

Instruments Of Monetary Policy in Ghana

November 2000



Sigma One Corporation

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1.0 Overview and Introduction

One of the roles of government is to promote macroeconomic stability by adopting appropriate fiscal and monetary policies. By any conceivable measure, the Government of Ghana has failed to do this (Table 1). During the time span covering the Fourth Republic, the government has failed to exercise fiscal restraint, leading to large and persistent budget deficits that have had to be financed by domestic borrowing, international borrowing, and money creation. The Bank of Ghana (BoG) has little operational autonomy, partly a result of its enabling legislation and partly a result of a tradition of being the government's financier. As a result, the BoG has failed to control the growth of high-powered, or base, money, the principal liability on its balance sheet and the one over which it is supposed to have a lot of control. High and variable growth in the monetary base has, in turn, resulted in excessive growth in broader monetary aggregates, causing high and variable rates of inflation in consumer prices.

Nominal interest rates have been maintained at high levels in order to induce the banks and the non-bank public to hold large quantities of securities issued by the government to partially finance its large budget deficits. Despite maintaining interest rates at high levels in nominal terms, high and variable inflation has caused real interest rates to fluctuate widely over the past 9 years, ranging between plus and minus 20 percent per year. The uncontrolled growth in high-powered money and the consequent inflation has also contributed to instability in the nominal exchange rate. Despite large, often abrupt, falls in the exchange rate, there have been extended periods of time (for example, 1995-1998) when these were not sufficient to offset increases in the overall price level (inflation), leading long periods of real appreciation and a consequent decline in Ghana's international competitiveness.

Table 1. Indicators of Macroeconomic Instability

	Broad Budget Deficit (% of GDP)	Base Money Growth (% per year)	Inflation (% per year)	Nominal Interest Rate (% per year)	Real Interest Rate (% per year)	Exchange Rate Depreciation (% per year)
1992	8.1	32.2	10.1	20.4	9.4	18.8
1993	7.4	44.4	25.0	33.5	6.9	48.5
1994	3.8	35.4	24.9	29.8	3.9	47.4
1995	4.0	53.1	59.5	38.8	-12.9	25.5
1996	8.4	43.7	46.6	46.5	-0.1	36.4
1997	10.1	41.9	26.0	47.9	17.4	25.2
1998	8.1	24.6	16.4	37.6	18.3	12.9
1999	4.5	19.0	12.4	28.2	14.1	14.4
2000*	8.6	18.9	15.6	34.2	16.1	57.6

*First quarter.

This paper examines the role of the BoG in implementing monetary policy. This entails looking at the relationship between the BoG and the central government from a legal and an operational perspective. This relationship fundamentally affects the effectiveness of BoG policy instruments: open market operations in both government securities and foreign exchange, repurchase agreements, reserve requirements imposed on deposit money banks, and the setting of interest rates. Because the BoG has very little autonomy in implementing monetary policy, the effectiveness of monetary policy is dependent on external factors over which the BoG has little or no control. Thus, while targeted growth rates in the money supply, and a consequent improvement in macroeconomic stability, have been achieved occasionally, the results over longer periods of time, important to domestic and international investors, have been dismal. This situation will continue until the government

begins to exercise serious fiscal restraint over a long period of time (one exceeding the election cycle) and the BoG becomes much more independent both legally and operationally.

2.0 The Legal Relationship Between the BoG and the Government of Ghana

The Bank of Ghana Law (1992) specifies the objectives of the BoG, its administrative structure, its obligations as the government's banker and fiscal agent, and its responsibilities for credit control, domestic and foreign operations, and banking supervision. Embedded in this legislation are the seeds of the BoG's inability to promote macroeconomic stability. The BoG is encumbered with too many objectives that sometimes conflict with each other and its monetary policy functions are explicitly rendered subservient to the economic objectives and needs of the government.

2.1 Conflicting and Unclear Objectives

In addition to the usual central banking functions of issuing and redeeming bank notes and coins, administering the national currency system, and serving as the banker and financial advisor to the government, the BoG is (Part I, Section 3):

“(c) to regulate and direct the credit and banking system *in accordance with the economic policy of the Government...*

(d) to promote by monetary measures the stabilization of the value of the currency within and outside Ghana

(f) to ensure effective maintenance and management of Ghana's external reserves” (Bank of Ghana Law, 1992; italics added).

The first problem is that the objectives spelled out in the enabling legislation constitute a wish list—there is no overarching priority to clearly guide the BoG's actions. Thus, the BoG's mandate is too broad, i.e., it is supposed to promote domestic price and exchange rate stability (objective (d) above). This forces the BoG to choose which objective it will pursue. During 1998 and 1999, it attempted to maintain a stable nominal exchange rate, at which it was modestly successful (see Table 1), but at the cost of running down international reserves.¹ This violated the BoG's charter of effectively maintaining and managing Ghana's external reserves (objective (f)).

Furthermore, even as the BoG struggles to achieve either domestic price stability or a stable exchange rate, its authority to do so is undercut by subordinating the regulation of the credit and banking system to the economic priorities of the Government (objective (c)), priorities which may conflict with a broader objective of achieving and maintaining macroeconomic stability. One of the main ways in which central banks control growth in the money supply is by injecting or draining reserves from the banking system—the level of these reserves is a primary determinant of the supply of credit to the economy from the banking system. Thus, by subordinating the BoG's regulation of the banking system to the Government's economic policies, the BoG's ability to control the money supply is severely hampered.

The BoG's mandate needs to be simplified and embodied in its enabling legislation. Several industrialized and developing countries have moved away from monetary targeting, which the BoG ostensibly uses now, to explicit inflation targeting as the strategy guiding monetary policy (Croce and Khan, 2000).² This would

¹ This point will be discussed further in a following section.

² The countries include New Zealand, Canada, Israel, the United Kingdom, Australia, Finland, Spain and Sweden.

require a joint commitment between the Ministry of Finance (MoF) and the BoG that a certain target rate of inflation was the goal, regular reports to the public on the progress towards meeting the goal, and how the BoG intends to act in the future to achieve the target, including contingent responses to unforeseen events. One implication of this strategy is that the BoG would have to be able to choose freely the instruments it would use to achieve the inflation target. This means that the current lack of autonomy of the BoG (discussed in the following section) would have to be rectified. Another implication of the strategy is that the BoG would have to forgo its commitment to any other nominal target, the exchange rate for example. This aspect is covered in the discussion of the tools of monetary policy.

2.2 Lack of Autonomy

The Bank of Ghana Law (1992) contains several clauses that impedes the BoG's ability to conduct an independent monetary policy. A representative of the MoF is one of the 12 members of the BoG's Board of Directors. This gives the central government a direct voice in the conduct of monetary policy.³

Inflationary finance of government's budget deficits is built into the enabling legislation in section 27, which allows the BoG to "make advances and loans to the Government on overdraft" and to "make direct purchase from the Government of treasury bills or securities representing obligations of the Government." These actions create money. These advances were a primary source of the explosions of high-powered money in 1992 and 1994 and their inflationary consequences (see Appendix A). The law states that the total financing through these methods "shall not exceed the amount of indebtedness or borrowing authorized in advance by the government for the fiscal year in which the advances are made." This constraint is much looser than the numerical limits imposed in the 1963 enabling legislation, which the 1992 law replaced.⁴ The provision to repay advances was retained in the 1992 law.

There are operational manifestations of BoG dependence as well. For example, the MoF is represented on the Auction Committee, along with the BoG and the Accountant-General. This committee determines the volume of securities that will be offered at the weekly Treasury bill auction. This is fine as far as it goes, since the government issues Treasury bills to meet its public sector borrowing requirement and the BoG sells Treasuries to conduct its open market operations. However, the government gets first claim on the amount of securities that are actually sold and the BoG's needs are always second. Thus, if the auction is undersubscribed, as is usually the case, open market operations suffer. This is discussed further in the following section.

3.0 Tools of Monetary Policy

In the course of its day-to-day operations, the BoG strives to meet a target growth rate for the monetary base. Base, or reserve, money consists of currency in circulation plus deposits of commercial banks at the Bank of Ghana. Reserve money (RM) is a liability of the BoG and can be directly controlled by the Bank through the manipulation of the assets and other liabilities on its balance sheet. Reserve money is the operating target for the BoG's monetary policy.

³ A central bank can face indirect influences from the government. The enabling legislation for the U.S. Federal Reserve can be, and has been, changed on occasion by Congress. The President appoints, and the Congress approves, members of the Board of Governors. However, no representative of the executive or legislative branch of government sits on the Board of Governors or on the Board of Directors of any of the 12 district Federal Reserve banks.

⁴ The 1963 Act stipulated that the amount of such advances should not at any time exceed 10 percent of estimated revenue. In certain cases the Bank could extend advances not exceeding 15 percent of estimated revenue at the request of the President. The Act further stipulated that any such advances should be repaid within three months of the end of the financial year; failing repayment, the Bank would not extend advances in any subsequent financial year (Bank of Ghana, Act 1963, pp 18-19). As Tuffour () points out, however, these constraints were violated several times.

The intermediate target for the year is a specified level of M2, one of the broader monetary aggregates. Given that the forecasted value of the M2 multiplier is realized during the year, then if the BoG meets its target for reserve money, the targeted level of M2 will be achieved⁵. Quarterly reserve money (RM) and M2 targets are set in deliberations between the GoG and the IMF and are conditionalities attached to lending agreements with the IMF⁶. These quarterly targets imply certain growth rates in the monetary base and M2.

Success in meeting the M2 target is partially dependent on the stability of the money multiplier. That is, even if the BoG meets its reserve money target, a shift in the value of the multiplier could result in a miss in meeting the M2 target. The Research Department of the Bank of Ghana (1996) showed that the multiplier varied from 2.1 to 2.6 during the 10 quarters from 1993:Q1-1996:Q1. Salkin (2000) showed that the value of the M2 multiplier had an average value of 2.42 between January 1992 and September 1999 and a standard deviation of 0.18, implying that it ranged between 2.06 and 2.78 95 percent of this time. Despite the uncertainty in meeting the M2 target that a changing multiplier implies, most of the change in M2 is accounted for by changes in the monetary base (Youngblood, et al., 1992). Reducing growth in the monetary base has always reduced the rate of inflation (Table 1). Thus, a changing multiplier would make it difficult for the BoG to fine tune its monetary policy, but the problems with monetary control in Ghana have nothing to do with fine tuning.

The ultimate objective of constraining the growth in high-powered money is to reach a targeted inflation rate. This presumes that inflation is a monetary phenomenon, which is the case in Ghana (BoG, 1996; Sowa, 1991; Younger, 1991; Youngblood et al., 1992). The BoG (1996) notes that instability in the velocity of money weakens the relationship between broad money growth and inflation, so that even if money growth targets are met the inflation target might still be missed. Velocity has declined since 1992 (Salkin, 2000), generally at a slow, steady pace⁷. But this does not account for the BoG's inability to meet its target inflation rates (Table 2). The magnitude of the growth in broad money (Table 2), caused for the most part by excessive growth in the monetary base, is the predominant cause of inflation, far outweighing the uncertainty of reaching a particular level of inflation caused by marginal changes in the money multiplier and in velocity. Thus, the problem rests squarely with the BoG's inability to control growth in the monetary base—this is the variable that the BoG could control with great precision.

Table 2. Bank of Ghana Targets and Performance (%/year)

	1993	1994	1995	1996	1997	1998	1999	2000*
M2 growth**								
Target	0	5	8	5	15	20	15	12
Revised target			14		25		17	
Actual	27	46	37	34	44	18	16	24
Inflation								
Target	9	15	18	20	15	10	10	8
Revised target	20						12	
Actual	28	34	71	33	16	16	14	20

Source: Targets from Government of Ghana Budget Statements, various years. Actual values from BoG data.

⁵ M2 is related to the monetary base, H, through the money multiplier, m: $M2 = mH$. The value of the multiplier depends on the proportion of reserves that deposit money banks have to hold against their deposit liabilities, the ratio of excess reserves to deposits that banks choose to hold, and the public's desired holdings of currency relative to demand, savings, and time deposits. Thus, the value of the multiplier will change with changes in reserve requirements, changes in banks' desired holdings of excess reserves, and changes in the public's preferences for holding financial assets in various forms. Increases in the monetary base through BoG actions (the *only* way the base can change) are "multiplied", through the processes of multiple deposit creation by the banking system and the behavior of banks and the public, resulting in an increase in M2.

⁶ Seasonality in both the money multiplier and the money supply is accounted for in the quarterly projections.

⁷ Velocity declined sharply on a one-off basis in January 1997 when foreign currency accounts were added to the definition of M2, creating a monetary aggregate called M2+.

*Through June. Actual M2 growth and inflation are from June 1999 to June 2000.

**Beginning 1997, money supply is M2+ which includes foreign currency deposits.

The Bank of Ghana (BoG) has several instruments it uses to achieve its monetary policy objectives. These include open market operations, repurchase agreements, foreign exchange operations, reserve requirements, discount policy, and interest rates.

3.1 Open Market Operations

Every Friday the BoG conducts an auction of government securities on behalf of the government and itself. The auction is a wholesale auction, i.e., BoG sells only to primary dealers. All deposit money banks plus several non-bank financial institutions (discount houses and brokerage firms) are designated as primary dealers. The dealers submit competitive tenders at the weekly auctions. Banks typically account for 90-95% of the value of tenders, and NBFIs for the remainder. The BOG pays a commission of 0.25% of the face value for securities purchased by the banks and brokerages on behalf of their customers. Tap sales after the auction are used to supply customers outside of Accra through the BoG's branches in Kumasi, Takoradi, Hohoe, Tamale, and Sunani. Securities for the tap sales are purchased by the BoG in a noncompetitive tender and sent to the regional branches.

An Auction Committee comprised of representatives from the BoG, MoF, and the Accountant-General meets every Friday. Its purpose is two-fold. First, it determines the lowest acceptable price for each security that will be accepted from the bids submitted, and hence, the highest interest rate that will be allowed that week. Second, it determines the total value of securities that will be offered at the next auction, based on the public sector borrowing requirement (PSBR) and the BoG's desired level of OMO's.

Open market operations are decided by an OMO Committee that meets every Thursday. The size and direction of the weekly OMO (whether reserves need to be added to or drained from the banking system) are governed by the difference between actual reserves and the weekly reserve money target⁸. The deposit money banks submit formal reports on their reserve positions every Wednesday⁹, so the BoG knows whether it has met that week's target. This information is used to determine the value of securities that will be added to the PSBR to arrive at the total value of securities that will be offered at auction.

The government has first claim on the proceeds, which it uses to meet its PSBR. Residual proceeds are used to drain reserves from the banking system in order to meet the BoG's reserve money target. It is these residual proceeds that constitute the BoG's open market operations in government securities.¹⁰

If the BOG needs to expand reserve money, it will purchase some of the securities required to meet the PSBR. If the BoG wants to drain reserves from the banking system, it will add an appropriate volume of securities to the PSBR to determine the total value of securities that will be offered at that week's auction. For example, if

⁸ The quarterly targets for reserve money are broken down into monthly and weekly targets using straight-line projections by the Research Department of the BoG.

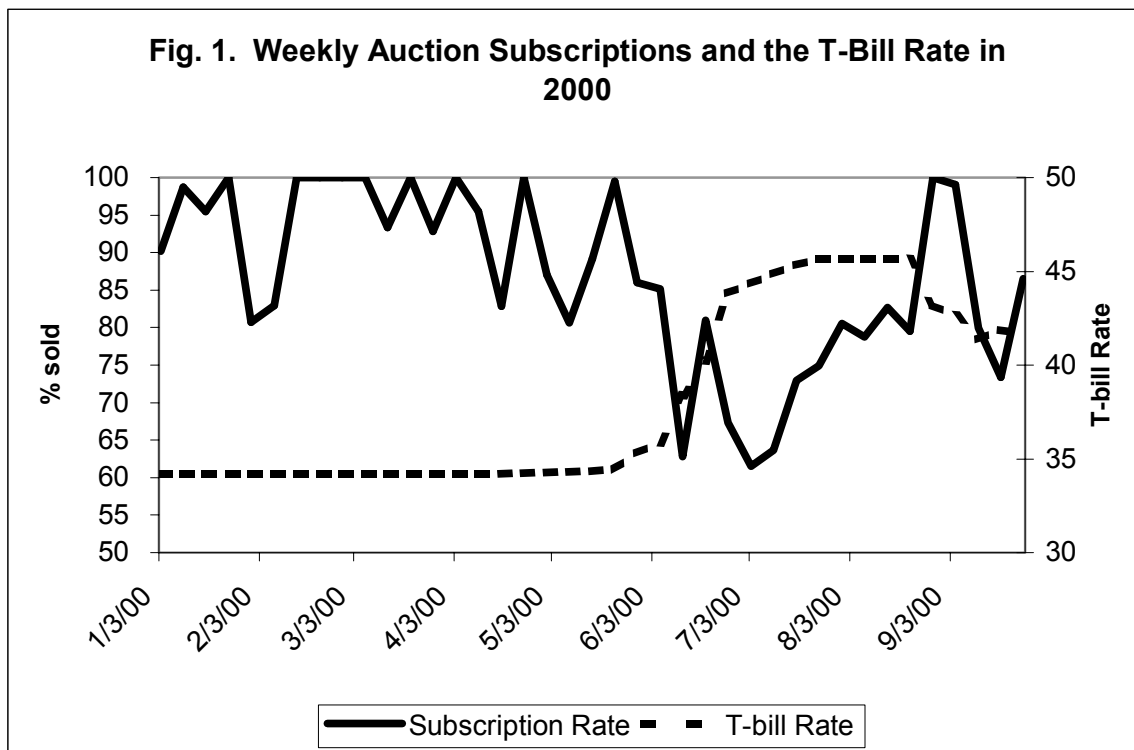
⁹ In practice, the BoG canvasses banks daily to determine their overall reserve position. Thus, even though formal reports on reserves are submitted by the banks once a week, the BoG has a reasonably good idea of the level of reserves in the banking system on a continuous basis. A target level of reserves also implies targets in *all* sources of base money, not just changes in the BoG's holdings of government securities. These sources include net foreign assets, net claims on government, and net claims on the rest of the economy (BoG, 1996). The OMO committee weighs current and potential changes in these sources to get a sense of how the monetary base is likely to change in the near term. These considerations influence the OMO Committee's decision on the volume of open market operations that will be undertaken from week to week.

¹⁰ The BoG can also contract base money through sales of foreign exchange, a point that is discussed further below.

the PSBR is C80 billion and the BoG wants to decrease reserves by C20 billion, the total offered at the auction will be C100 billion. If the auction is fully subscribed (C100 billion worth of securities is sold), then C20 billion in reserves is drained from the system. The total value of the securities sold (C 100 billion) become a liability on the GoG's balance sheet. BoG assets are not affected by the OMO since the BoG does not own the securities involved; instead, bank reserves (a BoG liability) decline by C20 billion, offset by an increase in the value of a blocked account, another liability item into which the proceeds from the open market operation are deposited. This contrasts with the open market operations conducted in the U. S. by the Fed. To drain reserves from the banking system, the Fed sells U. S. Treasuries from its own account, thereby reducing its assets (the securities) and its liabilities (banking system reserves).

A problem arises if the auction is undersubscribed. Continuing the above example, if only C80 billion worth of bids are accepted, then all proceeds go to the government and the BoG gets nothing. Undersubscription means that the BoG's reserve money targets cannot be fully met through open market operations in government securities, so it must use other instruments to meet its reserve targets, e.g., foreign exchange sales or reverse repo's (these are discussed below).

If the auction is undersubscribed to the point that the government cannot meet its PSBR, the problem worsens. (Continuing the example above, this would happen if the bids accepted totaled only C60 billion, leaving a shortfall of C20 billion in the PSBR as well as foregoing the C20 billion for monetary management purposes.) In this case, the BoG buys enough T-bills to enable the government to meet its PSBR. The BoG purchase of T-bills creates money because the BoG credits the government's account by the amount of the purchase and this money will be spent by the government on goods, services, or the redemption of maturing securities. The BoG is not only unable to conduct its open market operations because of the undersubscription, but also directly violates its reserve money target by purchasing the T-bills.



Undersubscribed auctions are the rule. From mid-1994 through 1996, the subscription rate (value of securities sold as a percentage of securities offered for sale) averaged 65 percent. In 1999 the average subscription rate was 74 percent. During the current year through September the average subscription rate has risen to 86 percent

(see Fig.1). In the summer of 2000, BoG officials stated that a substantial part of the recent PSBR has been to raise funds to rollover the existing debt and that proceeds from the auctions had yielded slightly more than this amount. Thus, it is likely that on average the BoG's open market operations have failed because the auctions are persistently undersubscribed. Furthermore, in 1999 the BoG added C256 billion in T-bills to its assets, as it purchased T-bills to help the government meet its PSBR. The potential inflationary effects of this monetary injection were offset by a decline in net foreign assets—most likely the sale of foreign exchange (see Appendix A, Changes in the Monetary Base, 1998-1999).

The primary reason that auctions are undersubscribed is that interest rates are not free to equilibrate the quantity supplied with the quantity demanded.¹¹ Interest rates remain fixed in the face of large swings in the percentage of securities sold at the auction (see Fig. 1). BoG officials stated that a primary consideration in setting the interest rate is the cost to the government of servicing the debt. Higher interest rates place a greater burden on already strained government finances. The presence of MoF officials on the Auction Committee ensure that these considerations carry weight. The interest rate is changed either when reserve money targets cannot be consistently met through the use of alternative monetary policy instruments or when other considerations dominate. For example, beginning in the last quarter of 1999 interest rates were raised in increments from 26 percent to 45 percent by August 2000 in an attempt to rein in the depreciation of the cedi.

Any time an auction is undersubscribed means that the BoG is unable to drain the desired level of reserves from the banking system. Thus, the BoG cannot exercise the desired degree of control over the monetary base by using what is supposed to be its primary monetary policy instrument. This situation exists partly because there is no secondary market for Treasuries. In the U.S., the Fed does not participate in Treasury auctions—it conducts its OMO's in the secondary market and is thus free to buy or sell exactly the amount it wants to. The government has taken steps to develop a secondary market. It converted the auction from a retail to a wholesale auction by selling only to primary dealers; who were in turn supposed to rediscount the securities to retail purchasers¹².

But the secondary market will never develop as long as the government intervenes so heavily in the determination of interest rates. Banks are notified by the BoG when it is time to raise the prices bid for Treasuries, thereby lowering interest rates. The BoG uses dummy bids to signal that it is acceptable for dealers to offer lower prices (higher interest rates) for T-bills.

The high degree of uncertainty that the current system induces in open market operations forces the BoG to rely on other monetary policy instruments. High on the list of most used alternative instruments are repurchase agreements and reverse repurchase agreements.

3.2 Repurchase Agreements (repo's)

The original intent of repurchase agreements was to enable the BoG to fine tune the level of reserves between auctions. Repo's in Ghana have been used only in the past 2 years. Under a repurchase agreement the BoG buys T-bills from banks and the banks are contractually obligated to buy the bills back (repurchase them) within a very short period of time, typically one day, sometimes 2 or 3 days. The interest rate on repo's is usually 0.5-0.75 percentage points higher than the 91-day T-bill rate established at the most recent auction. When the BoG enters into a repo, it injects reserves into the banking system and increases the supply of high-powered money: the BoG credits the selling bank's account at the BoG, directly increasing one component of high-powered

¹¹ Some undersubscription occurs for seasonal reasons, for example when income taxes are due and around Christmas.

¹² Originally, the discount houses were intended to underwrite T-bill issues and then resell them to the rest of the market. It soon developed that the discount houses were not strong enough financially to do this, so the BoG moved to the primary dealer system.

money. When the bank closes out the repo by repurchasing the T-bills, the bank's account at the BoG is debited and the supply of high-powered money is reduced.

In a "reverse repo", the BoG sells T-bills from its own account to a bank. The bank's account at the BoG is debited, so reserves and high-powered money decrease. When the BoG repurchases its T-bills within one to three days, high-powered money increases. Thus, repo's and reverse repo's alter the supply of base money temporarily. This is in sharp contrast with an OMO which changes the supply of base money permanently.

In the U.S. the Fed often uses repo's and reverse repo's to induce temporary changes in the money supply. Use of repo's is often defensive in nature, designed to smooth out temporary and undesirable changes in the money supply, for example those caused by the Christmas shopping season. Repo's in the U. S. have maturities of one to fifteen days. The key point is that they are used to effect *temporary* changes in bank reserves; when the Fed wishes to change the level of reserves permanently, it engages in a traditional open market operation.

The BoG calls the banks each morning to determine their reserve positions. This information lets the Repo Committee (comprised of members from the Treasury and Research Departments at BoG) know whether there is a reserve deficiency or surplus for the entire banking system or whether there are only reserve imbalances among banks, but that the overall level of reserves in the system is adequate. By noon it has determined the amount of repo's it will accept. This amount should be zero in the event that there are only reserve imbalances among banks. If there is a system-wide reserve deficiency, the amount would equal the deficiency. There is a ceiling on the value of repo's that can be issued by each bank. (The banks do not know the ceilings that apply to them). If a bank wants to increase its reserves by entering into a repo with the BoG for an amount that would breach this ceiling, approval has to be obtained by the Head of Treasury from the Governor of the BoG. If approval is not granted, it has to use the secured lending facility which carries a penalty rate (higher than repo rate) to obtain additional reserves¹³.

The BoG is apparently using repo's as a substitute for open market operations rather than the temporary smoothing of money supply blips for which they were intended. For example, in interviews conducted during the field trip¹⁴ BoG officials stated that in the previous 3 weeks or so, the BoG had engaged in reverse repo's to drain reserves from the system. In the 5 auctions beginning with June 12 and ending with the auction for July 10, offerings were undersubscribed by 37, 19, 33, 38, and 36 percent, respectively. Clearly the BoG was unable to conduct its open market operations during this time period; it was attempting to meet its reserve money targets through reverse repo's. This instrument is totally inappropriate to the task at hand, although one can sympathize with the BoG's Sisyphean task of being held accountable for constraining money supply growth in the face of persistent fiscal deficits without being given the appropriate tools for the job.

In the past, faced with this difficulty, the BoG would have sold foreign exchange in order to drain excess liquidity from the system.

3.3 Foreign Exchange Operations

The sale of foreign exchange has often been used by the BoG to mop up liquidity other instruments failed. Given the uncertainty about the success of OMO's in government securities (high), the temporary nature of repo's and reverse repo's, and the difficulties in using reserve requirements as an instrument of monetary control (discussed below), foreign exchange operations have been one of the BoG's main instruments of monetary control. A sale of foreign exchange has the same effect on reserve money as an open market sale of

¹³ If banks have frequent recourse to the secured lending facility, this is a warning signal to the BoG that the bank may be acting imprudently. The BoG expects and encourages banks to manage their reserve needs by dealing with other banks.

¹⁴ July 4-15, 2000.

government securities. Individuals and companies pay for the foreign exchange by drawing down their cedi deposits at banks or by reducing their cedi cash holdings; this reduces bank reserves in the former case or reduces currency in circulation in the latter case. Since currency in circulation and bank reserves are both components of high-powered money, the supply of high-powered money is reduced. If banks buy foreign exchange from the BoG, their accounts at the BoG are debited and this reduces the supply of high-powered money.

This type of BoG intervention in the foreign exchange market, unless it is sterilized¹⁵, not only reduces high-powered money, but also moderates the rate of depreciation of the cedi against foreign currencies. Maintaining a stable value of the exchange rate is one of the BoG's legislated objectives. The exchange rate is a highly visible sign of the stability (or lack thereof) of the economy. The BoG has tended to use the exchange rate as a nominal anchor for the economy: a stable nominal exchange rate is a tangible sign that the authorities have inflation under control.

For example, in the 1996 Budget Statement, the government announced that it would undertake efforts to moderate the deterioration in the nominal exchange rate "through appropriate intervention". To accomplish this it planned to use the \$100 million realized through the sale of Government shares in the Ashanti Goldfields Company. The 1997 Budget Statement confirmed that this intervention had occurred. As a result, the year-on-year depreciation was limited to 22 percent at the same time that year-on-year inflation was 33 percent.

The BoG gets some of its foreign exchange from aid flows for agricultural projects and programs, the annual foreign currency loan to finance the cocoa crop, and other sources. Most of its sales are to the Agricultural Development Bank, but it also sells to Social Security Bank and Ghana Commercial Bank. Other government-owned banks support the policy of maintaining a stable nominal exchange rate. For example, the Agricultural Development Bank (ADB) gets lots of remittances and is also the recipient of donor funds for agricultural sector projects. ADB has the lowest foreign exchange rates—one banker said ADB was buying dollars at C5800, mainly from the BoG and the GoG on behalf of the donor projects, and selling dollars at C6000 at the same time that the private banks were buying at C5900 and selling at C6100. These sales of foreign exchange at below market prices help dampen the depreciation of the cedi.

The BoG also has regulations on the books that banks cannot maintain long or short positions in foreign exchange that exceed a certain percentage of their capital. Thus, banks that are long foreign exchange (foreign assets exceed foreign liabilities) are supposed to sell, via the interbank foreign exchange market, to banks with short positions. These regulations reinforce the BoG's practice of direct intervention in the foreign exchange market by keeping available supplies moving through the market.

The success of foreign exchange sales as a monetary policy instrument depend on the supply of foreign exchange available to the BoG. During periods when the terms of trade improve, when donor inflows are especially generous, or when one-off windfalls occur (the sale of AGC), then the BoG can "successfully" intervene. However, attempts to use the exchange rate as a nominal anchor for inflationary expectations when government deficits are large and persistent have an especially pernicious effect on international competitiveness. Depreciation is kept below the rate of inflation and consequently the real exchange rate appreciates. In the recent past this has occurred in 1995, 1996, 1998, and 1999. With real appreciation, the incentives to export are reduced and the structure of incentives are skewed in favor of imports and import-competing activities. This directly undermines the government's announced policy of development through export-led growth.

¹⁵ The sale of foreign exchange is offset by a matching open market purchase of government securities. One asset (foreign exchange) is exchanged for another (T-bills) and there is no change in high-powered money.

Furthermore, when terms of trade turn against Ghana and the foreign exchange available to the BoG dwindles, the BoG is deprived of this monetary policy instrument and sets the stage for speculative attacks on the currency. The drops in cocoa and gold prices in 1999 have drastically reduced the supply of foreign exchange available to the BoG, while the tripling in the price of oil in 1999 and 2000 (coupled with the refusal of the authorities to raise the domestic prices of gasoline) have sharply increased the demand for foreign exchange. As a result, the foreign exchange available to the BoG with which it could conduct open market operations has essentially dried up. From September 1999 through June 2000 the cedi depreciated by more than 100 percent.

Thus, the inability to use foreign exchange sales as a monetary policy instrument, combined with the ineffectiveness of OMOs, has reduced the options available to the BoG to control money supply growth¹⁶. As noted above, it raised the primary reserve requirement and raised interest rates, but the ineffectiveness of these instruments, given the constraints under which the BoG operates, very likely means that the BoG will miss its money growth targets by a wide margin in 2000 (see Table 2 above).

3.4 Reserve Requirements

Reserve requirements are set by the BoG as a fixed percentage of banks' deposit liabilities, including foreign currency accounts. There are two sets of reserve requirements. Primary or cash reserves are currently 9 percent of deposit liabilities¹⁷. Primary reserves consist only of deposits of banking institutions at the BoG; vault cash does not count towards meeting this reserve requirement. Secondary reserves must be held in the form of approved government paper, primarily Treasury bills, and are currently set at 35 percent of deposit liabilities.

In modern banking systems, changing the reserve requirement is an outmoded instrument of monetary control. Industrialized countries use reserve requirements more as a prudential measure than as a monetary control measure. They require banks to set aside a fraction of their deposits in order to meet ordinary and reasonable withdrawal demands by customers. The fact that the cash is there when the customers demand it maintains the public's confidence in the soundness of the banking system. Frequent changes in reserve requirements for monetary control purposes impose accounting costs on banks and thus raise the cost of financial intermediation. For this reason, required reserve ratios in industrialized countries tend to remain constant for long periods of time.

These countries have found that there are much more effective instruments of monetary policy, primarily open market operations. Open market operations directly change the quantity of high-powered money in the system, and these changes, when passed through the money multiplier, directly change the supply of broader money aggregates. As noted above, most of the changes in Ghana's money supply occurs because of changes in high-powered money; changes in the money supply caused by changes in the multiplier are very small. Changes in reserve requirements cause changes in the money multiplier—increasing the requirements causes the multiplier to decrease, with the percentage decrease in the multiplier being smaller than the percentage increase in the reserve requirement.

¹⁶ In an effort to manage the growing shortage of foreign exchange, in late 1999 the BoG began using foreign exchange swaps with commercial banks. Banks who need foreign exchange to meet customer demands (e.g., importers) receive dollars now and pay the BoG in cedis. With the expectation that the bank will be receiving dollars in the future (possibly from customers who are exporters), the bank at that time will swap the dollars with the BoG in exchange for cedis. The exchange rates at which the current and future transfers of dollars occur determines whether the BoG is engaging in subsidized sales of foreign exchange. In the summer of 2000, the IMF deemed this practice to be multiple currency practice, which was prohibited under the arrangements between Ghana and the IMF, and directed the government of Ghana to cease these practices. The introduction of swaps by the BoG signalled the failure of traditional methods of foreign exchange intervention and provided one more example of the riskiness of using the nominal exchange rate as a nominal anchor in the presence of severe macroeconomic imbalances.

¹⁷ This was increased from 8 percent on July 6.

Since open market operations have been relatively ineffective in Ghana, the BoG is forced to use an instrument it can control, even if that instrument will have only minor effects on the growth of the money supply. It was for this reason that the primary reserve ratio was recently (July 2000) raised from 8 to 9 percent. Another factor affecting the size of the multiplier is banks' holdings of excess reserves. This is not a monetary policy instrument because it is not directly controlled by the BoG. Nevertheless, increases in banks' holdings of excess reserves will reduce the size of the multiplier. Ghanaian banks hold a lot of excess reserves, a point that is discussed further below. For our purposes here, if an increase in the reserve requirement is met by a reduction in banks' excess reserves, then the overall reduction in the multiplier will be even smaller (and possibly zero) than pointed out above.

Reserve requirements in Ghana must be met on a 15 day averaging basis, not contemporaneously. For purposes of computing reserve requirements, a "week" runs from Thursday to Wednesday. For any Thursday, the average of the primary or secondary reserve holdings during the preceding 7 days divided by the average of the deposit liabilities of the week prior to that must equal the required reserve ratio. Taking a period in June 2000 as an example, for a bank to meet its primary reserve requirement on Thursday, June 22, it first calculates its average deposit liabilities for the Thursday to Wednesday period of June 8-14.¹⁸ It then tracks the average of the amount it has on deposit at the BoG for the Thursday to Wednesday period of June 15-21. The average of the primary reserves for June 15-21 is divided by the average of deposit liabilities for June 8-14 and the resulting ratio must be at least 8 percent if the bank is to meet its primary reserve requirements.¹⁹ Thus, if on Wednesday, June 21 the bank sees that its average reserves will not be sufficient to meet the requirement, it will need to acquire more reserves.

3.4.1 Required and Excess Reserves

The total required reserve ratio has historically been very high in Ghana; it was as high as 57 percent for several years, but has since declined to 43 percent in 1998 and 1999 (Table 3). Primary reserve requirements have tended to fall over time (from 18 to 8 percent) and are more or less in line with international standards. Banks have typically held primary reserves in excess of the requirements, with the excess running between 1.5%-4%. Holdings of excess primary reserves are not unusual—banks want to be able to meet the withdrawal requests of their customers and the amounts of these withdrawals cannot be predicted with pinpoint accuracy, particularly when macroeconomic conditions are unstable. Also, if penalties for failing to meet reserve requirements are high, banks have a further incentive to hold some excess reserves.

Table 3. Required and Excess Reserve Ratios, 1992-1999

	Primary Ratio			Secondary Ratio			Total		
	Required	Actual	Excess	Required	Actual	Excess	Required	Actual	Excess
1992	18.0	20.9	2.9	24.0	44.1	20.1	42.0	65.0	23.0
1993	10.5	14.1	3.6	42.8	56.0	13.3	53.3	70.1	16.8
1994	5.0	8.5	3.5	52.0	66.0	14.0	57.0	74.5	17.5
1995	5.0	10.9	5.9	52.0	65.0	13.0	57.0	75.9	18.9
1996	6.3	11.0	4.7	50.8	46.2	-4.6	57.0	57.2	0.1
1997	8.5	10.1	1.6	38.0	47.2	9.2	46.5	57.3	10.8
1998	8.0	11.0	3.0	35.0	53.1	18.1	43.0	64.1	21.1
1999	8.1	10.5	2.4	35.1	53.7	18.6	43.2	64.1	21.0

Source: Bank of Ghana

¹⁸ In calculating the weekly average, deposits on Saturday and Sunday of the week are fixed at their levels on Friday.

¹⁹ Secondary reserve requirements are computed in the same fashion.

Some observers (including this one) have noted that the high total reserve requirements in Ghana severely constrain the supply of credit to the private sector. With the government (or its agent, the BoG) claiming roughly half of the money that is deposited into the banking system, only 50 percent is potentially available for lending. But the behavior of the banks belies this claim. The secondary reserve requirement has ranged between 24 and 52 percent during the 1990s. Banks have willingly held far more government securities than are needed to meet reserve requirements. Ignoring 1996, when banks apparently failed to meet the secondary reserve requirements, excess holdings of government securities have ranged between 10 and 20 percent. Excess reserve holdings of this magnitude suggest that even if the secondary reserve requirement were to be eliminated, banks would voluntarily place large percentages of their deposit liabilities in government securities.

From the banks' point of view, these securities offer very high margins over the banks' cost of funds (the interest they pay their depositors) at very low risk. The banking skills required to participate in the T-bill auctions and to manage their investment portfolios are readily available in Ghana. The alternative is for the banks to sift through a large pool of high-risk potential borrowers and select the few that will repay their loans with high probability. This requires a very different set of banking skills, a set that is in very scarce supply in Ghana. Furthermore, even if these few borrowers are selected and the loans are made, unstable macroeconomic conditions (including very high real interest rates) jeopardize the repayment abilities of even the good borrowers.

3.4.2 Reserve Requirements on Foreign Currency Deposits

Reserve requirements on foreign currency deposits are assessed on the cedi value of those accounts. Thus, as the cedi depreciates, reserve requirements increase even if the foreign currency value of the account remains constant. The resulting pain will vary from bank to bank, depending on the share of foreign currency accounts in total deposit liabilities. Banks do not like this, claiming that it increases their foreign exchange risk. The BoG views this method of assessing reserve requirements as an automatic stabilizer for monetary control purposes. The BoG also thinks it lessens the perception that it is directly controlling foreign exchange, a perception that it feels would grow if it required banks to deposit foreign exchange as reserves against foreign currency accounts.

Table 4. Reserve Requirements on Foreign Currency Deposit Accounts

	Foreign Currency Deposits (\$ mn)*	Foreign Currency Deposits (C bn)**	Required Reserves (C bn)**	Required Reserve Ratio %***
1996	268	444	253	57.0
1997	303	627	288	46.5
1998	308	714	307	43.0
1999	292	785	338	43.2

*End-month values in cedis converted to dollars using end-month exchange rates and averaged to get annual values.

** End-month values in cedis averaged to get annual values.

***Sum of primary and secondary reserve ratios.

In dollar terms, foreign currency deposits grew by less than 10 percent from 1996-1999 (Table 4). In cedi terms, however, these accounts grew by 77 percent so that even though the total required reserve ratio fell from 57 percent to 43 percent over this period, required reserves increased from C253 billion to C338 billion, an increase of 34 percent.

The increase in reserves on these accounts due to depreciation must be met by setting aside additional monies from other sources (e.g., demand, time, and savings deposits). The true cost to the banks occur when they are forced to divert money from these sources to meet the primary reserve requirements on foreign currency deposits. Deposits at the BoG, into which these monies go, pay no interest and they divert money that could go into investments in government securities.

Banks go to DHs only if they can't get reserves through the interbank market—banks with excess reserves lend to DHs which in turn buy T-bills with the money. DHs are specialists in dealing with the mismatch of types of funds available in the market; and thus serve a function of maturity transformation: if they get a steady flow of funds from the banks, they can treat a portion of the flow as permanent and buy 91-day T-bills with that portion, because it won't be called from them. Currently, the DHs are turning down banks' deposits, because their deposit flows are too uneven for them to treat any significant portion as permanent and there are no other instruments that these uneven flows can be invested in.

3.4.3 Sources of Reserves for Banks

When the discount houses were first established in the early 1990s, banks were supposed to deposit any excess funds on call at the discount house. Banks with deficit positions would borrow from the discount house, typically by issuing an unsecured, negotiable CD of short maturity (less than 1 week). If the whole system was in deficit, all the banks would call their money from the discount houses and they in turn would need funds to repay the banks. The discount houses were supposed to borrow from the BoG in this case. Any BoG lending to the discount houses would be secured by T-bills.

But in practice when the discount houses had to borrow from BoG, they paid punitive rates²⁰. The discount houses passed these punitive rates along to its borrowers. The banks found that it was cheaper for them to bypass the discount houses and deal directly with one another, in effect creating the interbank money market. This market has evolved into the primary market in which banks borrow to meet reserve needs or lend out their excess reserves.

This is an informal market operating on the honor system, in which bankers deal directly with one another over the phone, as opposed to a more formal market arrangement relying on an electronic network and market makers. Interbank transactions are unsecured. Despite this, the interest rate on overnight loans is usually below the T-bill rate and is usually the cheapest source of funds, at least for the most credit-worthy banks.

The next preferred alternative is to enter into a repurchase agreement with one of the three discount houses. The bank sells Treasuries in its portfolio to the discount house and agrees to repurchase them within one to three days. The interest rate charged by the discount house is a fixed margin over and above the prevailing interest-equivalent rate on Treasuries. This margin is higher than the one the BoG adds in its repo transactions (usually 0.5 percent). There is some counterpart risk in repos, depending on the quality of the bank, so the discount houses adjust the interest rate charged to a particular bank to reflect this risk. The risk is that the bank may not have the money to close out the repo, i.e., to buy back the Treasuries it sold to the discount house.

If a bank is unable or unwilling to enter into a repurchase agreement with a discount house, it can issue a CD to a discount house. This would be unsecured lending by the discount house, so it charges a higher interest rate than it does on repos. The last resort for a bank looking to borrow is to enter into a repurchase agreement with the BoG (discussed above in Section 3.2). However, the BoG engages in these transactions only if there is a reserve deficiency for the entire banking system.

²⁰ The thinking was that if the discount houses received a preferential rate, they could take the funds and buy T-bills, borrow more from the BoG, buy more T-bills, etc.

3.5 Discount Rate

The discount rate is no longer used as a tool of monetary policy. It is theoretically the rate at which a bank can borrow from the BoG. In the U.S., changes in the discount rate (and in the federal funds rate) are used to signal interest rate changes by the Fed. In Ghana, the BoG does not change discount rate very often and it lags by a considerable margin changes in T-bill rates. For example, the last change in the discount rate was to lower it from 32 percent to 27 percent in April 1999; as of June 2000 it was still 27 percent. From April 1999, the discount rate on 91-day T-bills increased from 26 percent to almost 37 percent in June 2000. During the 3 years from September 1995 through August 1998 the discount rate was fixed at 45 percent. Over this time, the T-bill discount rate rose from 39 percent to 42.8 percent (where it remained for a year) and then declined to 33.5 percent. The discount rate is effectively all noise and no signal.

Bankers stated that the BoG does no rediscounting for them. All rediscounting occurs among financial institutions themselves.

3.6 Interest Rates

It is clear that GoG and BoG officials consider the interest rate to be a monetary policy tool. The Government's Budget Statements reflect this belief. For example, the 1999 Budget Statement asserted that "The Bank of Ghana will use interest rate policy [in 2000] to reinforce its monetary policy objectives." In conversations with BoG officials, they stated that the BoG had raised interest rates to counter the depreciation of the cedi. But as the discussion of open market operations noted, BoG officials stated that a primary consideration in setting the interest rate is the cost to the government of servicing the debt. This consideration, and the BoG's status as residual claimant of auction proceeds, effectively make interest rates an instrument of last resort. The interest rate is changed only when reserve money targets cannot be consistently met through the use of alternative monetary policy instruments or when extraordinary circumstances compel a change, e.g., the sharp depreciation of the cedi since October 1999.

Interest rates will not be an effective monetary policy instrument until the government's budget deficits are significantly reduced for a prolonged period of time, the outstanding stock of public sector domestic debt is reduced, the BoG acquires sufficient Treasury securities with which it can conduct open market operations, and a liquid secondary market in T-bills develops. The development of a secondary market in itself hinges on the ability of market participants to freely set bid and offer prices for Treasuries. This is unlikely to happen as long as the government has a vested interest in keeping the costs of servicing its domestic debt low through the manipulation of the interest rate on the debt, rather than reducing servicing costs through a decrease in the stock of the debt.

4.0 Conclusions

The instruments available to the Bank of Ghana to meet its numerous objectives can be characterized as outmoded and ineffective (the discount rate and reserve requirements), dependent on external circumstances when they are effective (foreign exchange operations), or, when either of these two conditions do not apply, rife with uncertainty about their effectiveness (open market operations). There have been short periods of time when the BoG has been able to control the growth of high-powered money, and hence the money supply, and has brought the inflation rate down. But the overall record of monetary management is poor and the consequences have been an unstable macroeconomic environment and a deterioration in international competitiveness.

However, the root cause of Ghana's monetary, price, and exchange rate instability is the persistent and large government budget deficits that the Government needs to finance. Until the government reduces its deficit—substantially and for an extended period of time—the BoG will fail to deliver macroeconomic stability, given the limited instruments under its control, its lack of independence, and its lack of focus on a single, clearly defined monetary target (e.g., reducing inflation). The BoG's ability to implement an effective and independent monetary policy is seriously impaired by its enabling legislation, which saddles the BoG with too many objectives that sometimes conflict with each other and currently makes monetary policy a tool for financing the Government's budget deficits.

Open market operations are potentially the most effective arrow in the BoG's quiver. But the BoG is seriously hampered in using OMO's by its subservient relationship to the MoF, which gets first claim on the auction proceeds to meet the government's public sector borrowing requirement, with the BoG the residual claimant. The government's need to control interest rates to keep its debt servicing costs from growing explosively means that interest rates are not allowed to rise to clear the market (thereby enabling the BoG to conduct its open market operations). Another implication is that the BoG cannot rely on interest rates as a monetary policy instrument.

The ineffectiveness of OMO's forces the BoG to rely on second-best instruments of monetary policy, e.g., selling foreign exchange to mop up excess reserves; use of prudential regulations (reserve requirements) to achieve monetary growth targets; and the use of short-term policy instruments to accomplish longer term objectives (reverse repurchase agreements).

References

Amoako-Tuffour, J. "Money Market Growth and Open Market Operations in Ghana." CEPA Working Paper. Centre for Policy Analysis: Accra, Ghana. October 1995.

Croce, E. and M. S. Khan. "Monetary Regimes and Inflation Targeting." *Finance and Development*. September 2000.

"Bank of Ghana Law, 1992." P.N.D.C. Law 291. Government of Ghana: Accra. April 1992.

Research Department, Bank of Ghana . "Inflation Management by Bank of Ghana: The Strategies, the Difficulties and the Way Forward." Paper presented at the Inflation Management Roundtable, Akosombo, May 20-21, 1996.

Salkin, J. S. "Improving Monetary Management." Sigma One Corporation: Research Triangle Park, NC. March 2000.

Youngblood, C. E., C. K. Dordunoo, F. Larrain, S. D. Younger, and T. J. Grennes. "Ghana: Macroeconomic Environment for Export Promotion." Sigma One Corporation: Research Triangle Park, NC. 1992.

APPENDIX A. Sources of Base Money Growth, 1992-1999 (C mn)

The following T-accounts identify the sources of change in the monetary base (high-powered money), which is a liability of the Bank of Ghana. The sources of change are determined by rearranging the assets and non-base liabilities in the BoG's balance sheet. An increase in any asset item has to be offset by one of the following changes in other balance sheet entries (or a combination thereof) in order for the balance sheet to balance: (1) a decrease in another asset item; (2) an increase in a non-base liability; or (3) an increase in the monetary base.

Changes in high-powered money incorporate both the net effects of monetary policy (e.g., open market operations in foreign exchange and government securities, changes in reserve requirements) as well as external circumstances, such as a build-up of net foreign assets as a result of favorable changes in the terms of trade. However, since the monetary base is the liability of the BoG, ultimately changes in the base are the responsibility of the BoG. If net foreign assets increase as a result of better terms of trade, thereby increasing the monetary base (and the money supply), the BoG could take actions to mitigate these effects, for example, by open market sales of government securities or by issuing additional BoG securities.

In the T-accounts below, the percentage next to the absolute change in the monetary base is the percentage change in the base from the preceding year. Because many items in the BoG's balance sheet are changing simultaneously, it is often difficult to pinpoint the source of change in the base in any one year. At times a significant portion of the increase in the base can be attributed to increases in BoG credit to government, i.e., money creation, as in 1994 and 1996. Sometimes the change has its origins in an increase in net foreign assets, as in 1995. There are times when increases in domestic credit to government are offset, either wholly or in part, by decreases in net foreign assets, as in 1992 and 1999. And there are periods when both net foreign assets and credit to the public sector both generate increases in the base, as in 1994, 1996, and 1997.

Changes in the Monetary Base (1991-1992)

Sources		Uses		
Net Foreign Assets	(127,954)	Currency Reserves	97,899	
Domestic Credit		Commercial Banks	28,867	
Public Sector	102,251			
of which: T bills	(168)			
Financial Institutions	(3,979)			
BOG Securities	(46,264)			
Net other	202,712			
TOTAL	126,766		126,766	108.6%

Changes in the Monetary Base (1992-1993)

Sources		Uses		
Net Foreign Assets	(13,904)	Currency Reserves	42,253	
Domestic Credit		Commercial Banks	(31,641)	
Public Sector	(232,599)			
of which: T bills	1,219			
Financial Institutions	2,655			
BOG Securities	(186,338)			
Net other	440,799			
TOTAL	10,613		10,613	4.4%

Changes in the Monetary Base (1993-1994)

Sources		Uses		
Net Foreign Assets	83,173	Currency Reserves	152,630	
Domestic Credit		Commercial Banks	50,693	
Public Sector	356,125			
of which: T bills	1,217			
Financial Institutions	(174)			
BOG Securities	(145,012)			
Net other	(90,788)			
TOTAL	203,323		203,323	80.0%

Changes in the Monetary Base (1994-1995)

Sources		Uses	
Net Foreign Assets	260,346	Currency Reserves	193,364
Domestic Credit		Commercial Banks	(35,499)
Public Sector	(58,721)		
of which: T bills	1,299		
Financial Institutions	38,881		
BOG Securities	(177,295)		
Net other	94,654		
TOTAL	157,865	157,865	34.5%

Changes in the Monetary Base (1995-1996)

Sources		Uses	
Net Foreign Assets	30,343	Currency Reserves	181,715
Domestic Credit		Commercial Banks	95,605
Public Sector	314,268		
of which: T bills	6,127		
Financial Institutions	(36,136)		
BOG Securities	138,554		
Net other	(169,709)		
TOTAL	277,320	277,319	45.1%

Changes in the Monetary Base (1996-1997)

Sources		Uses	
Net Foreign Assets	40,102	Currency Reserves	272,154
Domestic Credit		Commercial Banks	29,459
Public Sector	(233,321)		
of which: T bills	3,161		
Financial Institutions	23,581		
BOG Securities	323,333		
Net other	147,918		
TOTAL	301,613	301,613	33.8%

Changes in the Monetary Base (1997-1998)

Sources		Uses	
Net Foreign Assets	138,426	Currency Reserves	104,447
Domestic Credit		Commercial Banks	97,894
Public Sector	886,864		
of which: T bills	(2,327)		
Financial Institutions	(21,893)		
BOG Securities	193,781		
Net other	(994,837)		
TOTAL	202,341	202,341	16.9%

Changes in the Monetary Base (1998-1999)

Sources		Uses	
Net Foreign Assets	(293,114)	Currency Reserves	128,544
Domestic Credit		Commercial Banks	54,850
Public Sector	218,514		
of which: T bills	261,466		
Financial Institutions	(5)		
BOG Securities	1,126		
Net other	256,873		
TOTAL	183,394	183,394	13.1%