Facultes Universitaires Notre-Dame de la Paix
Faculty of Economics, Social Science and Management
Namur - Belgium

"The Monetary Operating Procedures A case of Study: Bolivia"

By Mauricio Garrón B.

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Foreword

The monetary instruments and operating procedures are particular important when analyzing the channels through which the monetary policy affects the real sector of the economy. One of the caveats on this issue is how the macroeconomics and the restrictions impose on the Central Bank can affect its selection. In this sense, the present document is an attempt to analyze this issue with respect to the Bolivian case. The interesting subject that it is address by analyzing this country, is that because it is a dollarized economy, the monetary policy is carried in both currencies (bolivianos and dollars), turning difficult to choose the correct instruments.

As it is shown in the paper, one of the conclusions is that the Bolivian monetary authority has cope well with this particular situation and with other restrictions settle in the monetary program. Nevertheless, the macroeconomics and the restrictions imposed have created a bias in the selection of the operating procedures that could hamper the boost of the economy.

JEL Classification: E52, E58

Keywords: Monetary Policy, Instruments, Operating Procedures, Central Bank, Bolivia, Targets and Effects

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Acronyms and Abbreviations

CBB:	Central Bank of Bolivia
ME:	Foreign Currency (US$)
MN:	National Currency (boliviano)
MNV:	National Currency with Value Maintenance
IMF:	International Monetary Fund
NIC:	Net internal Credit = Net Domestic Assets
INR:	Net International Reserves
MB:	Monetary Base
LRR:	Legal Reserve Requirements
CDs:	Certificate of Deposits
LTs:	Titles from the Treasury/Central Bank
OMAs:	Open Market Operations
LC:	Liquidity Credits

The Monetary Policy Operating Procedures
A case of study: Bolivia

(Mauricio Garrón B).

I. Introduction

"Monetary Policy is implemented to achieve the ultimate goals of the monetary authorities, which tend to focus on output and inflation objectives. However, these variables are not directly controlled by the central banks. Moreover, because of the lack of timely and accurate information on output and prices, as well as because monetary policies affect prices and output with a lag, monetary authorities generally use intermediate target variables that are closely related to output and prices but that are more controllable for the central bank and for which more timely information is available. Whichever the intermediate target is chosen by the Central Bank, it must implement an operating procedure that enables it to achieve the desired level of the targeted variable" (Dallas S. Batten, Blackwell Michael P., Kim In-Su, Nocera Simon and Ozeki Yuzuru (1990)).

In particular, if the intermediate target is the control of the banking system liquidity (through open market operations involving the selling or purchasing of securities), the operating procedure to choose will be between setting prices (interest rates, leaving the quantities adjusted by the market) or quantities (credit, leaving the interest rates decided by the market).

This type of analysis (New Normative Macroeconomic Research) starts from the assumption that the Central Bank has an explicit or implicit target. Then, the research is concentrated on finding the operating procedures to guide policy makers in setting the policy instruments so as to bring and keep the variable in question (e.g. inflation rate) close to the target (Taylor, J.B., 1999.).

Although there is no consensus on the instruments and the operating procedures that will bring the variable in question close to the target, everybody agree that the choice of the instruments and operating procedures are an outcome of the macroeconomic analysis.

This macroeconomic analysis according to T. Baliño and V. Sundararajan (1997), reflects a study of different needs:

- The achievement of monetary control objectives (targets)
- The institutional constraints of the financial system that affect the working of the instruments (money and securities market structure, banking industry structure and soundness, and features of the inter-bank payment clearing and settlement system and the financial system in general).
- The achievement of other subsidiary objectives (smooth functioning of payment system, fostering growth of money and securities market, and preventing systemic and financial crises) that are considered critical by central banks for the efficient transmission of monetary policy.

- The study of other macroeconomic circumstances, particularly the type of exchange rate regime.

This paper attempts to analyze the Bolivian monetary instruments and operating procedures as the outcomes of its macroeconomic structure and policy constraints. For this purpose, it examines, for the period 1986 -1999[1], the linkages between the policy objectives and the institutional constraints of the monetary policy, the rationale in the use of instruments and operating procedures from the point of view of its influence on the banking system's liquidity and on money market interest rates. This approach follows the analysis developed by Tomas J.T. Baliño and V. Sundararajan (1997).

The paper continues as follows: in section two there is a discussion on the institutional constraints of the Central Bank presenting the exchange rate system, the characteristics of the financial sector and the monetary program, as its main constraints. In section three, the policy objectives (targets) of the monetary policy are discussed. In section four, the rationale behind the use of the instruments and operating procedures is analyzed. Finally, in section five some conclusions of the analysis are presented.

II. The Institutional Constraints of the Central Bank

A. The Exchange Rate System

The exchange rate system affects the use of the monetary instruments and operating procedures.

Indeed, in a Mundell - Fleming's world with perfect capital mobility under a fixed exchange rate, the agents will expect that the exchange rate will be maintained at a fixed rate (by the monetary authority) no matter what happens. In this case, the instruments and operating procedures are used only to maintain this fixed exchange rate and not to affect the aggregate demand.

On the other hand, in a flexible exchange rate system the expectations of the agents play an important role in the management of the monetary policy especially in the way they manage their portfolio and that, ultimately, influence the choice of the instruments and operating procedures. In this case, the choice of the instruments could be more of the type of an open market operation rather than reserve requirements as the main monetary instrument, and the operating procedures may involve auctions in which prices or quantities of the securities are determined.

In the case of Bolivia, after the implementation of the New Economic Policy in 1985, the government established a flexible exchange rate system, the liberalization of the interest rates and started a process of financial liberalization (allowing deposits and operations to be either in bolivianos or foreign currency (dollars)).

[1] The choice of this period is due to the fact that Bolivia suffered a hyperinflationary process that ended in 1986.

The establishment of a flexible exchange rate system was determined by a day-to-day auction (crawling peg system), where the last offer became the base offer for the next session.

In 1994 the management of the exchange rate changed to maintain the competitiveness of its six largest trading partners and not only with the US dollar. In May of 1997, the CBB decided to widen the basket of currencies and introduce two more countries. Since then, eight currencies influence the exchange rate[2] (USA, Argentina, Peru, Japan, Chile, UK, Brazil and Germany).

The changes in the exchange rate management were carried to smooth the short-term fluctuations that represent being pegged to one currency (Dollar) and to reduce the effect on domestic prices.[3]

B. The Characteristics of the Financial System

The characteristics of the financial system are important to choose the instruments and operating procedures, because they need to be coordinated to not become an obstacle for the development of the financial market. Therefore, in a competitive environment, the interrelation between the financial system and the Central Bank (through its monetary instruments and operating procedures) will give information to the Central Bank on the expectations of the agents regarding inflation and exchange rate and will give information from the Central Bank to the rest of the financial system on the intentions of the monetary policy to influence the aggregate demand or prices (signaling).

The main characteristics of the Bolivian financial system are the following:

i. The structure of the financial system

Although in the last years some national banks were sold to foreign banks or were absorbed by bigger ones, the structure of the financial system has not changed much in terms of assets composition.

The changes, on one hand, were the result of market expansion policies of foreign banks (e.g. Bank Bilbao Viscaya that bought shares from the Banco Santa Cruz) and on the other, were due to that some banks faced extreme liquidity problems needing an investor (e.g. Banco Boliviano Americano and Banco de La Paz; both bought by Banco de Crédito).

The Bolivian financial system has 13 banks and 35 non-bank entities (Savings and Loan Associations (Mutuales), Savings and Credit Cooperatives (Cooperativas) and Private Financial Funds (PFF))[4].

[2] Orellana W. Banco Central de Bolivia. "Exchange rate, monetary and credit policies of the Central Bank of Bolivia: 1992-1998".

[3] The indexation process is affected by the level of pass-thorough that in Bolivia seems to be decreasing since 1985; Orellana (1996). The latest research on this topic suggests that the level of pass-thorough has been influenced by the frequency on the devaluation process. The more frequent the devaluation the higher the pass-through; Orellana and J. Requena (1999).

[4] Savings and Loan Associations (Mutuales): Its function is to give construction credits to families. Saving and Credit Cooperatives (Cooperativas); are an intermediary organization that works with saving funds to give credits at

The banking sector concentrates 84% of the deposits, 85% of credits portfolio and 87% of the total assets (See table 1).

The other intermediaries, that mostly give micro-credits, are relatively less important explaining the "size" of the financial system (see next table).

Table 1
Financial System Structure
(In millions of US Dollars)
30/6/98

	Banks (1)	Savings and Loan Associations	Savings and Loan Cooperatives	Private Financial Funds	Total
No. of entities	15	13	17	5	50
Percentage	30	26	34	10	100
Total assets	5,604	452	249	136	5,441
Percentage	87	7	4	2	100
Portfolio	3,670	306	194	146	4,316
Percentage	85	7	5	3	100
Deposits (2)	3,317	366	173	115	3,972
Percentage	84	9	4	3	100
Net worth	389	40	35	22	486
Percentage	80	8	7	4	100
Borrowers	237,790	32,346	61,362	129,793	461,291
Percentage	52	7	13	28	100
No. of Depositors	742,692	278,452	319,677	9480	1350301
Percentage	55	21	24	1	100

Notes: (1) Includes foreign Banks but it does not includes neither the purchase made by Banco de Credito de Bolivia of the Banco Boliviano Americano nor the purchase of the Banco Bilbao Viscaya of the Banco de Santa Cruz.
(2) It does not includes fiscal deposits
Source: Superintendency of Banks and Financial Entities.

Another important characteristic is the big concentration of the deposits on few banks (See table 2).

preferential interest rates. Private Financial Funds (Fondos Financieros Privados); composed by multilateral organizations loans and foreign transfers, give credit to low-income agents.

Table 2
Bank Deposits (percentage)

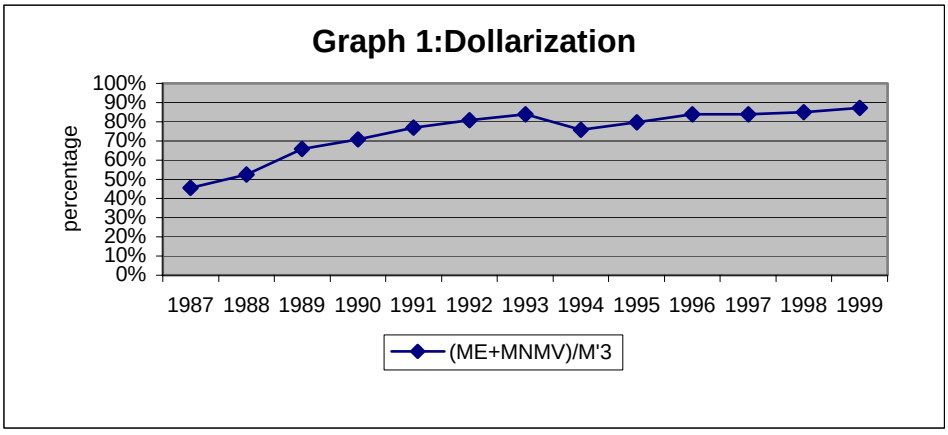
	Santa Cruz	BBA	Multi banco	Mercantil	BNB	La Unión	BISA	de Crédito	Sub-Total	Others	Total
1990	16%	15%	9%	10%	10%	7%	2%	0%	69%	32%	100%
1991	16%	14%	8%	9%	9%	6%	4%	0%	66%	34%	100%
1992	16%	14%	8%	10%	9%	7%	6%	0%	70%	30%	100%
1993	16%	13%	8%	10%	10%	6%	6%	0%	69%	31%	100%
1994	18%	14%	7%	10%	12%	6%	9%	5%	81%	19%	100%
1995	21%	5%	7%	13%	13%	5%	10%	7%	81%	19%	100%
1996	19%	6%	6%	13%	14%	7%	9%	8%	82%	18%	100%
1997	19%	6%	4%	12%	13%	8%	10%	9%	81%	18%	100%
1998	19%	5%	0%	12%	13%	10%	9%	12%	80%	20%	100%

Source: Central Bank of Bolivia

From 13 banks that compose the banking sector, the deposits are concentrated in no more than 7 banks (Santa Cruz, BBA, Mercantil, BNB, Multibanco, La Union, BISA and De Crédito that bought the BBA and another small bank called bank of La Paz).

ii. Dollarization

It can be argued that the main characteristic of the Bolivian financial system is the level of dollarization. The following graph shows that after 1987 the level of dollarization has been increasing, although since 1992 it has been stable.[5] (See graph 1; where: ME = Foreign currency (dollars); MNMV = National currency with value maintenance; M3 = Includes all the liabilities in the financial system in dollars, bolivianos and bolivianos with value maintenance).[6]



Source: Central Bank of Bolivia. Informative Bulletins

[5] According to Orellana (1998) this steady state reached in the dollarization or in the "demand for bolivianos" 1992-1998 is due to the economic stability. The economic agents were more confident reducing the level of dollarization.
[6] The National Currency with Value Maintenance are the deposits in bolivianos indexed to the dollar.

Many studies have contributed to the study of the dollarization in Bolivia[7], nevertheless there is not a consensus on the causes neither on its persistence.

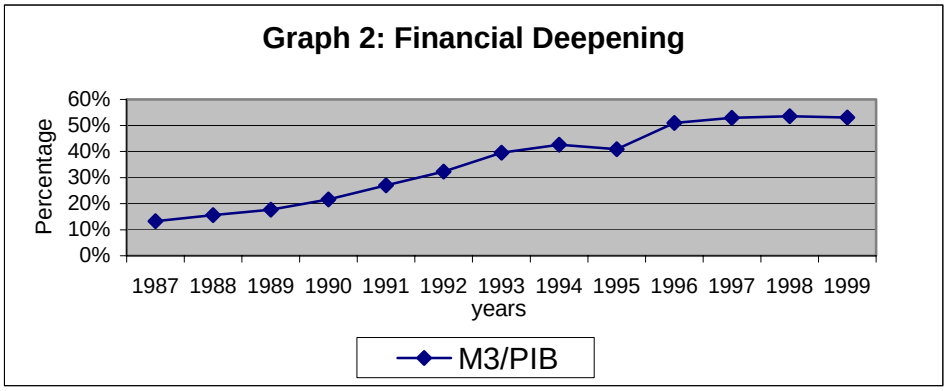
One of the repercussions for the baking sector of having dollarization in their deposits could be the increase in its total operational cost, translated later in an increase in the active interest rates. This increase comes from the fact that: First, work with two currencies increments the fixed cost because every service needs to be split in both currencies; Second, the management of the liquidity requirement becomes more difficult, increasing the variable cost.

For the Central Bank, it represents an obstacle for the transmission mechanism of the monetary policy, because the foreign currency (Dollars) is a close substitute of the national currency (bolivianos)[8] and there are other external sources for dollars supply outside the CBB that affects the level of prices and interest rates.

Consider the case for instance, in which there is a tightening monetary policy driven through a contraction on the net domestic assets (credit). This tightening measure could be offset if the banks can intermediate foreign loans (in dollars) and introduce them into the market as an alternative source for financing credit expansion. In this case the purpose of this monetary objective could have been dampened. The implications for the monetary instruments and operating procedures will be on its management in order to avoid or smooth these problems.

iii. Deepening of Financial System

A third characteristic is the importance that the financial has acquired over the GDP in the last years (see graph 2).



Source: Central Bank of Bolivia. Informative Bulletins

This financial deepening can be narrowly explained by three stages: The first stage of growth (1985-1992) is due to the economic stability reached after 1985 and the fact that the interest rates for dollar deposits had a greater yield than the domestic ones (Cole and Slade, 1993) generating capital inflows. In the second stage (1992-1997) the price stability (reduction of inflation) could have incremented the confidence of the economic agents increasing savings in domestic currency

[7] For further analysis refer to; Afcha-Melvin, 1987; Barreiros-Fisher, 1987; Mendez, 1987; Srivastava, 1990; Cooper, 1992; Comboni, 1994 and Morales-Reding 1999, among others.
[8] Given convertibility and acceptance even for low payments in the market.

(Orellana, W. 1998)[9]. The third stage (after 1997) is a contribution mix of dollar deposits and deposits denominated in domestic currency increases, due to the stability of the economy (increasing the confidence for deposits in bolivianos) and to the fact that there were external shocks (e.g. Brazil crises) that has affect the whole international community and that the Bolivian financial system have face it well (attracting foreign savings).

iv. The strengthen of the banking sector

The development of the financial system has also been supported by measures from the CBB and the Superintendence of Banks.[10] Even though a chronological explanation of the developments on this topic will not be made, some facts will be highlighted.

One of these important facts is the existence of an implicit deposit insurance. This function of the CBB as a lender of last resort helped to restore the confidence of the economic agents after the process of hyperinflation suffered in 1984-1985.

In November of 1994, the financial system suffered an internal shock caused by the bankruptcy of two banks (Sur and Cochabamba) that caused capital outflows of around 65.7 millions of US dollars (See graphs 1 and 2).[11] Therefore, it became necessary to establish a fund to smooth the liquidity constraints that these bankruptcies created in the financial system. In September of 1995, the FONDESIF (Fund for Development of the Financial System and Assistance to the Productive Sector) was established, to give liquidity credits and isolate the problems from the rest of the financial system. This institution, which depends from the Superintendence of Banks, helped to strengthen the financial institutions to prevent systemic crises.[12]

Another important fact was the promulgation of the New Law of the Central Bank (October of 1995). This law established the independence of the Central Bank with the main purpose of maintaining the internal value of the currency, the mechanisms of cooperation with the Superintendence of Banks and its faculty to apply norms of general applicability (with the only purpose of regulating the activities of the financial system).

Since this law, the CBB can only give liquidity credits to the Treasury in exceptional occasions having negotiated in advance titles of public debt as counterpart.[13]

This law allowed both, the financial system and the CBB, to enter in a new area of development establishing clear rules for the economic agents and for these institutions.

[9] In 1995 there were the bankruptcies of two banks creating capital outflows.
[10] One important characteristic of this relation between the two institutions is that both are independent in their functions.
[11] This quantity does not take into account the deposits of the two banks that went kankrupt.
[12] J. Trigo (1998) "Regulación y Supervisión Bancaria en el Manejo y Previsión de Crisis Financieras". SBEF. Pp: 5-6.
[13] See Central Bank Law 1670 (Oct. 31st of 1995) Title II, Chapter IV, art 22 – 23.

C. The Monetary Program

The monetary program is part of the Financial Program that Bolivia presents and discusses with the International Monetary Fund (IMF) each year to have access to its credits. Historically, these credits were extended to solve problems in the Balance of Payments. Nevertheless, in recent years, it was also focused on maintaining price stability in order to attain a sustainable current account deficit (J. Polak, 1991).

The IMF extends credit under four types of arrangements:

- Stand-By Arrangements (since 1952)
- Extended Fund Facility (EFF) (since 1974)
- Structural Adjustment Facility (SAF) (since1986)
- Enhanced Structural Adjustment Facility (ESAF) (since 1988)

These arrangements are differentiated mainly in the conditionality they impose for their disbursements (that are given at a low interest rates). This is because the latest arrangements (e.g. SAF and even more ESAF) are perceived as more ambitious in terms of both the magnitude of adjustment measures and the timing of their adoption. In the case of EFF and SAF for example, the drawings and the disbursements are made once a year and they are only monitored using quarterly benchmarks over key economic variables (nevertheless a yearly letter of intent is also needed). But the Fund cannot intervene in the disbursement until the next year (that will depend on the performance of the previous). In the case of the ESAF, the drawings are made under a semi-annual base with semi-annual performance reviews. Although there is still a quarterly revision of the key economic variables, the disbursements can be cut at any time if the country fails in the completion of the semi-annual objectives (J. Polak, 1991)[14].

The key variables that the IMF monitors are articulated in the Financial Program. The Financial Program is a set of coordinated measures of economic policy in the monetary, fiscal and balance of payments sectors, to achieve determined economic targets. The targets that the Financial Program follows are more global than the monetary program; so as to achieve a certain level of GDP growth, a certain level of global deficit in the Balance of Payments or inflation.

The Financial Program is based on the assumption that there is a relatively stable relationship between the financial and non – financial variables and that the monetary authority can control some of the first variables to affect the real sector of the economy[15]. Therefore, to influence the real sector, the Monetary Program establishes ceilings and targets for the monetary policy. Accordingly, these ceilings and targets are based on the Monetary Balance of Payments Approach. This approach assumes that fluctuations in central bank reserves are the result of changes on money market. Therefore, in order to control the changes in money market (the increase of monetary base) and because of the consequences on central bank reserves and inflation, it establishes a ceiling for the net internal credit (as intermediate target). The monetary program also demands the achievement of some level of net international reserves but for

[14] Given its good macroeconomic performance, Bolivia is under the ESAF arrangement.
[15] The variables that the monetary authority can affect are the exchange rate, the net internal credit and the interest rates.

Balance of Payments purposes (according to a forecast level of global deficit). These objectives are determined and revised quarterly by the IMF in order to maintain both; the annual forecast level (targets) of inflation and the real exchange rate. The monitoring of the Monetary Base is according to the following equivalence:

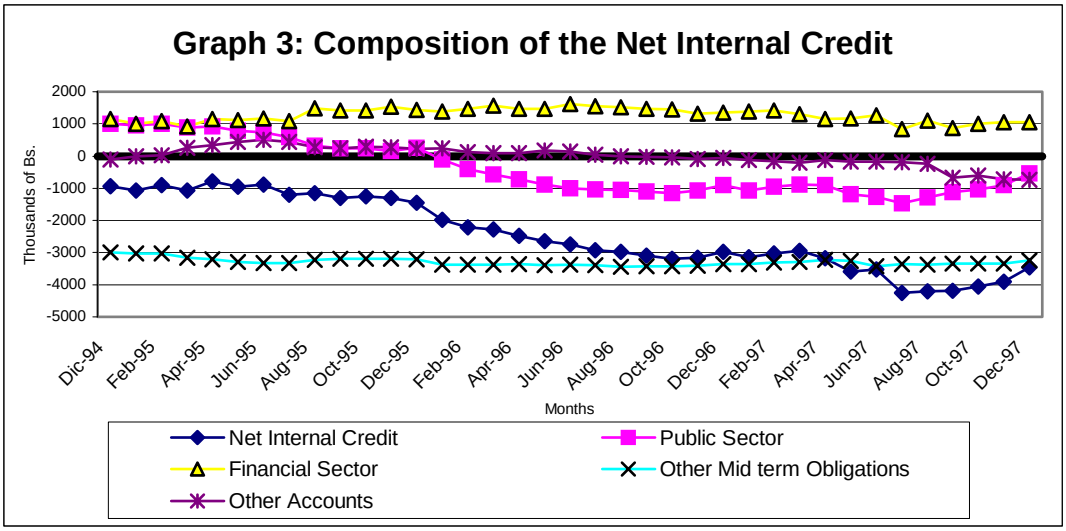
$$\Delta MB = \Delta NIC + \Delta INR$$

Where:
MB = Monetary Base; NIC= Net internal Credit (Public + Private); INR= International Net Reserves.

Although the CBB can influence the level of NIC (controlling its variations through quarterly targets), in the case of Bolivia, it cannot control the credit given by the government to the public sector, especially regarding its day-to-day liquidity management. Nevertheless, as this credit is highly constrained by the Financial Program of the IMF[16] and the law 1670 of the Central Bank (articles 22-23) of 1995, the problem seems to be the control of the liquidity of the private sector in order to smooth the variation of the monetary base.

The way the monetary program controls the increase of the monetary base is using a quarterly ceilings for the net internal credit in domestic currency (as an intermediate target according to the monetary program).

As can be observed in graph 3, the net internal credit to the public sector has become negative since 1996. This is because of the controls mentioned to grant this credit.[17]



Source: Central Bank of Bolivia, Informative Bulletin.

[16] The control on the public credit becomes from the importance of controlling the fiscal deficits.
[17] The negative credit means that the deposits that the public sector holds in the Central Bank were higher than the credit that they receive from this institution.

It can also be observed that after the huge amounts of capital transfers made by some banks at the end of 1994, the credit to the financial sector has increased and remains stable since 1996.

On the other hand, under the Balance of Payments approach the INR should be the result of macroeconomic performance (controlling the movements of the monetary base); nevertheless, given the characteristics of this bi-monetary economy, it is also required (in the Monetary Program) to maintaining some level of INR in order to guarantee the full convertibility of liabilities in foreign currency (See Annex 1 tables 1 and 2).

On this regard it is has to be said that, if the targeted variables are correct in order to affect the real sector of the economy, it could be worthwhile to follow them. However, what if the contrary happens?

This brings to mind the importance of analyzing the transmission mechanism of the monetary policy. Because if it is not through credit ceilings that the monetary policy affects the real sector of the economy, then it would be double work for a Central Bank to reach the final objectives and the intermediate targets, given that the intermediate targets are not helping to fulfill the objectives.

Therefore, this "conditionality" of the monetary program, represents the third institutional constraint of the CBB.

III. Objectives and Instruments of the Bolivian Monetary Policy

A. Policy Objectives

The objective of the monetary policy since 1986 has been to preserve the internal purchasing power parity of the domestic currency, according to what is laid down in the New Economic Policy decree 21060 and in the Central Bank's law art. 2. For this purpose, historically, the exchange rate was used as the nominal anchor. Nevertheless, since 1985, it has also been using a ceiling on the net internal credit (determined in the monetary program) as an intermediate target to achieve price stability. Combining the two intermediate targets and considering that the management of each variable includes the effects on policy changes of the principal trading partners, it could be said that the final target of the CBB is to maintain the competitiveness of the real exchange rate with its principal trading partners.

As was explained before, the completion of the monetary program also demands the fulfillment of other intermediate targets as to achieve some level of INR.

B. Instruments of Policy

Other important variable explaining the operating procedures --especially the channels through which they operate-- are the instruments that the monetary policy uses to achieve the targets. In

the case of Bolivia, the monetary policy uses three instruments: The legal reserve requirements, the open market operations and the liquidity credits.

i. Legal Reserve Requirement (LRR)

After 1985; Bolivia has been called a Bi-monetary economy. This is because the monetary instruments had to be split in two currencies (Bolivianos and Dollars) in order to control the liquidity of the financial system and as a prudential control over the deposits. [18]

The legal reserves requirements had to be applied to bolivianos, bolivianos with value maintenance and dollars. Its management can be divided in three periods:

The first period (1987-1994), the rates were 20% for sight and savings deposits and 10% for fixed term deposits and after tended to zero as a policy to increase medium term deposits (all valid for deposits in bolivianos, bolivianos with value maintenance and dollars). The second period (1994-1998) when the LRR were split in two types: The minimum LRR and the additional LRR both mandatory. The minimum LRR case was applied for deposits in dollars, bolivianos and bolivianos with value maintenance and the required rate for reserves depended on the deposits' type. In the additional LRR case, the rate of reserve requirement was applied only for deposits in dollars and bolivianos with value maintenance, and the rate depended also on the deposits' type. Only the excess of the LRR was remunerated with a rate of 2.45%.

This system continued until 1998 when the new system of LRR (third period) was introduced. According to the CBB, the old system was punishing the banking sector because of the opportunity cost that was high in terms of what they could have earned putting those deposits in the market, compared on what they have been receiving as remuneration from the CBB.[19] (See table 3)

Table 3
Yield loss for the Banking Sector due to the Legal Reserve Requirements

	Deposits In Bolivianos	Deposits in Dollars
Legal Reserve Requirement (in millions)	126.8	292.3
Annual yield loss (in millions)	31.5	43.5
Annual yield loss (as a % of total deposits in each currency)	2.5	1.4

Source: Banks and Financial Entities Superintendence.

Given this framework the CBB introduced, in 1998, a new system of LRR (RAL), which is designed to improve the efficiency of the financial inter-mediation and to preserve the solvency and competitiveness of the system.

This new system consists of two types of LRR and both are mandatory: (1) A LRR in cash (maintained in current accounts at the central bank) and (2) a LRR in titles. The first case is

[18] In some cases is also extended to the National currency with value maintenance.
[19] Banco Central de Bolivia. Boletín informativo No. 55. Oct-97

applied for deposits less than one year and has a rate of reserve of 2% for deposits in dollars and in current accounts deposits in bolivianos and for fixed term deposits in bolivianos with a term less than six months. The LRR in titles has a rate of reserve of 10% and it is applied to dollars deposits and to current account deposits in bolivianos and to fixed term deposits in bolivianos with a term less than 6 months.

The LRR in cash has the same characteristics as the traditional system giving the opportunity to maintain some extra cash for day-to-day inter-bank operations and operations with the CBB.

The LRR in titles is the new modality in this system. It consists on a reserve requirement in titles for deposits in domestic currency, that are invested in public titles of the CBB with a fixed rent, and a reserve requirement in titles for deposits in foreign currency invested in foreign titles by an international financial institution. These investments give a return distributed among the banks according to its participation on the total.

The new system helps to face solvency problems in foreign currency given the fact that a commercial bank could use these titles (RAL) as a guarantee to receive credit in dollars from the CBB.

ii. Open Market Operations (OMAs)

Open market operations were introduced in 1987 with the main purpose of controlling the liquidity of the financial system, to influence the short run interest rates and the price level.

The first instrument introduced was the certificate of deposits that is issued in both currencies (Bolivianos and dollars) at different terms. The use of CDs in dollars allows to sterilize the capital inflows, given the fact that there are no restrictions for capital movements and also helps to control the volume of deposits (in both currencies) of each bank at the CBB. The terms of the CDs changed in 1989 from 4, 8, 13, 26 and 51 weeks to 6, 13, 26 and 52 weeks; in November of 1989 changed again to 4, 13, 26 and 51weeks. Since 1993 the issue of Cds is only in 4 weeks term.

In 1993 the National Treasury started issuing to the public treasury papers (LTs-C) in dollars, bolivianos and bolivianos with value maintenance at different terms to finance its temporal liquidity requirements. To cancel obligations that the State had with the CBB another types of treasury papers were issued: LTs – A, in foreign currency, with an interest rate of 2.45% and with a 100 years term; LTs-B, in foreign currency, with a variable interest rate determined as the average of the LTs in the market; and LTs-B, in national currency, with a variable interest rate determined as an average of the CDs maturities acquired in an auction. Nevertheless, all of them were issued more for fiscal purposes than for monetary.

In November of 1995, the CBB started to issue (in the primary market) LTs-B from his own portfolio and with a guarantee of the LTs-B received from the Treasury and also in both currencies.

Table 4 Terms of LTs and CDs (Mar-00)			
Title	**Domestic currency (DC)**	**Foreign currency**	**DC indexed to Dollar**
CDs	4 weeks	4 weeks	4 weeks
LTs	13, 26 & 51 weeks	13, 26, 51 & 102 weeks	No issue

Source: Central Bank of Bolivia

Since its introduction, the OMAs have become the most important instrument of the monetary policy to achieve the intermediate targets. This is because when the CBB sells these titles (in both currencies) withdraws liquidity from the financial system (in both currencies) and contracts the Internal Credit (in both currencies) given to the private sector. When these titles expire, expand the net internal credit and gives liquidity to the financial system (in both currencies). If the CBB sells more titles than those that will expire, there will be a contraction in net terms, of the private internal credit. If the CBB buys fewer titles than those that will expire, then there will be an expansion of the private credit in net terms. Therefore the CBB can affect the level of money supply and the inter-bank interest rates, controlling the NIC given to the private sector (using CDs and LTs) to finally affect prices and output.[20]

Both titles (CDs and LTs in both currencies; bolivianos and dollars) are offered in an auction each Wednesday in which only authorized entities can intervene (that, in this case, are just commercial banks). The CBB make public its offer of titles and then the entities, when competing for these titles; decide the interest rate according to their bids. The rate announced to the market is an average of the bids accepted.

"...Every Friday (except if there is a holiday in that day), the Central Bank publishes the public supply of titles for the auction to be carried the Wednesday after the publication day. The participants, the day of the auction, present their request specifying the amount, the rate of discount, the currency and the term of its bid". "…The mechanism of election is the one called 'American' in which every buyer, if its bid is accepted, keeps the title and the discount rate of its bid. The offers are ordered by discount rate levels from the lowest to the highest until a rate of reference and not known by the participants. " (BCB, Boletín Informativo No. 59, Feb. 1998)[21].

The OMAs (since 1995) also use *repos and reverse- repos* of public titles. The first consist in that the CBB buys the titles (CDs and LTs in both currencies) from the financial sector with the engagement of selling them again in a determined period at a given rate. In the second case the financial sector buys the titles with the engagement of selling them again in a determined period at a given rate. The aim in both cases is to help the management of the short-term liquidity of the financial system and to put ceilings to the inter-bank interest rates.

[20] Another reason that could be add for the importance of OMAs is related to the fact that when the CBB sells titles in dollars and receive dollars in exchange this could help to achieve the intermediate target of having some level of INR (established in the monetary program).
[21] Original version in Spanish.

Since 1996, the CBB has also been using *currency swaps* for the purchase of titles (CDs and LTs). The aim was to incentive the use of instruments in domestic currency and to contribute to the process of "remonetization" of the economy. These operations consisted in an exchange of dollars for titles denominated in bolivianos (for the same value of the dollars) at a given forward exchange rate with the agreement (after a determined period) of exchanging the titles again at the agreed exchange rate. Nevertheless, this system were not used very often by the financial agents because (as was pointed in Reding-Mollinedo, 1998) the rate of return that the agents received from this arrangement was less than they could have received buying --with the same amount of dollars-- securities denominated in dollars.

Another instrument that the CBB uses is the *certificate of deposits devolution CDDs* with the objective to give these titles to the depositors of the banks that were bankrupt.

iii. The Liquidity Credits (LC)

The grant of LC comes from the fact that the CBB acts as the lender of last resort for the financial system. The LC has been used as a way to prevent insolvency problems; therefore, they are exceptional credits. According to the article 36 of the Central Bank's law, the CBB can grant LC in bolivianos and in dollars, only for a term of renewals up to 90 days. Nevertheless, it is important to highlight the fact that before the CBB law (Oct-1995) the board of the CBB had authorized the issue of two types of LCs; Short-term liquidity credits (7 days) and transitory liquidity credits (max. 90 days).

Actually, the credits to the financial system are divided in two parts: In the first part are the immediate credits that are given with the guarantee of the titles owned by each financial institution under the legal reserve requirement fund (RAL). In the second part are the credits granted up to 90 days and are guaranteed by 2:1 ratio of the loan's portfolio or other guarantees determined by the CBB Board of Directors (Orellana, W. 1998a).

IV. The Rationale of the Monetary Instruments and Operating Procedures

As has been said, the decree 21060 of 1985 established the nominal exchange rate as the anchor to achieve price stability[22] with a day-to-day auction as the operational mechanism in which the Central Bank has the opportunity to intervene determining the base offer (price) as operating procedure. The mechanism of devaluations was used as an active policy until 1995, the year in which the policy of devaluations was relaxed.[23].

On the other hand, the CBB is also using the net internal credit (in both currencies) as a parallel intermediate target to achieve price stability (Through the auction of CDs and LTs in the primary

[22] Given the high level of indexation existing between and after the hyperinflation process ended in 1985.
[23] BCB. Boletín informativo. No.56. 1997.

market). For this purpose the control on the private internal credit is the main operating procedure through the open market operations[24].
The importance of this operating procedure became apparent after 1992, year in which the economy reached stability in the demand for bolivianos. This contributed to a better management of the banks liquidity, helping the net internal credit to become the most important variable influencing the level of prices. In 1995, this importance has been reinforced with the relaxing of the policy of devaluations. Therefore, since then, the management of the NIC has become the most important operating procedure of the monetary policy.

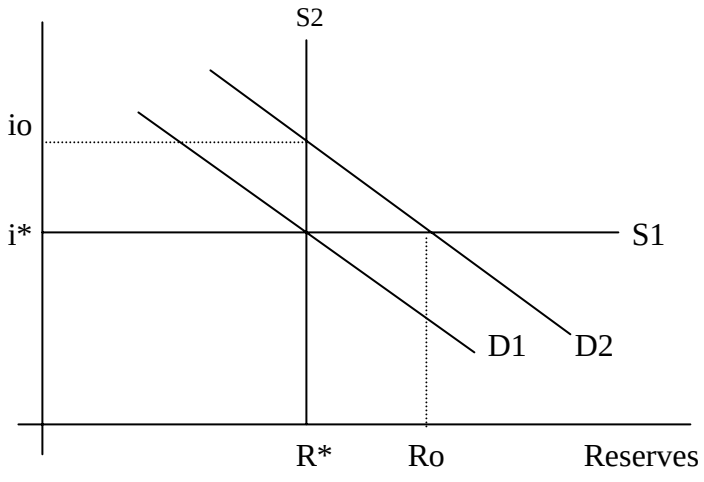
The selection of this operating procedure (Through CDs and LTs in domestic currency) could be due to the fact that the limit for the net internal credit, established in the Monetary Program, creates a bias in its choice. This bias arrives because that if the selection of the operating procedure were on prices (interest rates) the quantity could not be adjusted freely in the market.
To explain better this point, consider the following examples:

Case 1.

Assume that the monetary authority has targets for NIC and for inflation. Under these scenario wants to affect the real sector either by setting prices (interest rates) or quantities (credit) (See figure 6).

If the monetary authority choose to set quantities R* (affecting Banks reserves) and given a demand curve for reserves by banks at D1; the resulting inter-bank interest rate, determined by this interaction (supply-demand), will be i*. The main issue here is that the CBB needs to anticipate the demand for reserves (D1) in order to set the quantity according to a desired level of inter-bank interest rate.

Figure 4



[24] In this case, since the ceiling on NIC determine quantities letting the interest rates to be adjusted in the market in order to influence the real sector; and since there is a quarterly revision on the ceilings imposed on this variable, then the management of NIC becomes to be both an operating procedure and an intermediate target.

If the monetary authority choose to set prices i* (interest rates) it is assumed that it will supply all the demand for reserves needed that ultimately will be determined by the demand curve for reserves (D1). As in the precedent case, the monetary authority needs to anticipate the demand curve for reserves in order to set the interest rate according to a desired level of credit expansion (R*).

As it was shown in the example, targeting the NIC could create a bias in the selection of the operating procedure, because when the CBB chooses to set quantities, the intermediate targets could be more easily achieved that when it sets interest rates (in a context of a relative uncertainty about the position of the demand curve).

Case 2

Consider now the case when the financial agents anticipate an increase in the economic activity that is not anticipated by the Central Bank (represented by the demand curve D2) and again the monetary authority has targets for NIC and for inflation. Under these scenario wants to affect the real sector either by setting interest rates or quantities (credit)

If the CBB choose to set interest rates at i*, this will expand the Reserves maintained by Banks (credit) until Ro. The choice of this operating procedure, in this case, will create some acceleration of the monetary aggregates, creating upward pressures on inflation, jeopardizing the inflation targeting and the ceilings established for NIC at R*.

Now consider the same situation but instead the Central Bank sets the quantity R*. In this case, an unanticipated increase in the demand curve will raise interest rates (io) dampening the economic growth, the upward inflationary pressures and maintaining the intermediate and final targets for NIC and inflation, fulfilling the monetary objectives.

Taking this example as a framework, it seems that this last case could be closer to the one in Bolivia, where the monetary authority have similar constraints and it seems it is not easy to anticipate the demand for reserves that the Banking sector wants to hold. This idea comes from the fact that:

1) As have been pointed before, the monetary program in Bolivia establish some constraints, e.g. the level of NIC and on the inflation, as intermediate and final targets.

2) The CBB cannot control the Internal Credit that the Treasury gives to the Public Sector (liquidity management of the TGN). Therefore this becomes a problem because to have the information required on these movements could have an important lag that can mitigate the liquidity forecast, hence, making difficult to anticipate the demand for reserves (demand curve).

3) As it had been argued, because of dollarization the monetary policy is carried in two currencies (bolivianos and dollars) and uses its monetary instruments in both currencies, through open market operations. Besides this, there are not capital controls for any inflows or outflows of capital imposed to the financial system. Therefore, in a situation

when there is an excess of liquidity in dollars (compared to what the agents wishes to hold in cash) caused by an increase in capital inflows or by an increase in domestic credit given by banks in foreign currency, it could create pressure for an overvaluation of the currency with negative effects on the Balance of Payments and monetary targets.

4) The capital outflows registered in 1995 showed that it is difficult for the Central Bank to anticipate the transfers of capital between national and foreign banks that affect the demand curve for reserves. This can be observed from the fact that the CBB started to increase interest rates after the outflow had started and not before in order to jeopardize the size of the outflow (See the arrows in the graphs (a) and (b) of annex 3).

As pointed before, the choice of the operating procedure in the case of Bolivia was the management of quantities to reach some level of NIC and INR. This second case could be due to the fact that the Monetary Program creates a similar bias in the choice of the operating procedure when sets a level of INR.

To explain better this reasoning consider the former graph 6, but now, assume that the Central Bank has as a target to reach some level of INR and has to manage the dollars' liquidity of the economy (through the use of credits denominated in dollars).

In this case, if the Central Bank chooses to set quantities (as R* in the graph) the resulting interest rates could be i* or io (depending on the position of the demand curve D1 or D2). As in the previous case the Central Bank needs to anticipate the demand curve to set the quantity in such a way to reach the desired level of interest rate (e.g. i* in the graph).

If the Central Bank chooses to set interest rates (as i* in the graph) the resulting demand for reserves could be either R* or Ro, depending on the positions of the demand curves. Again, the Central Bank needs to anticipate the demand curve to have the desired level of reserves that wants to be holding by banks (as R*).

Therefore given that the Central Bank has as target to achieve some level of INR and assuming that cannot or it is difficult to anticipate the demand curve for reserves, then the best strategy again seems to set quantities. This is because that if it cannot anticipate de demand for reserves, then setting quantities could only have the consequence of an unexpected increased in the level of interest rates. But setting the interest rate could have the consequence of an undesired decrease in the level of INR (because of the credit expansion denominated in dollars) jeopardizing the achievement of the target.

V. Conclusions

The monetary constraints and the macroeconomic structure of Bolivia has had different repercussions in the choice of the instruments and operating procedures.

In terms of monetary instruments, because:

1. Due to the dollarization of the economy all the instruments were split in two currencies,

2. After the financial deepening that the economy registered since 1985, the Central Bank and the Superintendence took more control in the management of the deposits introducing changes in the legal reserve requirement to increase efficiency and the solvency of the financial system. For the second purpose it were also introduced the use of the liquidity credits as the second instrument of monetary policy after the legal reserve requirements,

3. The monetary program and the election of a dirty floating exchange rate system have influenced in the choice of the third instrument of monetary policy that is the open market operations. This comes from the fact that with a flexible exchange rate system and without capital controls, the control of the liquidity in both currencies becomes important (given the repercussions of its managements on Balance of Payments and inflation). Therefore, the open market operations are the adequate instrument to control this variable given its characteristics of being rapid and discretional, thus, accommodating to the different needs. The monetary program has also influenced in the selection of this instrument, given the fact that the CBB has to cope with other targets and given the characteristics of the monetary instruments mentioned before, the OMAs has become the most important instrument of the monetary policy.

In terms of the choice of the operating procedures (to set quantities instead of prices), because:

1. Given the difficulties anticipating the demand curve for reserves,

2. Given the constrains established in the monetary program (regarding the credit ceilings as an intermediate target)

3. Given the level of dollarization of the economy that establish to maintain some level of INR in order to guarantee the full convertibility of the liabilities in foreign currency,

4. The intermediate targets are more easily achieved setting quantities instead of interest rates.

As was explained in the paper, the choice of the monetary instruments and operating procedures not just responds on the macroeconomic structure and the policy constraints of the Bolivian economy; but even more, this circumstance can have create a bias in the selection of the operating procedure. Although this bias seems to be not a problem, because the CBB can still achieve the targets and affect the real sector of the economy, further analysis is needed to analyze the elasticity of the demand curve for reserves to see how sensible is the inter-bank interest rates to changes in the quantities supplied by the CBB. Through this analysis it could be determined the variation in the supply of reserves (quantity) needed to affect the inter-bank interest rates (prices) and therefore achieve the desire level of interest rates and boost the economy.

Annex 1

Bolivia: Minimum Gain of Net International Reserves of the Central Bank of Bolivia [1,2,3,4,5]

(Cumulative amounts in millions of U.S. dollars from January 1, 1999)

Date	Targets
January 31, 2000[6]	-146
March 31, 2000 (performance criterion)	-185
June 30, 2000	-155
September 30, 2000 (performance criterion--indicative)	-120
December 31, 2000 (indicative)	-85

Source: International Monetary Fund. Letter of Intend of Bolivia for the year 2000.

[1]Quarterly benchmark for the remainder of the first annual program of the three-year PRGF arrangement, covering calendar year 1999, and quarterly benchmarks and performance criteria for the second annual program, covering calendar year 2000.

[2]Defined as central bank foreign assets, less all liabilities to nonresidents with an original maturity of up to and including one year, plus outstanding purchases and disbursements from the Fund (excluding disbursements from the Trust Fund), net liabilities to the Latin American Reserve Fund, and any other balance of payments loans, including bridging loans and those obtained by pledging the gold of the central bank.

[3]The net international reserve flows will be measured by the difference in stocks.

[4]These targets will be adjusted upward by the full amount of: (i) any overdue obligations to foreign official creditors; and (ii) net proceeds from the sale of assets in excess of the amount valued at the accounting exchange rate of the corresponding period.

[5]If currency issued is less than envisaged in the program, the targets for 2000 will be adjusted downward by the difference between projected cumulative currency issued and actual cumulative currency issued, up to a maximum amount equivalent to US$35 million.

[6]Target evaluated at the end of January because of the expected increase in the demand for foreign currency banknotes associated with the year 2000 problem at the end of December 1999.

Annex 2

Bolivia: Limits on the Changes in Net Domestic Assets of the Central Bank of Bolivia [1,2,3,4]

(Cumulative amounts in millions of bolivianos from January 1, 1999)

Time Period	Limits
January 31, 2000[5]	482
March 31, 2000 (performance criterion)	639
June 30, 2000	653
September 30, 2000 (performance criterion—indicative)	488
December 31, 2000 (indicative)	629

Source: International Monetary Fund. Letter of Intend of Bolivia for the year 2000.

[1]Quarterly benchmark for the remainder of the first annual program of the three-year PRGF arrangement, covering calendar year 1999, and quarterly benchmarks and performance criteria for the second annual program, covering calendar year 2000.

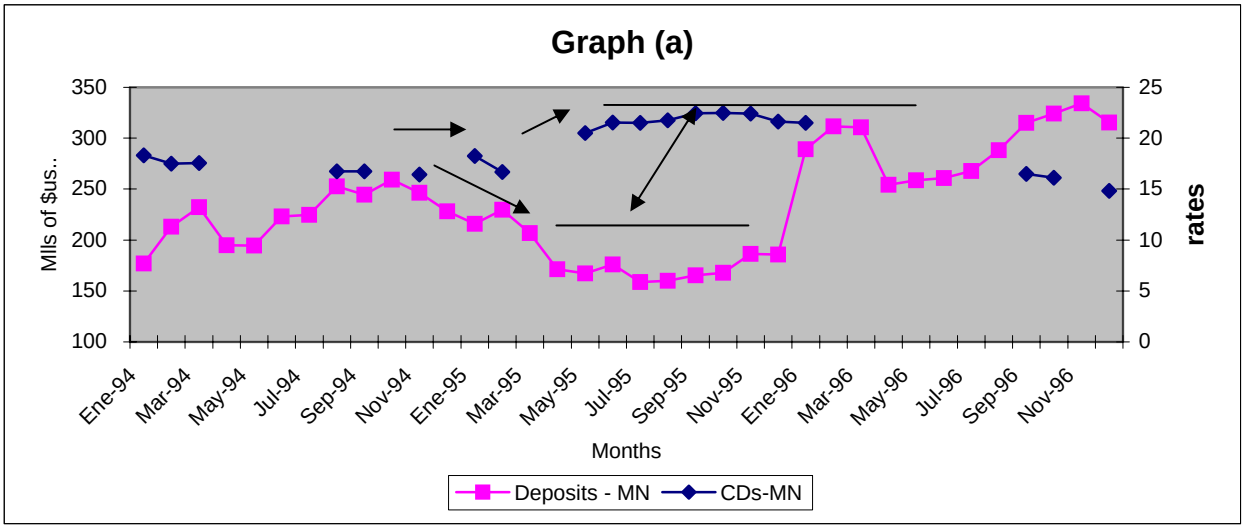
[2]Defined as the difference between changes in currency issued and changes in net international reserves of the central bank evaluated at the corresponding exchange rate.

[3]The net international reserve flows will be measured by the difference in stocks.

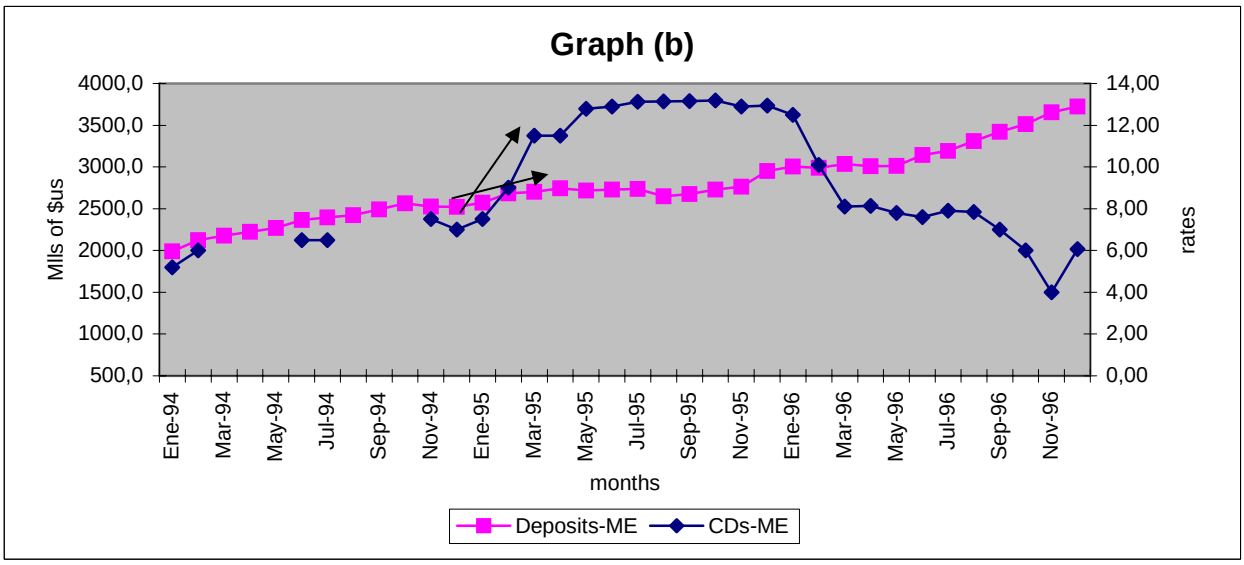
[4]These limits will be adjusted downward by the full amount of: (i) any overdue obligations to foreign official creditors; and (ii) net proceeds from the sale of assets in excess of the amount indicated in footnote 4 Table 1.

[5]Limit evaluated at the end of January because of the expected increase in the demand for foreign currency banknotes associated with the year 2000 problem at the end of December 1999.

Annex 3



Source: Central Bank of Bolivia



Source: Central Bank of Bolivia

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