Nigeria's Monetary Survey: 2001-2012

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Abstract

Information derived from monetary aggregates, ex-ante or ex-post remains relevant and particularly so for monetary targeting economies. This paper examines the structure of monetary assets in Nigeria, analyzes the components of Nigeria's monetary survey and the relative contributions of its components using descriptive statistics. The paper shows that Nigeria's monetary survey remains a useful tool in the analysis of monetary development and its linkages with key sectors of the economy; convey useful insight on the evolution of the payment system and money holding behavior. Findings indicate that Nigeria's broad money aggregate was largely determined by external factor (net foreign assets) pre-2007 global financial crisis, while domestic factor (mainly credit) had significant implications for monetary management post-2007. Private sector credit was inversely related to nominal output, while transaction money was only able to predict turning points in output conditions post-2008. Results also suggest an evolving money holding behavior that reflects a preference to hold money as a store of value and for transactionary motives, rather than to hold cash as a monetary asset. The declining trend in the share of currency (cash) in monetary assets further reflects the evolution of alternative payment methods for economic transactions.

Keywords: monetary survey, analytical balance sheet, payment system, money-holding behavior, nominal output.

1. Introduction

For policy analysts and central banks, developments in monetary aggregates are critical for the monetary policy decision- making process as it facilitates an understanding of the flow of funds, financial imbalances within and across sectors and enables an understanding of underlying economic fundamentals. In the wake of the financial crisis, the European Central Bank in 2010 asserted that "….., throughout the world, central banks and academics are rediscovering that an understanding of money and credit developments is a crucial input to the formulation of monetary policy". This assertion would seem to hold irrespective of the monetary policy framework a country adopts. Perhaps, it is for this reason that Wood and Van den Bergh, (2009), markedly pointed out "…central banks, even those with limited statistical data collection activities, collect a minimum of key data related to monetary and financial conditions…..", reflecting the high level of importance that central banks attach to information gleaned from monetary and financial conditions.

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Most of the literature on monetary survey has been on the exposition of its concepts and methodological frameworks, asset-side analysis of the monetary survey, and in some cases one of the components of the monetary survey, {Wood and Van den Bergh (2009); HKMA, (1996); HKMA (2011); CBN (2011)}. This study adds to the literature through an analysis of the analytical balance sheet of the monetary system in Nigeria by examining the monetary survey over an extended time-period, as against the two-base period analysis often conducted. This paper, thus, assesses whether, (if any) information can be gleaned from Nigeria's monetary survey over a twelve-year period, (2001-2012) using descriptive statistics. It seeks to explain the structure of monetary assets in Nigeria, analyze the components of the monetary survey, the relative contributions of its components and promote an understanding of the dynamics of monetary survey, while examining its inter-relationships with other sectors of the Nigerian economy. The paper is in five parts. Following the introduction, section 2 presents a survey of the literature. In section 3, the framework of the monetary survey of the Nigerian economy is highlighted. Section 4 analyses the informational content of the monetary survey and its inter-relationships within the macroeconomic system and Section 5 concludes the paper.

2. Survey of Literature

The International Monetary Fund, (IMF) is at the forefront of developing standards for member and non-member countries to guide users and compilers of monetary and financial statistics. Such efforts have included the release of the first published edition of the International Financial Statistics, (IFS) in 1948. Attempts such as the 1984 "Guide to Money and Banking statistics in International Financial Statistics'' though not officially published was widely circulated among member countries and although, its focus was to expose users on methodologies for the production of money and banking statistics, it was, however, limited to compilation of stock data for depository institutions. In line with changes in the global financial landscape, the Fund has continued to refine its efforts in these areas. A notable change was the introduction of the 1993 System of National Accounts. Subsequent efforts have led to the introduction of the Monetary and Financial Statistics Manual, (MFSM), (IMF 2000) which emphasized the methodological and statistical frameworks for the compilation of flow data to address the gap observed in the 1984 manual. Indeed, the Monetary and Financial Statistics Manual and Compilation Guide (MFSMCG) was the first attempt at providing an internationally recognized standard for the compilation and presentation of monetary aggregates. The manual[2] "describes economic sectorization, valuation, and other accounting rules used in compiling data on the financial assets and liabilities of the financial corporations' sector (monetary statistics) and all economic sectors (financial statistics) of an economy",(International Monetary Fund, 2000). The manual, originally published in 2000, has had several revisions and updates. A recent revision to the manual and compilation guide, conducted in 2012, called for greater focus on other financial institutions, provision of guidelines on classification of sovereign wealth fund, guidance on dollarization and co-circulation.

The monetary survey provides statistics on money stock in an economy and is often used as tool for analyzing monetary aggregates, observing the flow of funds among financial units and changes in assets and liabilities of these financial institutions as money stock adjusts. A combination of the balance sheet of the monetary authorities and that of the banking system, the use of monetary survey as a policy tool presupposes that monetary

[2] See International Monetary Fund 2008

aggregates are exogenously determined, (HKMA, 2011). Segré, (1958) states that monetary surveys are expanded versions of a national income account which show the disequilibria occurring in other sectors and how they are financed, while at the same time showing the inter-relationships in the flow of funds. In other words, monetary surveys perform two basic functions, viz; (i) determine the sources of inflationary or deflationary pressures and (ii) analyze the role played by the various financing mechanisms in the disturbance. Accordingly, monetary surveys enable an ex-ante and ex-post analysis of monetary developments. He, however, questioned the validity of relying solely on observation of money and banking statistics since monetary disturbances could and often have its origin traced beyond the monetary sector to possible changes in investors' appetite, stock market activities or tax waivers on government securities. He stated that for central banking purposes, an assessment of monetary factors could suffice, but argued that considerations on economy-wide stability should involve a broader examination of non-monetary factors to avoid a misinterpretation of a disturbance as purely monetary. This view was also shared by participants' at the 2012 review session of the IMF's MFSMCG where the participants stressed that within the context of financial stability analysis, monetary statistics should be considered in conjunction with other types of statistics.

Others such as Frécaut and Sidgwick, (1998) questioned the operational effectiveness of the standard monetary survey. They argue that the nature of the financial system thrives on confidence so much so that financial institutions such as banks have a natural incentive to conceal problems (actual, potential or emerging) from regulatory authorities during reporting periods. Such misreporting when transmitted to the monetary survey may not reflect their true positions and distorts the usefulness of the monetary survey for policy-making and analytical purposes. Consequently, they advocated for an enhanced monetary survey with adjustments and re-classifications made, if possible, before bank restructurings and during periods of distress. Nevertheless, the European Central Bank (2010) in a publication "Enhancing Monetary Analysis" underscored that, "… the value of monetary analysis should be seen not only in the richness and accuracy of its account of current developments and its assessment of prevailing risks to price stability over the medium term, but also in whether it prompts the correct questions and succeeds, in due time, to orient further research in a direction appropriate for future policy analysis and decisions".

3. Framework of Monetary Survey in Nigeria

The basic framework for Nigeria's monetary survey is in accordance with the international concepts, definitions and classifications recommended by the International Monetary Fund in its Monetary and Financial Statistics Manual (2000). Although the Central Bank of Nigeria has since migrated to the 2000 MFSM and make submissions to the International Financial Statistics using this format, the Bank still uses the 1984 format for internal and management reporting on monetary analysis but with adaptations. In practice, monetary surveys can differ in content across countries due to data availability, authorities' decision to show more or less detail and relevance of showing distinctions in the various components. The building block of Nigeria's monetary survey are the monetary and financial statistics derived from the accounting records of participating financial institutions which cover banking sector transactions in states of the Federation and includes the accounts of all central bank branches and operating deposit money banks (commercial, merchant and specialized banks) in Nigeria. It also covers the financial transactions of both Nigerian residents and non-residents with the domestic banking system. The analytical reporting is classified according to residency, sector and instruments on gross basis. The data relate to end period stocks and presented in millions of Nigeria's Naira.

3.1 Compilation of Nigeria's Monetary Survey

This commences with a detailed examination of the individual balance sheets of the central bank and the deposit-money banks[3]. With the introduction of the new banking model in 2010 that segmented the Nigerian banking system into international, national, regional, mono-line and specialized banks, Nigeria's monetary survey now comprises the analytical balance sheets of the central bank, commercial banks, merchant banks and non-interest banks. The monetary survey is compiled by consolidating the accounts of the central bank (head office and all central bank branches) and deposit money banks (20 commercial banks, 2 merchant banks and 1 non-interest bank). Data are recorded on both cash and accrual basis, while foreign currency positions are valued on a monthly basis at the official selling exchange rates.

3.2 CBN Balance Sheet

The balance sheet of the central bank sourced from Oracle ERP are mapped into analytical reporting format; Central Bank of Nigeria-Analytical Balance sheet, (CBN-ABS). The Analytical Balance Sheet (ABS) is a functional classification of all accounts (customer and internal) operated in the Bank and used for analyzing monetary and credit developments. In order to transform the accounts into the ABS, codes are assigned to individual accounts to re-categorize them into sectors in line with the IMF internationally accepted standard of classification.

Table 1: CBN Analytical Balance sheet

Assets	Liabilities
Foreign Assets	Reserve Money
Claims on Federal government	Private Sector Deposits
Claims on States and Local Government	Short-term foreign liabilities
Claims on Non-Financial Public Enterprises	Long-term Foreign liabilities
Claims on Non-Financial Private sector	Federal Government Deposits
Claims on Deposit Money Banks	Capital Accounts
Claims on other financial Institutions (OFIs)	Unclassified Liabilities
Unclassified Assets	

3.3 DMBs Balance Sheet

All Deposit money Banks (DMBs) are required to submit, in electronic format, their balance sheets to the Central Bank through the electronic Financial Analysis and Surveillance System (eFASS). Upon submission, the consolidated financial balance sheets of the DMBs are obtained from the eFASS. The financial (accounting) balance sheet, which is on net basis, is then transformed into its analytical form to produce the aggregated DMBs-ABS.

[3]With the introduction of a new banking model in 2010, deposit money banks is a generic name that comprises commercial banks, merchant banks, and specialized banks(non-interest banks)

Table 2: DMBs Analytical Balance sheet

Assets	Liabilities
Reserves	Demand Deposit
Currency	Time, Savings & Foreign Currency Deposits
Deposits with CBN	Money Market Instruments
Foreign Assets	Bonds
Claims on Central Government	Foreign Liabilities
Claims on States and Local Government	Central Government Deposits
Claims on other private sector	Credit from Central Bank
Claims on other Financial Institutions	Capital Accounts
Unclassified Assets	Unclassified Liabilities
Total Assets	Total Liabilities

3.4 The Monetary Survey

After conducting the institutional data consolidation and netting of relevant intra/inter-institutional transactions, an aggregated analytical balance sheet of the entire banking system is derived and categorized along the following broad categories of aggregates; Net Foreign Assets (NFA); and Net Domestic Assets (NDA). The consolidated balance sheets of the institutions and the monetary survey are also categorized along two dimensions; (i) distinguishing components of broad money from its counterparts; (ii) breaking down monetary and credit developments by counterpart sector- domestic [private and government sector], and external sector.

Table 3.3 Monetary Survey

Assets	Liabilities
Net Foreign Assets (NFA)	**Money Supply (M_1)**
○ By Monetary Authorities	**Currency outside banks (COB)**
○ By DMBs	**Demand Deposit (DD)**
Domestic Credit (Net) (NDC)	○ Private Sector Deposits at CBN
Claims on Federal Govt (Net):	○ Private Sector Deposit at Commercial Banks
○ By Monetary Authorities	
○ By DMBs	○ Private Sector Deposit at Merchant Banks
Claims on Private Sector:	
○ By Monetary Authorities	○ Private Sector Deposit at Non-Interest Banks
○ By DMBs	
Other items net (OAN)	**Quasi-Money (QM)**
Total Monetary Assets	**Total Monetary Liabilities (M2)**

Consolidating the assets of the balance sheet, broad money supply (M_2) is net foreign asset (NFA) plus net domestic asset (NDA) of the banking system.

Thus, $M2=NFA+NDA$……………………………………………………1

$NFA=NFA_{CBN}+NFA_{DMB}$……………………………………………2

$NDA = NDC_{CBN}+ NDC_{DMB} + OAN_{CBN} + OAN_{DMB}$……………………3

$M_2= NFA_{CBN} + NFA_{DMB} + NDC_{CBN}+ NDC_{DMB} + OAN_{CBN} + OAN_{DMB}$……..4

Where;

NFA_{CBN} – Central Banks' net foreign asset

NFA_{DMB} - DMBs' net foreign asset
NDC_{CBN} - Net domestic credits of the CBN
NDC_{DMB} - Net domestic credits of the DMBs
OAN_{CBN} - Central Bank's other items net
OAN_{DMB} - DMBs' other items net

On the liability counterpart, broad measure of money includes all liabilities of the banking system; it refers to the total value of money in the economy. In addition to the components of narrow money, broad money includes the savings (sd) and time (td) deposits with the deposit money banks. In 2000, foreign-currency deposits (fcd) were included in the monetary measures.

Thus, Broad Money (M_2) = Narrow Money (M_1) + Quasi-Money (QM)

$M_2=M_1+QM$……………….……………………………..…………….5

Where, $M_1=COB+DD$…….……………………………………………6

$QM=TD+SD+FCD$………………………………………...7

Thus, $M_2=COB+DD+TD+SD+FCD$...…………………………………………8

Equating the banking system's liabilities and assets in equations 1 and 5,

$\mathbf{M_2=M_1+QM=NFA+NDA}$………………………………………………………9

Currently, the Nigerian monetary survey does not include other financial institutions such as insurance companies, finance companies, primary mortgage institutions. Thus, the survey is not a financial survey[4], but rather a monetary survey. Revision of the Nigeria's monetary survey sometimes occur due to availability of new information, misclassification of accounts, or change in names of financial instruments.

4. Analytics of Nigerian Monetary Survey

Annual data (not seasonally adjusted) sourced from the annual report and statement of accounts of the Central Bank of Nigeria and statistics database of the Central Bank of Nigeria from 2001 to 2012 is utilised for this study. Data for 2012 are estimates. Results are presented below;

4.1 Money Measures in Nigeria and their counterparts

In Nigeria, the standardized monetary aggregates are narrow money (M_1) and broad money (M_2).

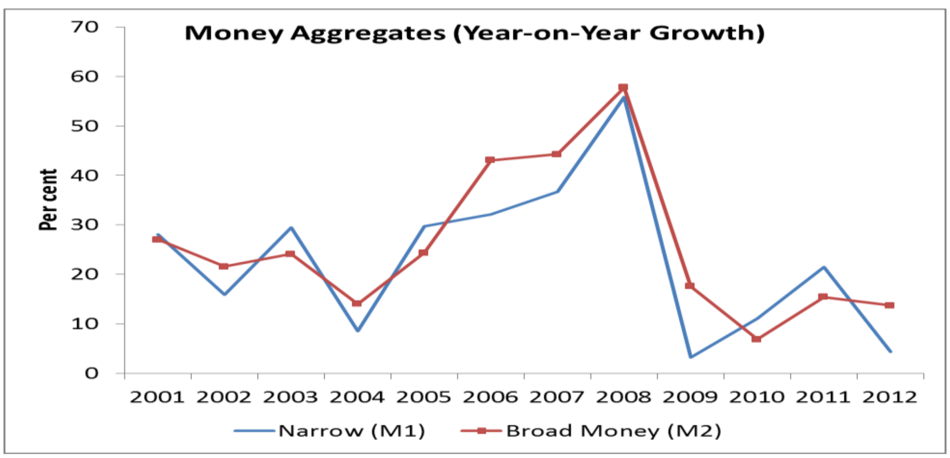
4 The literature tries to distinguish between banking survey, monetary survey and financial survey

Table 4.1: Money Measures in Nigeria

Liability Side		
M_1: comprises currency outside banks {i.e. currency in circulation,(CIC) less vault cash (VC)) plus chequeable (demand) deposits.		
	M_1	M_2
Currency outside banks (COB)	X	X
Demand deposits (DD)	X	X
Time and savings deposits		X
Foreign Currency Deposits		X
M_2: The broadest form of monetary aggregate in Nigeria comprises M_1 plus Quasi Money (QM) which include time and savings deposits, inclusive of foreign currency deposits of commercial banks, merchant banks and other private sector deposits at non-interest banks.[1]		
Asset Side		
M2: Net foreign Assets by Central Bank and Banks, Net Domestic Credit to federal government and private sector by Central Bank and Banks and other (net) assets.		

/1 Prior to 2000, the foreign-currency deposits were neither identified nor included in the money measures. Post- 2000 signaled the inclusion of foreign currency deposits in broad measures of money, (Akanji, 2010).
/2 Vault Cash is currency held by banks (commercial, merchant, non- interest banks)

Figure 4.1: Nigerian Money Supply (Annual percentage changes)



The broader definition of Nigeria's money supply attaches importance to time, savings and foreign currency denominated deposits. Monetary growth remained positive throughout the sample years, with oscillations in magnitude of growth. The sharp decline in 2009 was a reflection of the spillover effects of the global liquidity and credit crisis which became manifest in domestic economy by late 2008. Table 4.2 is a description of the structure of liquid assets (currency and demand deposits) and briefly summarizes its evolution.

Table 4.2: Structure of Liquid Assets (%)

Share in Narrow Money, %												
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
COB	41.5	40.8	33.6	34.5	32.6	28.5	23.7	18.4	18.5	19.4	18.4	18.4
CIC	49.4	48.9	40.9	41.0	37.2	34.2	30.8	23.8	23.6	24.7	23.1	23.1
Vault cash	-7.9	-8.1	-7.4	-6.6	-4.6	-5.6	-7.2	-5.4	-5.1	-5.3	-4.7	-4.7
DD	58.5	59.1	66.4	65.5	67.4	71.5	76.3	81.6	81.5	80.6	81.6	81.6
Share in Broad Money (%)												
COB	25.7	24.2	20.7	20.3	20.0	16.2	12.7	9.7	8.6	9.4	9.4	8.6
CIC	30.7	28.9	25.3	24.1	22.8	19.4	16.5	12.6	10.9	11.9	11.7	10.8
Vault cash	-4.9	-4.8	-4.5	-3.9	-2.8	-3.2	-3.8	-2.8	-2.4	-2.6	-2.4	-2.2
DD	36.3	34.9	40.9	38.5	41.3	40.5	40.9	43.3	37.9	38.9	41.5	38.1

Source: Author's Computation

The share of currency (excluding the cash held by banks) in broad money depicts a declining trend over the sample period from 25.7 per cent in 2001 to 8.6 percent in 2012. This reflects a payment system that has developed over the years, transforming from a largely cash-based economy to an economy embracing the use of alternative payment methods for transactions. In some ways, it reflects that economic agents now have less desire/demand to hold currency (cash) as an asset. Further analysis of the trend of cash to demand deposits indicates a decline from 0.84 in 2001 to 0.40 and 0.28 in 2007 and 2012, respectively. Using the narrow measure of money supply indicates a higher proportion of currency at 18.4 per cent in 2012, but this figure is still comparably lower than its pre-2008 levels, (Table 4.2) suggesting that even for transactionary reasons, the use of cash has declined. Conversely, the volume of demand deposits both as a share of narrow and broad money has risen steadily across the years. Some derivable information from this is the increasing preference to transact using checking accounts and an indication of the quantum of reserves a financial institution (consistent with predetermined reserve requirements) is required to keep with the central bank.

Table 4.3 Share in Total Deposits

	2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Demand Deposits	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.5	0.4
Quasi-Money	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.5	0.6

Source: Authors' Computation.

When comparing the share of demand deposits in total deposits (Table 4.3), there is a largely even distribution with its time, savings and foreign currency deposits components. The ratio of demand deposits has averaged 0.47, while time and savings deposits, inclusive of foreign currency deposits accounted for the balance of 0.53 during the entire sample period, with an average deviation approximating 0.1 over the sample period. Though largely evenly distributed, this money holding behavior reflects a slightly higher preference to hold money as a store of value, observable from 2009[5].

Figure 4.2: Broad Money Components

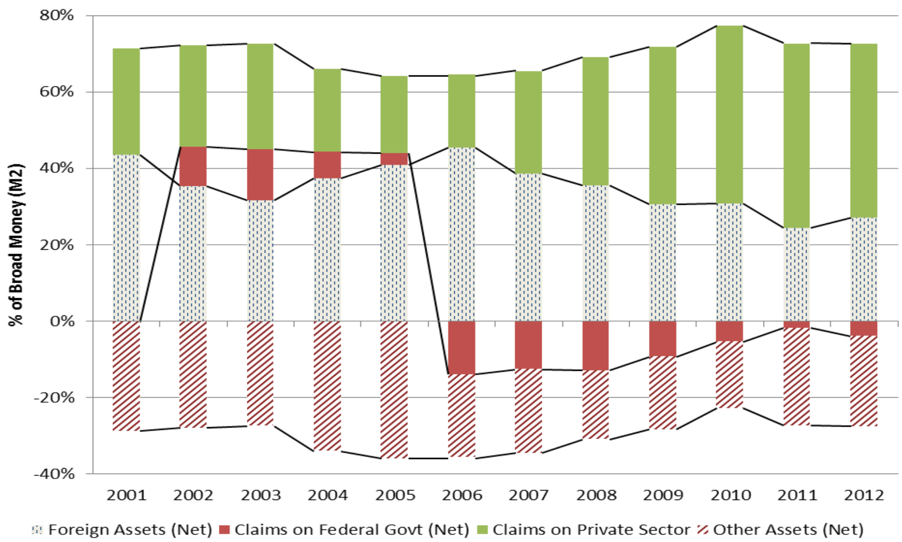


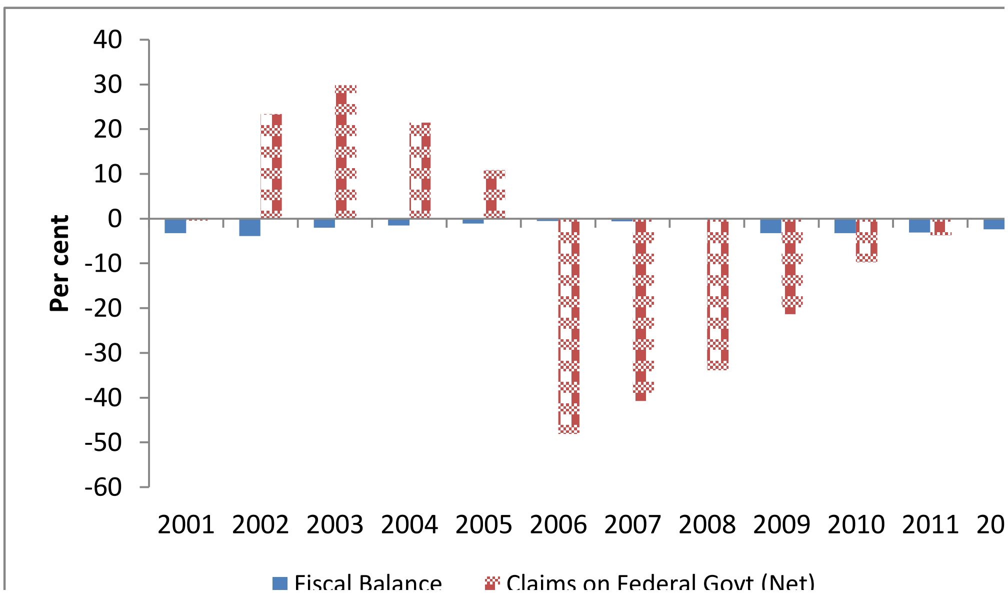
Figure 4.2 indicates the broad money supply counterpart from an asset perspective. Prior to the on-set of the 2007 global financial crisis, net foreign assets (external factor) constituted the largest elements of broad money and was mostly positive, reflecting the portfolio behavior of economic agents, the influence of the external sector on monetary indicators and a buildup of reserves. Nigeria's external reserve grew from roughly US$10.3 billion in 2001 to US$51.3 billion in 2007. Though the buildup of reserves remained at positive levels and could finance more than the internationally accepted benchmark of 6 months of import cover during and after the 2007 crisis, the share of net foreign assets in broad money, declined consistently, mirroring a decline in external reserves from US$53 billion in 2008 to US$43.8 billion in 2012[6]. The decline in net foreign assets post-2007 was countered by increased loans/credit to private sectors. A glance at figure 4.2 indicates a mirror image between net foreign assets and credit to private sector, showing a switch in the asset type/class the banking system was willing to hold- a switch between foreign and domestic assets. As a counterpart of M_2, claims on Federal Government (net) which comprises claims (net) by the monetary authority and the DMBs on the federal government was largely positive, but stable up till 2006 constituting an average of 18 percent of the value of total monetary assets. Prior to 2006,

5 An empirical investigation is required to determine the determinants of such money holding behavior. This however is not the focus of this paper. In addition, the observed store of value motive has not been traced to its time, savings or the foreign currency deposits.

6 Revaluations are often carried out and thus net foreign assets may not necessarily equate external reserves.

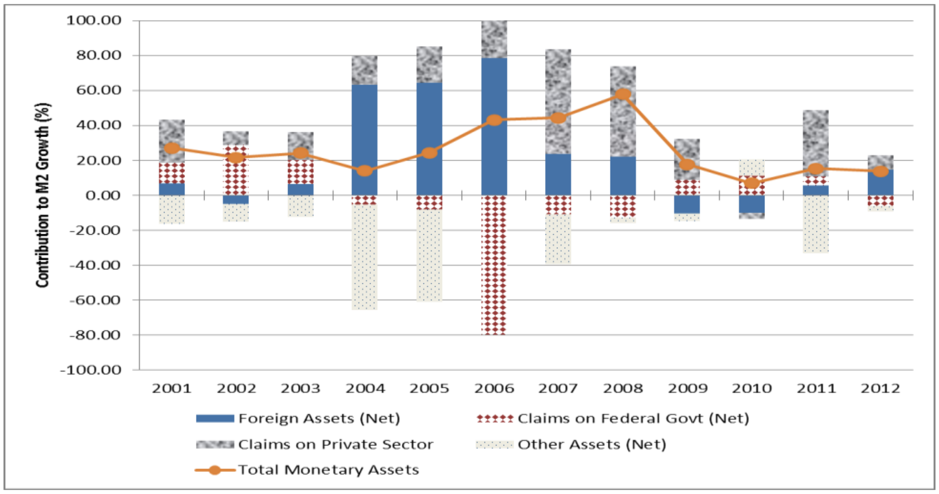
the value of net claims was indicative of government's need to borrow to finance its position and as a result, government indebtedness (net) to the banking system. A negative share in the total monetary assets is a pointer that government deposits in the banking system outweigh the loans from the banking system- an indication that the Federal government had a net claim on the banking system. Juxtaposing the fiscal balances of government for the sample period indicates that government balances were largely in deficit in varying degree. Fiscal balance of the Federal Government as a percentage of gross domestic product (GDP) which was negative 4.0 per cent in 2001 declined to negative 0.7 percent in 2007 before rising steadily to an estimated negative 2.4 per cent of GDP in 2012. As deficit position of government improved, the banking system claims on government declined. Also, as fiscal balances expanded with higher budgetary borrowing requirements, net claims on government also exhibited an increasing trend, (Figure 4.3).

Figure 4.3: Fiscal Balance and Claims on government (net)



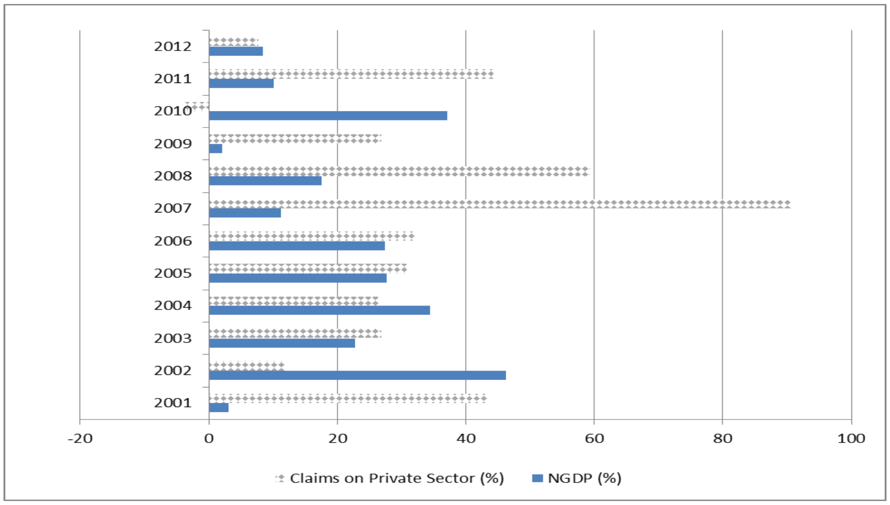
Claims on government (net) constituted the largest and positive contributing factor to growth in broad money in 2002, 2003 and 2004. By 2004, this was reversed with net foreign assets; an external factor, being the lead driver of positive growth in money supply till 2007 when this trend was reversed, coinciding with the inception of the global financial crisis. This significant contribution of foreign assets in money supply growth coincided with when the central bank introduced special foreign exchange auctions to deposit money banks, which were granted permission to purchase foreign exchange on their own account, reduced documentation requirement in line with liberalization and the introduction of the retail Dutch auction system in the conduct of foreign exchange. Re-examining figure 4.4, claims on federal government was mixed with periods of positive and negative contribution to broad money growth almost equally shared. Indeed, from 2004 through to 2008, claims on government (net) contributed negatively to growth, while other assets (net) have largely provided a negative contribution to broad money growth.

Figure 4.4: Monetary Survey - Contributors to Broad Money growth



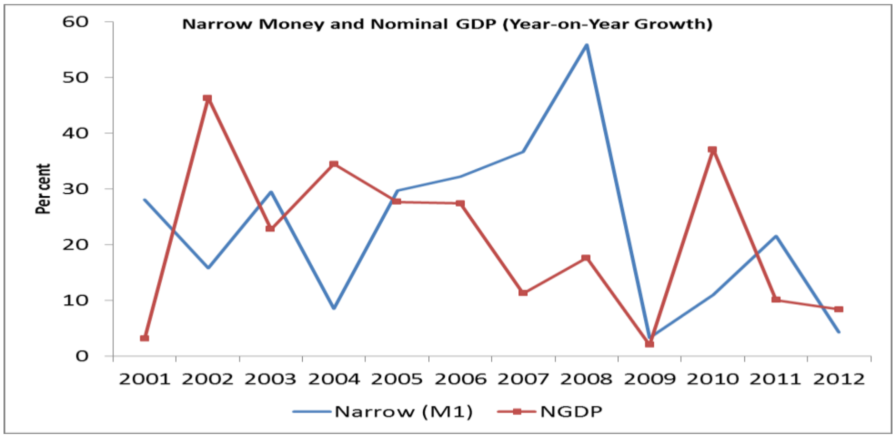
A glance at post-2006 series indicate that for the most part, net domestic credit, largely driven by claims on the private sector (domestic factor/loans/credit) was the most significant contributor of growth in money supply. This reflects increased private sector demand for funds from banks. Taking the sample period into consideration, credit has been a significant contributor to broad money growth. However, the evidence does not seem to suggest that growth in economic activities could be attributed to increased credit to private sector. Examining the year-on-year growth of nominal output for the economy vis à vis the credit to the private sector produces a negative (inverse) correlation of 0.45 per cent. Figure 4.5 visually confirms this. This a-theoretical relationship between credit and output reflects the possibility that output growth, at least in nominal terms is driven by non-credit factors and could be reflective of the inefficiency of private sector credit.

Figure 4.5: Growth in Nominal GDP and Credit to Private Sector (Annual Percent changes)



Taking a step further, we examine the ability of narrow money to predict turning points in output growth. The choice of narrow money is because of its liquid form and is often available for the conduct of economic transactions.

Figure 4.6: M_1 and Nominal GDP (Annual Percentage changes)



The ability of narrow money to predict turning points in output growth was observed from 2008. Prior to 2008, an inverse relationship existed between these two variables, corroborating, for the most part, the statistical result from figure 4.5.

5. Conclusion

This paper has assessed whether monetary statistics conveys useful information on the Nigerian economy. The statistics analyzed has shown that the payment system has become less cash-oriented relative to the early 2000s, with the store of value as a primary motive for holding money taking the lead from 2009, while transactionary purposes were a secondary motive. These are crucial elements to consider in the design and conduct of monetary policy. Domestic credit and net foreign assets are important factors in the money supply process. More importantly, it was found that net foreign assets are important contributors to money supply growth in times of relative liberalization in the domestic foreign exchange market and relative stability in the international market system. In times of external disturbances as evidenced during the 2007 global financial crises, net foreign inflows do not constitute a significant determinant of growth in money supply. Though, it was observed that credit factors remained quite significant in the money creation process, they were quite inefficient at imparting positively on output growth, further emphasizing that non-credit factors are critical inputs to the growth outcome. This paper has indicated that monetary statistics, no matter how limited, do convey information that is useful in the formulation of monetary policy.

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