of the CPI basket. The Central Statistics Agency of Ethiopia (CSA) initiated the reporting of the CPI specifically for Addis Ababa in 1963. Subsequently, in the 1980s, the Rural Consumer Price Index was incorporated, followed by the introduction of a national-level index in 1995. Since the inception of the national-level CPI, the base year has been changed three times (1996, 2000, and 2006) (CSA, 2008, pp. 1-5).

The current approach involves the CSA conducting a comprehensive household income, consumption, and expenditure survey every five years. This survey is carried out among a representative sample of households and serves as the primary means to determine the constituents of the CPI basket and allocate relative weights to them. The primary objective of this survey is to determine the components of the CPI basket and assign relative weights to them[2]. Each survey's results indicate the average price variations in the harvest and plow seasons. The weight is then used to compute CPI, using Laspeyre's Weighted Price Index method[3], for the monthly retail price data that CSA collects. Figure 2 presents the breakdown of the weights for the most recent two CPI baskets.

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[2] After conducting the survey, the expenditure items are categorized based on households' expenditures on each item relative to the total expenditures on all items. Items with weights below 0.4 percent are excluded from the basket, and their weights are evenly distributed among the remaining items to maintain a total summation of 100 percent. The weight of each category is then determined by horizontally summing the weights of the included items within that category.

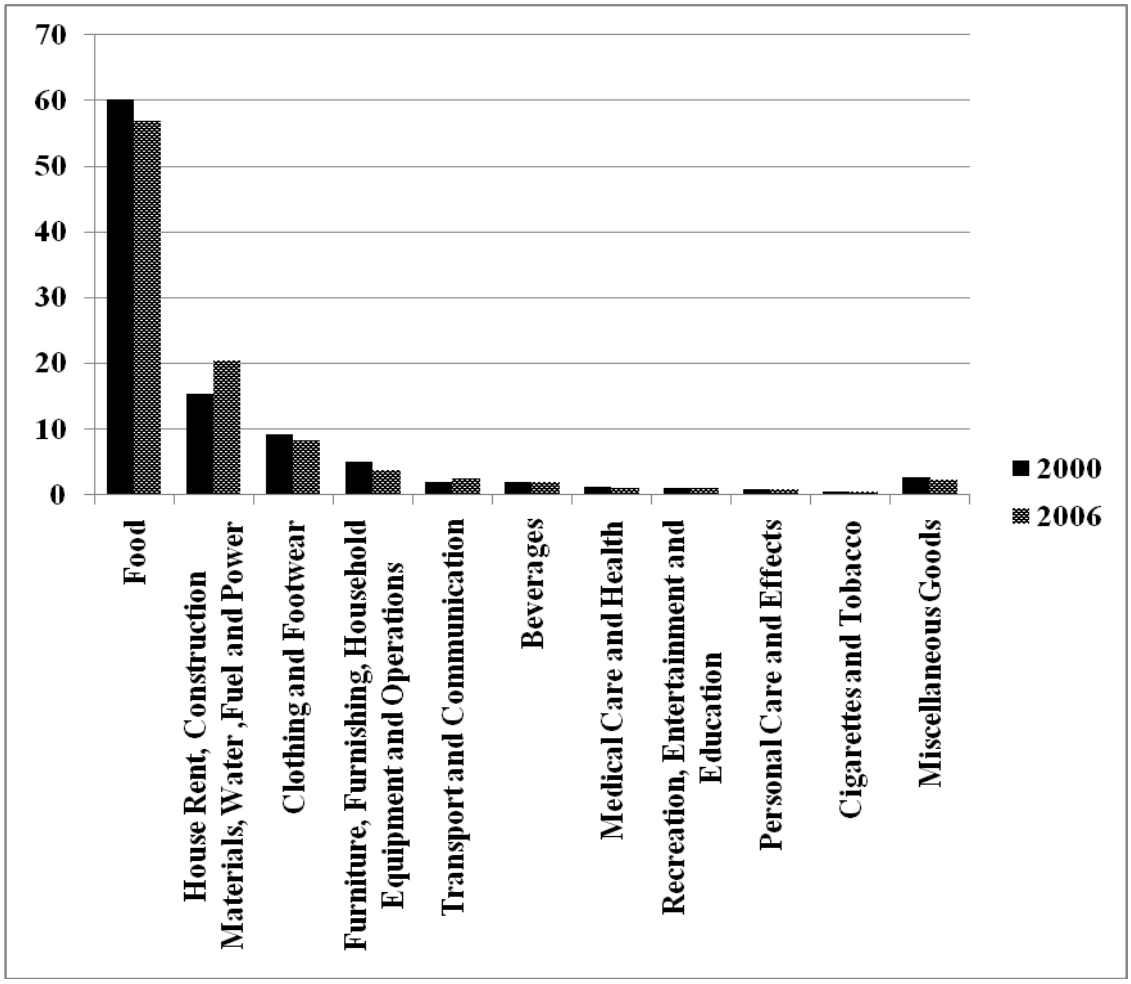
[3] $CPI = \frac{\left(\sum_{i=1}^{n} \left(P_{i1}/_{P_{i0}}\right) \times W_{i0}\right)}{\sum_{i=1}^{n} W_{i0}}$, where, P_{i1}= The current price of an item in the basket

P_{i0}= The base year price of an item

W_{i0}= The weight of each item

$\sum_{i=1}^{n} Wi0$ = The total of the weights of each item in the basket

Figure 2 Composition of CPI Basket in 2000 and 2006 Base Years



Source: Author's graph from CSA report, 2008, p.15

In the 2000 and 2006 base years, households' spending behavior remained consistent except for slight changes in the food and house rent, construction materials, water, fuel, and power subcategories. Food maintained a dominant weight in both periods, highlighting the importance of food prices in influencing overall changes in the CPI.

3.2 The National Bank's Monetary Policy Framework

As outlined in the monetary policy framework of Ethiopia (2009), the NBE sets three levels of targets: operational, intermediate, and ultimate targets. The framework describes the transmission process starting from the monetary impulse being transmitted to the operational targets and subsequently leading to the achievement of the ultimate target through the intermediate target. Here is an extract from the framework:

> *"The principal objective of the monetary policy of the National Bank of Ethiopia is to maintain price and exchange rate stability and support the sustainable economic growth of Ethiopia . . . NBE takes the broader definition of money or M2 as money supply. 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." (NBE, 2009, p.2-3)*

The NBE's monetary policy explicitly assumes a stable velocity of money in the exogenous money supply process. The policy's transmission mechanism relies on the NBE controlling the base money and assuming stable money demand to manage intermediate and ultimate targets (NBE, 2009, pp. 3-4). The intermediate target involves controlling the money supply (M2) to align with nominal GDP growth.

For example, if the National Bank aims to keep inflation at 9 percent while anticipating an 11 percent real GDP growth rate, then M2 must grow by 20 percent. If the current base money level results in M2 being below 20 percent, the NBE will take measures to raise the base money to achieve the target M2. To address the post-2004 inflation, Ethiopian authorities set a target of below 20 percent for broad money growth by reducing public borrowing and expenditures (IMF, 2008). The ultimate goal is to maintain price and exchange rate stability while supporting sustainable economic growth.

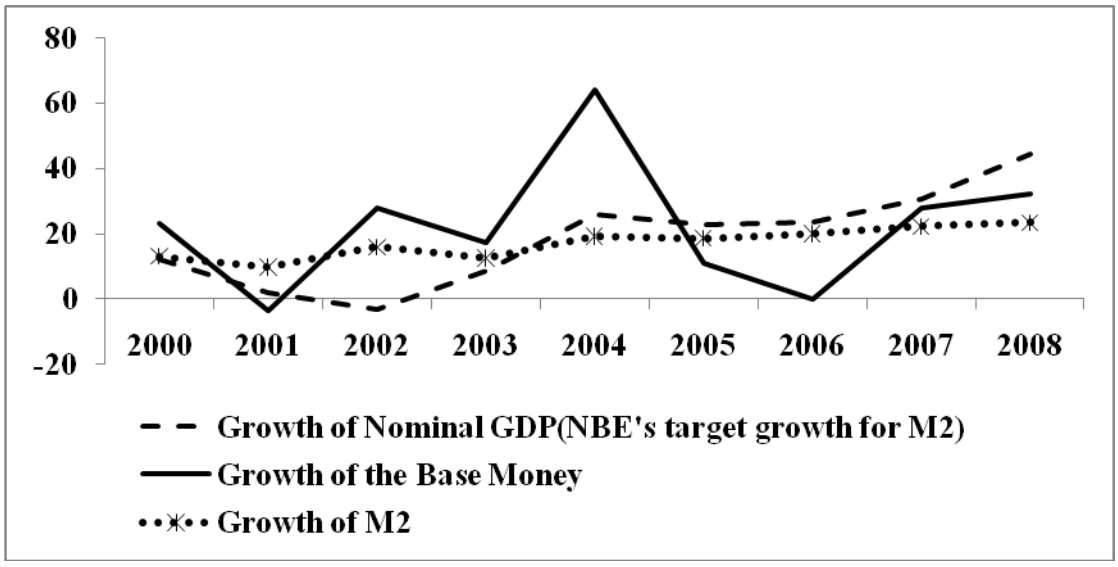
In this paper, I contend that the National Bank's control over the broad money supply is constrained by factors such as the banking system's reserve decisions and depositors' preferences between currency and deposits. These determinants notably impact the money multiplier and, consequently, the money supply. The relationship between changes in M2 and their effects on P and Y is not always proportionate, influenced by factors like shifts in velocity (V) and changes in aggregate demand. As a result, the broader economy's response to monetary policy hinges on the interactions and reactions of various factors to shifts in money supply and velocity.

The money supply is determined by the product of base money (the sum of currency in circulation and reserves at the central bank) and the money multiplier, which defines the rate at which new base money created by the NBE will be multiplied within the financial sector to contribute to overall additions to M2. The Quantity Equation of Money, MV=PY, represents the relationship between money supply (M), velocity of money (V), price level (P), and real GDP (Y). In Ethiopia's case, M2 represents the money supply, while V denotes the velocity of money. The right-hand side of the equation signifies nominal GDP.

Figure 3 illustrates the relationship between base money and M2 growth, suggesting a weaker connection. Over the years, the money supply consistently increased while the base money exhibited fluctuations. According to the quantity equation, the stable velocity of money should correspond to money supply growth to nominal GDP growth. However, as observed in the figure, they did not exhibit parallel paths, raising concerns about the stability of money demand and the constancy of velocity.

One may argue that policy lags could account for the lack of immediate effects, implying that policies require time to manifest results. However, even after accounting for significant lags, Figure 3 does not demonstrate a clear policy impact. This observation is important in evaluating NBE's price stabilization policy effectiveness and influence on the broader economy.

Figure 3 Percentage Growths of Nominal GDP, Base Money, and Money Supply (2000 to 2008)



Source: Author's computation from IMF-IFS database (2009) and IMF-WDO (2010)

4. A deeper look into the Monetary Policy Transmission challenges

4.1 Challenges in the CPI Basket

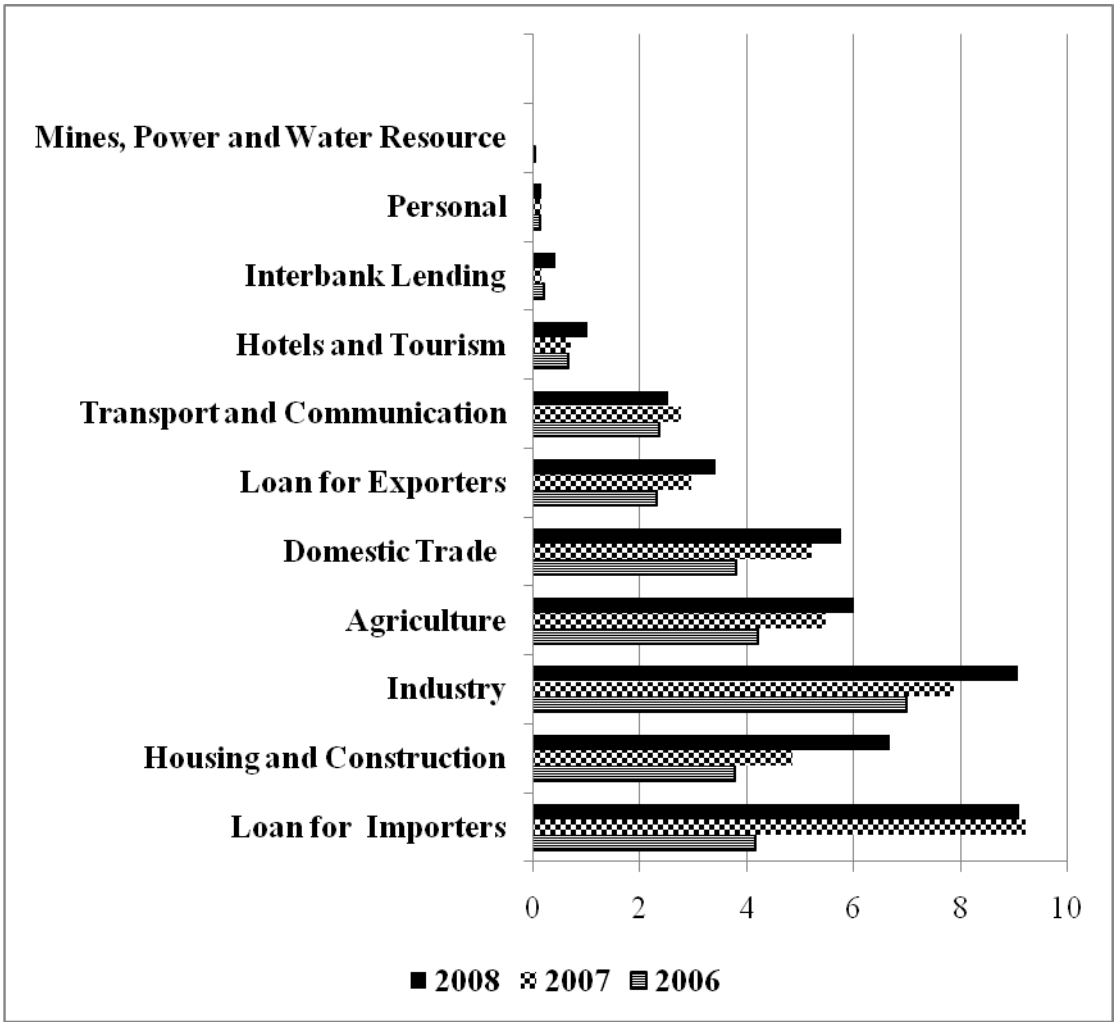
The interplay between the CPI basket components and the financial system is paramount for effective monetary policy transmission. As we proceed, we will explore the significance of outstanding loans in key subcategories of the CPI, such as agriculture products and imports, and analyze their impact on the monetary policy transmission mechanism.

In Ethiopia, outstanding loans primarily flow to importers, as depicted in Figure 4 below. However, loans for industry, housing, construction, and agriculture (Food) also take significant shares. Our analysis focuses on imports and agriculture, as they constitute over 70 percent of the 2000 and 2006 CPI baskets. While imports are not directly included in the CPI basket, they implicitly influence the prices of purely imported goods like fuels, making their share in the CPI basket substantial.[4]

In Ethiopia, there is a strong connection between food and agriculture, as farmers' agricultural products are mostly consumed locally or sold to urban dwellers for domestic consumption. The export of agricultural products, except for cash crops like coffee, is relatively low. Given this scenario, associating agriculture with food indeed holds significance.

[4] Notably, in 2008/09, imports mainly comprised Petroleum Products (20%), Machinery & Aircraft (10%), Food & Live Animals (9%), Metal & Metal Manufactures (9%), Electrical Materials (7%), Grain (7%), and Medical & Pharmaceutical Products (3%) (Ethiopian Customs Authority, as cited in NBE Report, 2008).

Figure 4 Annual Outstanding Loans of Banks by Borrower Categories (2006-08) in Millions of Birr



Source: NBE, 2009; Note: outstanding loan to the central government is not included

In 2008, the agriculture sector in Ethiopia received outstanding loans amounting to 6 billion birr (approximately USD 430 million), ranking it third in terms of the share of outstanding loans. Despite the significant role of agriculture in the economy and its high percentage in the CPI basket, these loans can be regarded as relatively low. Distributing this figure among over 60 million farmers in the country results in per capita outstanding loans of 100 birr (less than USD 7) annually, indicating a weak linkage between the agricultural sector and the financial system. This observation highlights limited responsiveness to monetary policy shocks, particularly from the supply side, and poses challenges to the transmission of monetary shocks to the CPI through the supply side of the market. However, it is worth considering the potential for transmission through the demand side, given that food constitutes 60 percent of the CPI basket and cereals account for 39.5 percent of food inflation.

The literature generally agrees on emphasizing core inflation, excluding volatile CPI components like food and fuel. However, in the Ethiopian context, food and fuel are significant in the CPI basket and should not be ignored. While core inflation provides a stable view of underlying trends, it's essential to recognize the importance of headline inflation,

which includes food and energy prices due to their substantial weight. The monetary policy must pay special attention to this sector, and targeted policies may be effective. Close policy coordination with fiscal authorities is crucial to address the agriculture and food sector dynamics and devising directed interventions.

The transmission of monetary policy shocks to import prices is relatively more straightforward than agricultural prices. Monetary policy shocks can affect import prices through the exchange rate and the cost of borrowing. A tight monetary policy, for instance, may increase the cost of borrowing for importers, leading to upward pressure on the price level by discouraging import supply. In response to the rise in borrowing costs, importers may reduce import volumes and raise unit prices. Exchange rate movements also directly influence import prices.

4.2 Challenges in the Financial System

4.2.1 The overall financial landscape of Ethiopia

The financial system in Ethiopia has undergone significant changes over the years. Following the 1974 revolution, the state took control of the economy, leading to the nationalization of thirteen insurance institutions, three commercial banks, and two non-bank financial institutions. State dominance persisted until 1991, when the current government came into power, resulting in a shift away from state control (Addison & Alemayehu, 2001, pp. 2-3).

Since 1991, the Ethiopian financial system has witnessed a steady rise in private sector participation, coinciding with a decline in the dominance of government-owned financial institutions. The lending rate has been fully liberalized, and streamlined business licensing has facilitated the growth of private financial institutions, leading to increased loan disbursements and deposit mobilization. These developments reflect the expanding role of the private sector in Ethiopia's financial landscape.

Between 1991 and 2008, there was a significant surge in both annual loan disbursements and outstanding loans, with a remarkable increase in allocations to the private sector. These variations were substantial across different sectors and clients. In 1991, public enterprises held 3.2 billion birr out of the total outstanding loans of 4.2 billion birr. However, in 2008, the portion held by public enterprises decreased to 8 billion birr out of the total outstanding loans of 46 billion birr, indicating a notable shift towards private sector allocation. For a more detailed breakdown of outstanding loans and disbursements by clients and sectors, please refer to Table 1.

Similarly, with regards to current disbursements, in 1991, public enterprises received 0.2 billion birr out of a total of 0.6 billion birr in disbursements, while in 2008, they received new disbursements of 5 billion birr out of a total of 25 billion birr, with a significant portion now directed to the private sector.

Table 1 Loan Outstanding and Loan Disbursements by Clients 1991 vs 2008 (Millions of Birr)

Particulars	Loan Outstanding			Loan Disbursements		
	1991	2008	(%)	1991	2008	(%)
Clients	**4,168**	**46,005**	**1004**	**551**	**25,477**	**4525**
Public Enterprises	3,247	8,171	152	230	5,266	2191
Cooperatives	325	3,365	935	74	2,637	3464
Private Sector	572	34,042	5847	247	17,469	6970
Interbank Lending	23	428	1751	0	105	-

Source: NBE (2009)

Despite the progress made, Ethiopia's financial system remains underdeveloped. The absence of a well-established interbank money market hinders the introduction of an indirect monetary policy, resulting in rare positive real Lending and borrowing rates. Direct monetary policy instruments continue to dominate the financial landscape, coupled with restrictions on private banks from investing in foreign assets and strict prohibitions on foreign ownership in the financial sector.

Additionally, the currency's convertibility is limited to current account transactions, and a secondary capital market is lacking. The infrequent issuance of government bonds primarily focuses on budget deficit financing and reducing banks' excess reserves. According to NBE (2008), Since 2000, there have been no government bond issuances for regulatory purposes, and the Treasury bill remains the only security regularly auctioned by the National Bank.

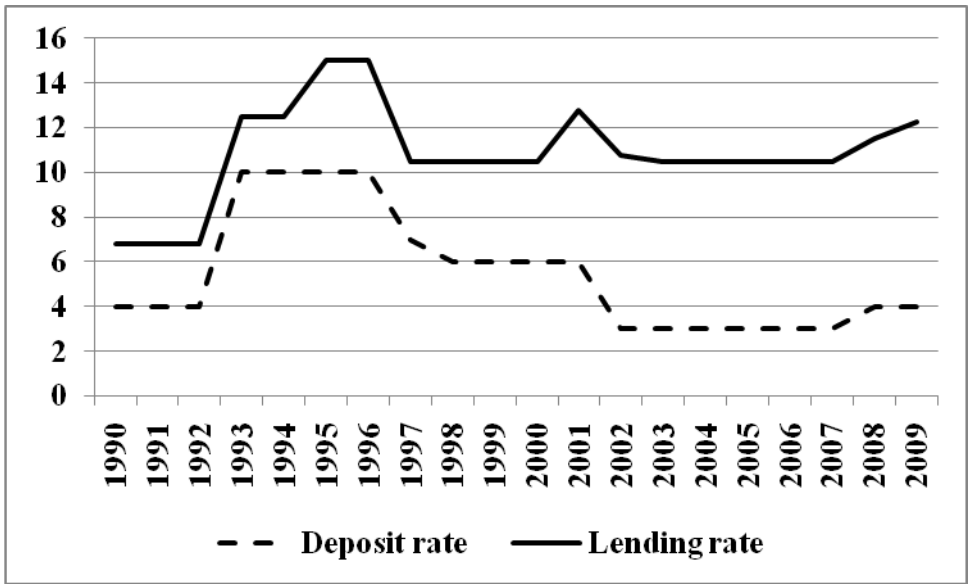
4.2.2 Challenges in the commercial banking system

An examination of key factors influencing Ethiopia's banking and financial system reveals that recent changes in deposit rates, inflation, lending rates, and excess reserves have significantly shaped the dynamics of the banking sector.

(a) Market imperfections in the Lending and deposit rates

Figure 5 below shows that the lending rate closely mirrors the deposit rate, and the gap between them remains relatively constant over time. This can be attributed to two main factors. Firstly, banks primarily base their lending rates on the interest paid on deposits (claims on them), as they have limited access to alternative investment opportunities that could influence their lending decisions. Secondly, the dominant role of the government-owned Commercial Bank of Ethiopia (CBE) plays a significant part in shaping lending rate trends.

Figure 5 Commercial Banks' Nominal Saving Deposit and Lending Rates in Ethiopia (1990 to 2009)

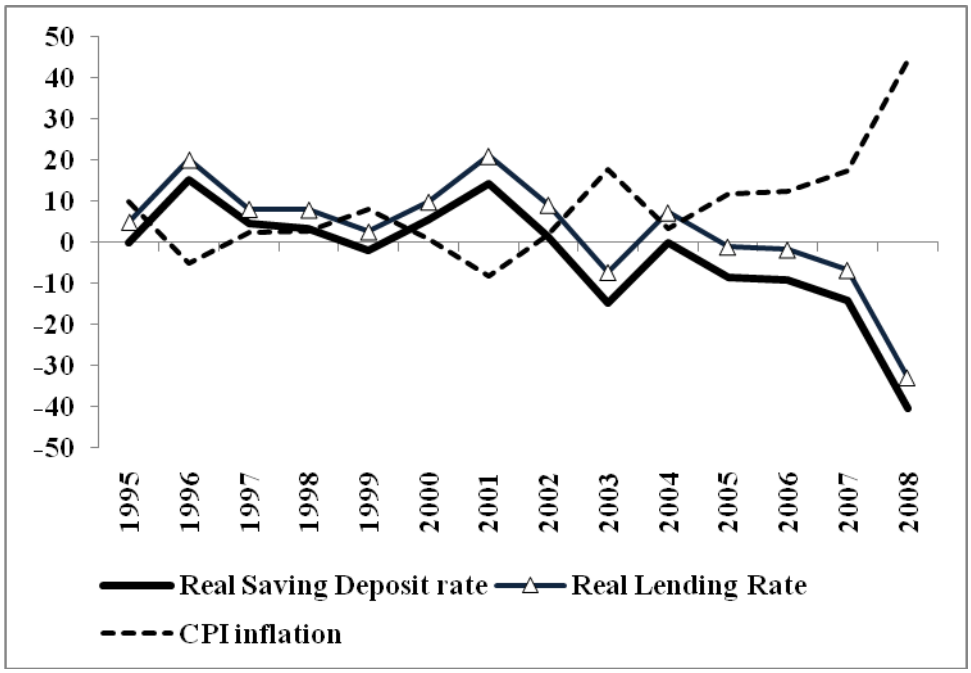


Source: Author's graph data from NBE, 2009

In 2009, the CBE accounted for 39 percent of the total loan disbursements among all 15 commercial banks. Besides, the CBE had 205 branches in 2007, contributing 60 percent of the country's total retail bank deposits and assets. In contrast, private banks faced restrictions, such as being prohibited from participating in letters of credit service with China, a major trade partner for the country (Access Capital, 2009). As a result, the lending rate set by the CBE often serves as the benchmark, with other privately-owned commercial banks following suit, leading to similar lending rates across the sector.

In 2001, Addison & Alemayehu documented the importance of the minimum floor on bank deposit rates. Retaining this floor at 6 percent prevents banks from offering excessively low rates to depositors due to excess liquidity, as inflation was around 2 percent (Addison & Alemayehu, 2001, p.9). However, starting in 2007, the minimum floor for deposit rates dropped to 4 percent, while inflation surged to 45 percent, and real lending and borrowing rates plunged more than 40 percent below zero (Figure 6).

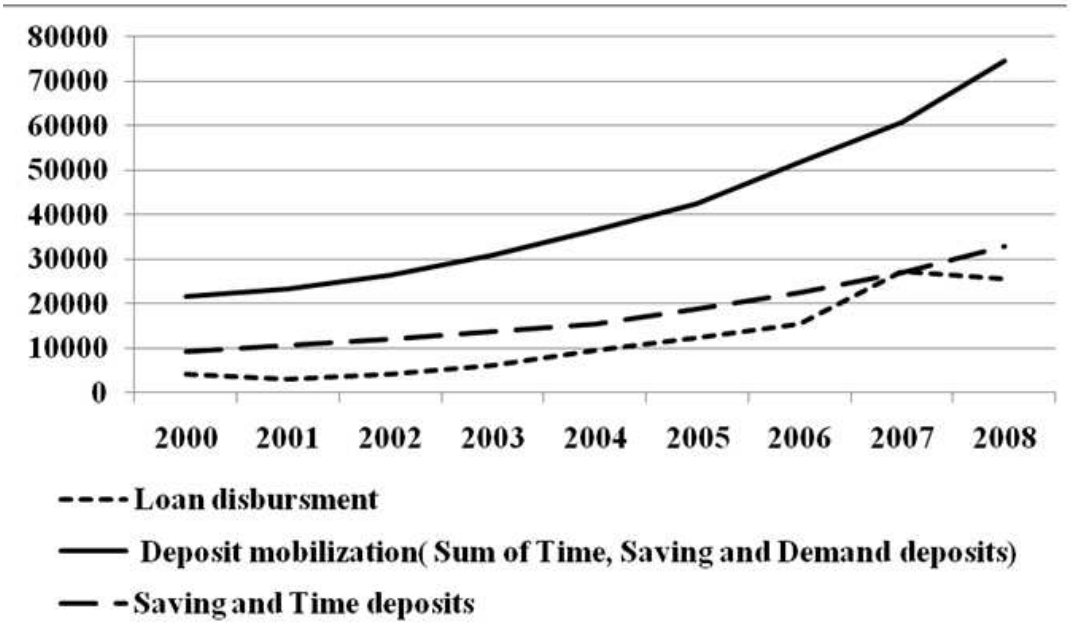
Figure 6 CPI Inflation, Real Lending, and Deposit Rates (1995 to 2008)



Source: CPI inflation data from World Development Indicators and real deposit and lending rates from NBE (2009)

Despite these changes, bank deposit mobilization continued to rise, but loan disbursement fell far below the deposit level. The banking system witnessed a significant increase in excess reserves, and the real Treasury bill rate fell below zero. These developments present challenges for monetary policy in managing excess reserves and addressing suboptimal responses from economic agents (Figure 7).

Figure 7 Commercial Banks' Deposit Mobilizations and Loan Disbursements (Million Birr, 2000-08)



Source: Author's graph data from NBE, 2009

Box 1 Anomalous Negative Interest Rates: Effects on Agents & Monetary Policy

Banks: The negative real deposit and lending rates distinctly impact banks, borrowers, and depositors. Banks typically pay around 4 percent interest to savings and time deposits, while demand depositors receive no interest. Saving and time deposits constitute a little below 50 percent of the total deposits, with the remainder being demand deposits.

While banks theoretically have the potential to benefit from the significant negative real deposit rates and relatively lower negative real lending rates, the practical realization of this opportunity has been limited. This is due to reduced lending activities and a higher accumulation of excess reserves, where a substantial portion of banks' deposit liabilities remains unutilized for loans.

Banks face potential risks if the amount of savings and time deposits exceeds their lending activities. However, the difference between these two aspects is not significant enough to jeopardize the banks' overall stability. In fact, banks are relatively in a secure position as most excess reserves come from demand deposits rather than savings and time deposits[5].

Depositors: Time and saving depositors face different outcomes depending on their depositing motives. If they deposit money that would have otherwise been kept as cash, they can be seen as loss minimizers. By choosing to deposit, they can offset the real loss by earning nominal interest income. However, if depositors put money into their accounts that would have been invested in higher-yielding assets, they may be considered losers regarding potential returns. On the other hand, demand deposit holders do not necessarily face a direct disadvantage, especially when their purpose for keeping money in the bank is not primarily focused on financial returns. Demand depositors choose to deposit funds to have a secure store of liquidity readily available for their day-to-day cash transactions and to ensure safety and convenience in managing their finances. During periods of high inflation, households and firms may hold onto their money due to the limited availability of other easily convertible liquid assets.

Households typically save money for precautionary purposes, while borrowing from banks for investments is not a common practice. Instead, investments are often financed through personal savings or contributions from close relatives. Therefore, another reason for making deposits could be accumulating savings for future investments until the amount is substantial. Households and individuals with less financial literacy may not fully comprehend that the increase in the cost of goods and services reflects a loss in the value of money (the money illusion argument applies to these groups).

Borrowers: The lending process often demands collateral from borrowers, which poses a challenge for many individuals who lack high-value assets to use as security. Personal residences are commonly used as collateral, but borrowers may be hesitant due to concerns about the risk of foreclosure and potential financial difficulties if their investment plans do not succeed. Additionally, the high collateral rate per unit of loan, such as 173 percent in 2007, further exacerbates the difficulty of obtaining loans (World Bank, WDI data).

[5] The amount of bank loss is the area between the "saving and time deposits" and the "loan disbursement" (in the figure above) multiplied by the saving rate (4 percent) minus the return from that portion of time and demand deposits used for buying treasury bills times the treasury bill rate. Mathematically,

Bank Loss = (Saving Deposits + Time Deposits - Loan Disbursements) * Deposit Rate (4%) - (Treasury Bill bought out of the Savings and Time Deposits)*Treasury Bill Rate.

(b) Excess reserve

Historical data reveals a poor deposit-loan nexus, where the amount of bank deposits has not significantly increased bank loans. Instead, it has contributed to the already high excess reserves in the banking system. Presently, only a small portion of the mobilized deposits is lent out by banks, while the remainder is either held in their NBE accounts as a non-remunerable excess reserve or utilized to purchase low-yielding Treasury bills.

The buildup of excess reserves can be attributed to several reasons. Firstly, the absence of an interbank market compels banks to hold reserves for contingencies. Secondly, the imposition of bank-by-bank credit ceilings leads to involuntary excess reserves. In this context, banks may find it challenging to reduce involuntary excess reserves by purchasing government bonds, as the availability of such bonds is limited.

The discussions on excess reserves and the decision-making behavior of financial actors have significant implications for the effectiveness of monetary policy. As Saxegaard (2006) argued, excess liquidity can hinder monetary policy transmission, making it challenging for central banks to control money demand effectively. Moreover, the accumulation of excess reserves could lead to inflation if a sudden surge in demand, such as during booms in sectors like construction, prompts banks to lend out their excess reserves. Central banks often consider increasing the required reserve ratio to counter such a risk. However, raising the required reserve ratio from its current level of 15% may not be the most suitable policy approach for Ethiopia.

An analysis of the 2008 data for net deposits (74 billion birr), actual reserves (19 billion birr), reserve requirements (11 billion birr), and excess reserves (8 billion birr) shows that eliminating excess reserves would require a steep 26.6 percent reserve requirement ratio. This poses significant challenges when considering other existing restrictions, such as the minimum saving deposit rate of 4 percent and the required liquidity ratio of 25 percent. Implementing such a high reserve requirement ratio could potentially compromise the banking industry's efficiency.

Excess reserves indicate that banks are holding more funds than required, and these funds are not being actively utilized for Lending or investment. As a result, the NBE's attempts to control the money supply through changes in the base money may not yield the desired impact on money supply growth and overall inflation.

Furthermore, the behavioral aspects of borrowers and lenders, coupled with the requirement of high collateral for bank lending, lead to a situation where banks are not giving out significant loans. This lack of lending activity can hamper the transmission of monetary policy signals through the economy, making it challenging for the NBE to influence inflationary trends effectively.

So far, the NBE heavily relies on direct monetary policy, which has constrained banks' credit activities. For instance, to combat recent inflation, the NBE increased the required reserve ratio from 10 to 15 percent, the liquidity requirement ratio from 15 to 25 percent, and the

floor saving deposit rate from 3 to 4 percent. Government-imposed tight bank-by-bank credit ceilings have also impacted Lending. Although the credit ceiling restriction was lifted in early 2011, the government directed banks to allocate 27% of their Lending to the government at an interest rate of only 3 percent, below the floor deposit rate, indicating the continued use of direct monetary policy in the foreseeable future. Furthermore, the new policy specifies sectors to which banks should provide loans, leading to a decline in credit to the private sector to less than 10 percent of GDP as of June 2010 (Access Capital, 2011).

In general, to enhance the effectiveness of its price stabilization policy, the NBE may need to address the underlying challenges in the financial system, including fostering a more developed interbank market and encouraging banks to increase lending activities.

5. Concluding remarks

Ethiopia's monetary policy transmission mechanism faces multifaceted challenges, particularly the intricate linkage between the CPI basket and the financial system. The limited financial linkage to the agricultural sector, a significant component of the CPI basket, hampers the effective transmission of monetary policy shocks from the supply side. Moreover, excess reserves in the banking system hinder the NBE's ability to control money supply and prices, complicating its efforts to manage inflationary pressures.

The financial market's underdevelopment, lack of viable investment options, and behavioral dynamics of borrowers and lenders contribute to inefficiencies within the banking sector. These complexities present the NBE with the daunting task of effectively managing inflation while ensuring the stability and efficiency of the banking industry.

To address these challenges and enhance monetary policy transmission, the NBE should prioritize fostering a well-functioning interbank market and encouraging increased lending activities by banks. Strengthening these aspects will empower the NBE to better control inflation and stabilize prices in the Ethiopian economy.

Implementing credit guarantee systems and innovative mechanisms to channel surplus financial reserves into productive endeavors can bolster the supply side of the price mechanism. Collaborative efforts with fiscal authorities to secure government guarantees for bank lending, especially in vital sectors like agriculture and food, will play a pivotal role in achieving this objective.

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