Relationship between the fiscal and monetary authorities: international experience and the Brazilian case

Brasília

2013

MINISTER OF FINANCE
Guido Mantega

EXECUTIVE SECRETARY
Nelson Henrique Barbosa Filho

NATIONAL TREASURY SECRETARY
Arno Hugo Augustin Filho

NATIONAL TREASURY UNDERSECRETARIES
Cleber Ubiratan de Oliveira
Eduardo Coutinho Guerra
Gilvan da Silva Dantas
Líscio Fábio de Brasil Camargo
Marcus Pereira Aucélio
Paulo Fontoura Valle

TECHNICAL STAFF
Undersecretary of the Public Debt
Paulo Fontoura Valle
General Coordinator of Public Debt Operations
Fernando Eurico de Paiva Garrido
General Coordinator of Public Debt Strategic Planning
Otavio Ladeira de Medeiros
General Coordinator of Public Debt Control
Antônio de Pádua Ferreira Passos

Informations:
Investor Relations Management - GERIN
Phone: (61) 3412-3188; Fax: (61) 3412-1565

National Treasury Secretariat
Edifício Sede do Ministério da Fazenda, Esplanada dos Ministérios, Bloco P, 2o andar
70048-900 - Brasília - DF
E-mail: stndivida@fazenda.gov.br
Home Page: http://www.tesouro.fazenda.gov.br

General Index

INTRODUCTION

Relations between the monetary authority and the government that created it are marked by various facets, including such questions as the pros and cons of concentration of government resources in the Central Bank (CB), earnings on these resources, yield and the system of payment/refinancing of government bonds that matures in the monetary authority portfolio, as well as transfer of positive results and coverage of negative results.

These topics require studies and systematization of empirical knowledge, both in Brazil and abroad. The shortage of studies on institutional aspects of these two entities does not diminish the importance of this topic, while international experience has demonstrated that no consensus has been reached in relation to the best handling of this theme, although some models do reveal greater efficiency than others.

Viewed from this angle, this document represents a contribution to the international debate aimed at greater dissemination of these questions among debt managers, academics and other interested parties, and has the objective of synthesizing Brazilian experience, comparing it to suggestions found in pertinent literature and to practices adopted in other countries.

Aside from this introduction, the study has two chapters. In the first, we will delve into international literature from the theoretical point of view. More specifically, Section 1.1 discusses the treatment of the CB result, whether positive or negative, and concludes that a good rule would be for possible negative CB results not to generate monetary policy constraints, allowing the monetary authority to continue pursuing its objectives as fully as possible[1]. On the other hand, efficient treatment of positive results obtained by the monetary authority will contribute to a sustainable trajectory in public finance, as well as reduce adverse incentives to the inefficient use of public sector resources.

Section 1.2 deals with the costs of exchange variation for the MoF – CB entity and shows that adoption of a periodic symmetrical rule for transfers (coverage) of positive (negative) results is capable of protecting the monetary authority against structurally negative net worth.

Management of available government cash resources is the theme of Section 1.3, demonstrating the costs of disorganized management of these funds and the advantages and disadvantages of maintaining custody at the CB or in commercial banks. Earnings on available cash are discussed in Section 1.4.

The discussion on what monetary policy instrument (bonds issued by the MoF or by the CB) must be used by the monetary authority is the subject of Section 1.5. Reviewed in an integrated manner that takes due

[1] The debate on what objectives should be sought by monetary policy is highly controversial and will not be taken up in this paper. These objectives may vary according to the line of economic thought consulted: price level stability, financial stability and/or high employment levels. In any case, what is important is that efficient rules on the use of the CB result must aid that entity in.

account of both the public sector and development of the capital market, one can indicate bonds issued by the MoF as the best choice.

Finally, Chapter 2 and its respective subsections will evaluate each one of the themes targeted in Chapter 1 in the framework of the Brazilian economy.

CHAPTER I: THEORETICAL ASPECTS OF THE RELATIONSHIP BETWEEN THE FISCAL AND THE MONETARY AUTHORITIES

1.1 The Central Bank Result

In order to understand the composition of the CB result, one must analyze its major functions. Textbooks normally indicate the following functions: currency issuance authority, banker to the government, bank of banks and the organization responsible for executing monetary policy. The discussion in this section will demonstrate that performance of these functions clearly defines a direct relationship between the monetary authority and the Ministry of Finance.

In terms of a hypothetical simplified CB balance sheet, analysis of these functions shows the following:

- As currency issuance authority, the CB holds monopoly powers granted to it by the government, in such a way that the balance of currency issued is stated under CB Liabilities in the balance sheet;
- As banker to the government, the CB has custody of international reserves (recorded under Assets in the balance sheet);
- As the bank of banks, it provides lending and holds deposits (compulsory and/or voluntary) from commercial banks. These loans constitute an asset, classified under Loans to the private sector, while deposits are included under liabilities in the CB balance sheet, under the heading Banking Reserves;
- As executor of monetary policy, the CB regulates short-term interest rates and the volume of currency in circulation. In doing so, it utilizes purchases and sales of public sector securities issued by the Ministry of Finance, classified under Assets in the CB balance sheet. Following the accounting principle of double-entry bookkeeping (to every credit corresponds a debit of equal value and contrary sign), the heading of Other Resources will be included in the Liability column.

These CB activities are exemplified in the simplified balance sheet presented below.

ASSETS (A)	LIABILITIES (L)
International Reserves (IR) National Treasury Bonds (bNT) Loans to the private sector (Lps)	Currency issued (CI) Banking Reserves (BR) Other Resources (OR)
	NET WORTH (NW)

FIGURE 1 – Simplified CB Balance Sheet

The balance sheet shows that the monetary base[2], a concept rooted in the currency issuance monopoly granted to the institution, does not bear interest, but allows the CB to invest in assets that generate interest (IT, bNT and Lsp). Aside from this, the cost of producing banknotes is significantly smaller than their face value, with the difference reverting to the CB. These revenues are known as seigniorage revenues. Consequently, in structural terms, it is expected that the CB will generate positive results and that the amount in question, rooted as it is in a concession, will be channeled to the delegating entity (the federal government). The positive result may also originate in exchange devaluation, since the value of IR (in domestic currency) increases.

It is important to stress that the monetary authority should not have the objective of generating positive results . Its objective must be the pursuit of currency and financial system stability. A positive result[3] is nothing more than one possible result, in the framework of its legal mandate to ensure the purchasing power of the national currency coupled with a solid and efficient financial system[4].

Robinson and Stella (1993) state that there are three possibilities of channeling positive results: formation of reserves of retained profits, transfer to the Ministry of Finance and – if the Central Bank is only partially the property of the government – payment of dividends to its stockholders.

As regards the nature of the result, it is understood that gains rooted in the differential between asset and liability interest differ from those generated by exchange variations, mainly because the latter can almost immediately be reversed, should exchange move in the opposite direction. Therefore, by its very nature any discussion on the use to which a positive result is to be put can be just as important as discussing whether the result should or should not be transferred to the Ministry of Finance.

A more detailed analysis of the relationship between these two institutions will make it possible to comprehend the nature of the CB positive result. According to the CB balance sheet, one can construct a simple equation for determining the result

$$R = (i^*.IR+i_s.bNT+i_m.Lsp) + \Delta IR \quad (1).$$

Equation (1) shows that the CB result is determined by interest (i^*)[5] generated on international reserves (IR), interest (i_s)[6] received on Ministry of Finance securities held in the CB portfolio (bNT), interest (i_m)[7]

[2] One should recall that the monetary base is the sum total of currency issued (CI) and banking reserves (BR).
[3] Nor should it be criticized for generating negative results in the performance of its institutional responsibilities.
[4] Though it has been stated that maximization of positive results is not a Central Bank objective, in periods of tight budgets one must be careful not to allow entities such as the Ministry of Finance to exert such pressures that the monetary authority is forced to adopt a highly expansionary/inflationary monetary policy in order to allow the government to obtain additional short-term revenues based on its monopoly power to issue currency. In other words, conflicts between monetary policy and fiscal policy can come to the fore in such situations, a subject that will be discussed further on.
[5] i^* refers to the international interest rate.
[6] i_s refers to the interest rate on domestic public bonds.

generated on loans to the private sector (Lsp) and exchange variations in the marking to market of international reserves (Δ IR).

Three of the four components presented are directly or indirectly linked to MoF debt issuances. Given the strategy of sterilization that accompanies the process of foreign exchange purchases[8], IR are usually acquired through issuances of public debt securities. With this, it is possible to relate the terms i*.IR and Δ IR to issuances of MoF bonds. Going beyond this, depending on the institutional relationship between the CB and MoF, if Δ IR generates losses, it is possible that the Ministry of Finance will be obligated to cover them. Consequently, the MoF will have to issue public sector bonds in order to cover this negative result. Therefore, it is fair to relate Δ IR to issuances of MoF bonds. Obviously, the term i_s.bNT is directly linked to the public debt.

Chart 1 – Net Debt versus Gross Debt and General Government versus Public Sector

Depending on how the level of public indebtedness is a calculated and, particularly, whether CB operations are included in the government's financial statements, the treatment given to the CB result may vary.

Most countries and the IMF utilize the concept of General Government Gross Debt (GGGD), while Brazil uses the Net Public Sector Debt (NPSD) as the main indicator of indebtedness. There are two major differences between these concepts: whether we are dealing with the gross debt or net debt and the scope of the indicator (General Government or Public Sector). The gross debt considers only government liabilities while the net debt deducts its assets held by society from liabilities. The General Government debt encompasses the federal, state and municipal direct administrations, as well as the public Social Security system; in its turn, the concept of Public Sector also considers the Central Bank and federal, state and municipal nonfinancial state-owned companies. Consequently, the metrics of the Net Public Sector Debt utilized in Brazil consider all monetary authority financial assets and liabilities, including international reserves (asset) and the monetary base (liability), among other items.

Aside from Brazil, other countries also include the CB in their fiscal statements. Examples of the practice of integrating CB accounting statements into government statements can be found in Bolivia, Peru, Uruguay and Australia. Many central banks perform quasi-fiscal activities (such as exchanges of illiquid assets for liquid assets, acceptance of unusual guarantees, acquisitions of international reserves and/or financial institution bonds, among other things). These operations generate positive or negative results that should have a direct impact on government accounts. Viewed in these terms, incorporation of monetary authority accounting statements into those of the government would seem to make sense.

[7] i_m refers to the interest rate on loans to the private sector.

[8] It is important to recall that the strategy of acquiring reserves is typically followed by sterilization, as indicated in Dominguez (2011). However, these reserves can be acquired without expanding the public debt, since they can be financed through sales of assets or increases in public sector liabilities. For example, bond sales can be utilized (asset reductions), or repo operations can be increased (expanded liabilities).

In this light, one further step can be taken in this discussion. What would be the most coherent destination of the positive result with a view toward guaranteeing the equilibrium of the MoF-CB entity? Should one earmark these revenues to reducing public indebtedness or allow them to be freely utilized? According to Meyer (1997), the answer to this question is found in identification of the nature of this positive result. Consequently, the author affirms that one should verify whether "these revenues represent genuine resources, in other words, a reduction in private sector income in the benefit of the Treasury, or are they a mere ploy aimed at generating resources through increases in the net debt of the Treasury or of the Treasury-Central Bank entity".

It is possible to conclude intuitively that the positive CB result must be used to reduce the public debt, since it is very closely linked to issuance of that debt, while possible losses resulting from Δ RI and outlays on payments of i_s are normally covered through issuances of debt by the MoF. Thus, if these outlays are generators of debt, when positive results are generated it would be clearly desirable to target them to reducing public indebtedness. If this is not done, the public debt will follow a steadily rising curve, while stimulating inflationary financing of the public deficit (since the positive result is targeted to other governmental outlays that do not include debt reductions).

On the other hand, if a decision is made to maintain the positive CB result in the monetary authority, one must not ignore the risk of this approach resulting in structural CB imbalances further down the line. In order to better understand this point, one must assume the hypothesis that treatment of the CB result, whether positive or negative, must adopt a symmetrical approach (or, in other words, if there is a transfer of the positive result to the government, it should be used to cover possible negative results; if there is no transfer of positive CB results, there is no guarantee that negative results will be covered by the government). Having said this, if the CB registers negative results for a number of years without government coverage, the result will be structurally negative net worth, which could result in restrictions on monetary authority performance.

There are significant variations from one country to another as regards the way in which transfers of possible CB positive results to the government are made, together with the percentage of those transfers. Table 1 lists various countries for purposes of comparison[9]. It is important to observe that this table is by no means exhaustive, particularly since the study is relatively old. Our intention here is only to show that there are many possibilities and rules with regard to transfers of positive CB results to the government.

Though transfer of positive CB results to the MoF is a widely disseminated principle, adopted to offset the currency issuance monopoly granted to the monetary authority, the same cannot be said with respect to

[9] There is a detailed debate on the need for the CB to retain part of the positive result in order to ensure capital and constitute reserves with the purpose of minimizing the institution's financial risks and avoiding a negative capital position. For greater details, see Sullivan (2003).

coverage of negative results[10]. There is no consensus regarding this point since, even though the monetary authority does not have maximization of the positive result as an objective, steady erosion of its net worth can result in doubts regarding its credibility and independence, loss of confidence in the domestic currency and deterioration in conditions for rolling the sovereign debt, thus generating difficulties for monetary policy execution. Putting this in somewhat different terms, there is concern that a negative financial position at the CB can become a constraint in its efforts to fulfill its role in combating inflation and performing its other responsibilities.

It is for this reason that the IMF normally recommends capitalization[11] by the government through cash injections or public bond sales, in situations in which the monetary authority has structurally negative net worth. It is even recommended that recapitalization be done through the use of securities that generate interest, since this will ensure an income level sufficient to rebalance the profitability of assets and liabilities, reducing the possibilities of additional operational losses.

Table 1 – Central Bank and Government Income

Country	How the country decides on transfers of CB income to the government?
China	Government decision
Hong Kong	Government decision
India	CB decision, but the government can reject the decision
Indonesia	By law
Korea	90% of income
Philippines	75% of distributed income
Singapore	Minimum fractions for transfer to the government and for constitution of minimum reserves
Thailand	25% for reserves, 90% of the remainder for a redemption fund and 10% to the government
Argentina	By law
Brazil	By law
Colombia	By law
Mexico	Income transferred to maintain real capital
Peru	25% of income, by law
Czech Republic	Legislator defines the CB budget
Hungry	Based on average income of previous years
Poland	<98% of income, by law
Russia	50% of income
South Africa	90% of income, by law
Turkey	20% of reserves, then 6% for dividends, according to legislation
Australia	Government decision, consulting with CB
Canada	100% of income
Euro zone	CB decision

Source: Hawkins (2001)

According to the same IMF document, the impact of losses in CB operations and the need to cover them adequately are recognized by the legislation of many countries through inclusion of provisions that ensure

[10] The negative result is tied to sources of CB expenditures. The major outlays refer to administrative spending, payments of interest on commercial bank deposits at the CB and exchange variations.
[11] See the IMF Working Paper elaborated by Dalton and Dziobek (2005).

government support in situations of large CB losses. One should recall that a situation of negative net worth at a CB is different from insolvency in commercial companies.

According to the article by Stella and Lönnberg (2008), generation of negative results for several consecutive years is not a mere theoretical hypothetical scenario. As indicated in table 2, the authors show that various CBs posted negative results for more than 10 consecutive years. The Uruguayan CB registered losses equivalent to 3% of GDP in the 1980s and 14 consecutive years of negative results. Monetary authorities in Chile and Guatemala generated losses for almost two decades. The Jamaican CB also posted negative results for nine consecutive years.

Table 2 - Results for Central Banks of western countries in % of GDP

Country	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Argentina	-0,7	-0,5	-4,5	-0,7	-0,4	-0,1	0,4	0,2	0,2	0,3	0,3	0,3	0,2	0,3	-0,1	3,8	0,2	0,8	1,0
Bolivia [1]		-0,2	-0,4	-0,7	-0,7	-0,2	0,4	0,7	0,9	0,6	0,7	0,7	0,4	0,5	0,5	0,5	0,2	0,3	0,3
Chile	-3,1	-3,2	-1,8	-2,2	-1,1	-1,2	-1,0	-0,9	-0,6	-0,7	-1,1	-1,1	-1,1	-1,4	-1,0	-1,2	-0,7	-0,8	-0,5
Costa Rica [1]	-3,5	-3,3	-2,8	-2,0	-1,9	-2,0	-1,5	-1,4	-1,9	-2,1	-1,8	-1,6	-1,6	-1,8	-1,2	-1,4	-1,6	-1,3	-1,4
Dominican Rep.	-1,0	-1,5	-0,8	-0,6	0,0	-0,6	-0,1	-0,5	-0,5	-0,6	-0,7	-0,5	-0,4	-0,3	-0,2	-0,3	-2,6	-4,0	-2,9
Equator		-2,2	-2,5	-2,9	-2,3	-1,0	0,1	0,0	0,0	0,2	0,1	0,3	-1,2	0,6					
Guatemala [2]	-1,6	-1,9	-1,5	-2,4	-1,6	-1,2	-1,1	-1,0	-1,0	-1,2	-0,8	-0,3	-0,3	-0,4	-0,8	-0,6	-0,5	-0,6	-0,5
Haiti												0,1	0,0	-0,2	-0,2	-0,3	-0,6	-1,0	
Honduras [1]				-3,2	-2,5	-2,7	-0,5	-1,9	-1,9	-1,6	-1,6	-0,1	-0,2	0,0	-0,4	-0,9	-1,1	-1,1	-1,0
Jamaica [3]	-5,7	-5,4	-5,4	-5,0	-4,3	-5,6	-4,7	-2,0	-2,0	0,6	1,0	-0,3	0,0	0,3	-0,5	-1,7	-1,7	-1,0	-1,5
Nicaragua	-5,0	-8,0	-13,8	-2,8	-0,7	-1,1	-1,4	0,1	0,1	-0,2	-0,6	-3,3	-1,7	-1,6	-1,3	-2,0	-1,6	-1,4	
Paraguay [1]	0,2	0,2	0,1	0,6	0,8	0,5	0,1	-3,8	-3,8	-1,5	-1,8	-0,6	-0,8	-0,4	-1,3	-1,4	-1,1	-0,8	-0,2
Peru [1]	-5,4	-3,2	-0,4	-1,1	-0,4	-0,2	-0,2	0,0	0,0	0,0	0,1	0,1	0,1	0,0	0,2	0,2	0,1	0,0	-0,1
Uruguay	-2,8	-3,1	-3,4	-3,6	-2,2	-1,6	-0,8	-0,6	-0,6	-0,5	-0,5	-0,5	-0,2	-0,4	-0,3	-0,3	0,0	-0,6	
Venezuela	-1,4	-2,9	-1,8	-2,0	-1,7	0,0	-0,2	-1,0	-1,0	-0,7	-0,6	-0,6	-0,5	0,3	0,1	0,1	0,8	1,6	
Mean	**-2,7**	**-2,7**	**-3,0**	**-2,0**	**-1,4**	**-1,2**	**-0,7**	**-0,9**	**-0,9**	**-0,5**	**-0,5**	**-0,5**	**-0,5**	**-0,3**	**-0,5**	**-0,7**	**-0,8**	**-0,8**	**-1,0**
Median	**-2,8**	**-2,9**	**-1,8**	**-2,1**	**-1,4**	**-1,1**	**-0,4**	**-0,6**	**-0,6**	**-0,6**	**-0,6**	**-0,6**	**-0,3**	**-0,2**	**-0,4**	**-0,6**	**-0,7**	**-0,8**	**-0,8**

Source: Stela e Lonnberg (2008)
1 Data for 2005 are preliminary
2 Data for 2005 are IMF estimates.
3 Only monetary losses are considered for the years after 2002, excluding special issuances of Bank of Jamaica bonds.

There are at least two ways of dealing with negative monetary authority results: (i) cover negative results with other balance sheet items, or (ii) transfer negative results to the government. In the first case, one can utilize a reduction in assets, with an equivalent reduction in the net worth of the institution, or print currency. The negative point of this alternative is that it restricts monetary policy management, since the CB will have to concern itself with not generating losses so that its net worth will not turn negative. Or furthermore, in the case of monetary issuances, the monetary base will be raised to cover the negative result when monetary policy requires the opposite.

The second alternative ensures that the asset situation of the CB is always balanced, though this is achieved by reducing the government's fiscal surplus and/or through public debt issuances. In reality, when the MolF covers negative CB results, there is no impact on public indebtedness at that moment, but only inclusion of an "adjustment" between two units of the same sphere of government. In other words, the impact on federal public debt levels occurred previously, at the moment in which the CB honored its deficit operations, financing its operations through issuance of currency and/or bonds.

It is important to stress that the above is true only for cases in which the Net Public Sector Debt is used as the relevant debt indicator for purposes of analyzing fiscal sustainability, as occurs in the case of Brazil. If the indicator used is the IMF's General Government Gross Debt, issuance of debt by the MoF to cover CB

losses would raise the GGGD since, as already stated, the CB is not part of the General Government, and any debt issued by the MoF and transferred to the CB represents an increase in government liabilities.
An analysis of Hawkins (2001) helps one understand why absorption of negative CB results by the government is the best option. The author understands that there is an asymmetric aspect in most countries: positive results are transferred to governments, but losses are covered through reductions of capital and reserves. As such, if exchange rate fluctuations in a specific year generate large-scale losses, this could jeopardize the net worth of the institution. Therefore, it is clear that symmetry must be preserved or, in other words, if the CB result is transferred to the government when positive, it must also be transferred when negative.

Going beyond this, no matter whether they are positive or negative, the results generated between the CB and MoF must not be allowed to escape the BC-MF entity environment, so that they will be neutral from the point of view of the monetary aggregates. In other words, these results must be transferred to the MoF when positive and covered by it when negative. The impact of this decision is a potential increase in the public deficit when the result is negative because the MoF will finance it through increased public indebtedness[12]. However this is a lesser problem when compared to the potential inconsistency generated for monetary policy when one opts for absorption of the negative result by the CB, principally when these results are recurrent and/or large in volume, since the monetary authority must spend a long period of time with negative net worth.

Buiter (2006) comes to the same conclusion. The author stresses that the State's taxation power underlies CB liabilities and that, when monetary policy is institutionally delegated, the MoF must provide backing to the monetary authority. Though one can argue that the automated rules for recapitalization or coverage of CB losses can be considered as a substitute for nonnegative capital, the fact is that in practical terms automaticity often does not happen.

The government subsidy to the CB is an empirical question defined by legal-institutional traditions. At the same time, many Central Banks do not have well defined legal provisions on the treatment of losses, but invariably have rules on the distribution of profits. Based on analysis of 135 central bank bylaws in order to determine practices related to treasury support to CB finances, provisions for recapitalization and guidance for profit distribution, Stella and Lönnberg (2008) found highly divergent practices among the countries analyzed and noted a bimodal distribution of the practices in question. One group explicitly recognizes MoF responsibilities for CB finances, while the other group assumes the opposite position that neither of the two institutions should assume financial responsibility for the other.

[12] As already mentioned, among other factors, the increase in public indebtedness will depend on the debt indicator utilized. If it is Net Public Sector Debt, the item of CB assets entitled MoF securities in portfolio is neutralized by MoF liabilities entitled internal public debt at the CB. On the other hand, if the chosen indicator is the General Government Gross Debt, the negative CB result covered with MoF bond issuances will generate growth in the debt level.

Thus, when the option is to cover the negative result with other balance sheet items, concern arises with regard to the ideal size of the capital reserves of the institution. There is a wide array of literature dealing with this topic. Sullivan (2003), Stella (1997) and Hawkins (2001) are good examples. In ideal terms, in this context, a Central Bank must maintain sufficient capital to absorb possible losses and, at the same time, maintain a nonnegative capital position.

Determination of the level of capital requires evaluation of the risks faced by the CB, both in terms of the size of these losses and the probability of their occurrence. With this, questions involving the definition of risk capital for central banks are complex and difficult to answer, since they require an evaluation of their functions, the level of economic development, financial system stability, the outlook regarding adverse events that may impact the financial sector, exchange rates and inflation levels. Thus, there is no definitive answer on the adequate level of capital. In the same way, no clear methodologies have been developed to define this level.

1.2 Exchange Variation Costs for the MF-CB Entity

One must emphasize the possible impacts of exchange policy on the balance sheets of the two institutions. The reason for this, as already seen, is that the CB, as depositary of international reserves, can undergo substantial balance sheet fluctuations, since exchange rates oscillate and differentials exist between the interest that the government pays on the resources it borrows to purchase reserves (interest on the internal debt) and the interest generated by international reserves.

The strategy of acquiring reserves clarifies one of the facets of the relations between the CB and the MF. When the CB acquires exchange, it increases its assets and, on the other hand, expands the volume of currency/liquidity in the economy. Should the CB desire to return monetary aggregates to their previous level, absorption of this additional liquidity will demand that the monetary authority sell MoF securities[13]. As already discussed, this strategy results in expansion of the General Government Gross Debt, while the Net Public Sector Debt remains constant (given that the assets acquired, international reserves, neutralize the liabilities issued – public bonds)[14].

In a framework of exchange devaluation, the practice of accumulating international reserves generates positive results for the CB, and international literature is divided with regard to the treatment to be given

[13] In general, the sterilization operation is based on repo operations involving MoF public bonds. Repo operations can be defined in general terms as operations in which, on one side, there is an institution with excess resources to be lent and to generate earnings for one day. On the other side, there is another institution in need of very short-term funding. A previously agreed-upon rate is then stipulated between these agents (usually quite close to the basic interest rate of the economy) and federal public securities are used to guarantee this transaction. This type of operation is carried out both among financial institutions and between the monetary authority and the banks.

[14] It must be understood that one is not discussing the differential between the profitability of international reserves and the cost of the securities issued (or the repo operations carried out) for purposes of acquiring such reserves.

to this unrealized book entry gain (until such time as the transfer of reserves takes place). Robinson and Stella (1993) defend the position that variations, albeit unrealized, be marked to market, with the positive or negative result being absorbed by the MF. Consequently, the CB balance sheet becomes neutral as far as exchange policy is concerned, in such a way that accounting results are not impacted by the volatility of exchange.

With the impact of exchange variation on the CB balance sheet being positive, one must be careful to ensure that it be used to reduce the public debt, with priority given to debt in the CB portfolio, should it exist. In the first place, mainly because the reserves were acquired with resources generated in the MF-CB framework. Consequently, it is important that these resources remain within the same environment and not be used for any other purpose. Should the opposite occur, the result would be an injection of liquidity into the system, causing distortions in the monetary aggregates.

Another argument for using such resources to redeem public securities is the question of symmetry. One must consider that, on other occasions, this exchange variation can generate losses, with the consequent transfer of the negative result to the MoF which will then have to cover it through debt issuances. In other words, given that debt is issued when exchange losses occur, balance and symmetry demand that the debt be reduced when exchange gains are registered.

This concern has even led other authors to defend the position that CB gains resulting from exchange variation not be distributed to the MF. For example, Meyer (1995) defends the position that these gains "can be transformed into losses tomorrow, and vice versa", concluding that this type of gain must not be transferred to the MF, "but rather retained and included in a Central Bank liability account, from which possible losses will also be deducted".

Sullivan (2003) also criticizes this type of transfer of exchange devaluation gains, understanding that, from the economic point of view, this distribution represents CB financing of the MF. The author states: "In economic terms, realized profits represent the transfer of real resources and are a legitimate component of fiscal revenues. Distribution of unrealized gains is equivalent to unsterilized financing for the government, which is often forbidden in central bank legislation". One way of mitigating this risk is precisely to make it obligatory that such unrealized gains be utilized to reduce public debt securities in the CB portfolio.

On the other hand, one must keep in mind that the fact of not transferring the positive result to the MoF also implies that the latter institution will not cover future negative results, as seen in section 1.1. Thus, adoption of a periodic symmetrical rule for transfers (coverage) of positive (negative) results is capable of shielding the monetary authority from the possibility of structurally negative net worth. It is obvious that such a rule must make it obligatory that the positive CB results transferred to the MoF be used to reduce the public debt.

1.3 Deposit of Available Federal Government Funding

Federal Government cash-on-hand can be given two distinct types of treatment: i) the MoF centralizes deposits in an account with the CB or ii) the MoF centralizes the amounts received in private financial institutions.

Before going further with this discussion, one should recall that in many emerging or low income countries, cash availabilities are not centralized in a single account or even in a small number of accounts. For example, Bajo (2001) affirms that, at the start of the last decade, the Ministry of Finance of Croatia did not even know the exact balance of the government's domestic currency resources, nor the number of foreign currency accounts held in private commercial banks. It was also unaware of the amounts in these accounts and the conditions governing earnings generated by these resources. The diagnosis was an absence of fund management, as well as of clarity with respect to which government authority was responsible for public debt management.

The costs of such disorganization are myriad:

- idle cash balances that generate no earnings;
- idle public resources in the commercial banking sector can be used by these institutions to grant credit to the public in general, requiring that the monetary authority drain the additional liquidity from the economy; and
- contracting of unnecessary loans to offset the perceived "cash shortfall" (the government may even have a positive balance without being aware of it).

In its turn, the major advantages of implementing a Single Operating Account are:

- minimization of the volume of current deposits for transactional purposes, often with no earnings, in multiple accounts in the name of government entities;
- elimination of the need for maintaining deposits for operations among government entities; and
- mitigation of the credit and operating risk originating in private commercial banks, since government exposure to these institutions is restricted.

Therefore, implementation of a single account is an important step toward efficient management of public resources. According to Williams (2010), the single account is a prerequisite for modern management of government cash, since its implementation involves consolidation of all government cash balances in a single account, preferably at the CB (my emphasis). In this sense, the author goes so far as

to affirm that maintenance of the account outside the CB will potentially weaken government cash flow management.

This structure also exposes the government to moral risk, mainly in times of financial volatility, and possibly even to credit risk. The author also affirms that there may be a lack of financial transparency, due to the absence of interest payments on balances, charging of service rates or cross subsidies (associated to temporal lags between reception of tax payments by the bank and transfer of those resources to the government account).

Table 3 provides an international overview of the main characteristics of Single Account Systems in various selected countries[15]. The conclusion that one draws from the table is that most of the countries in the sample created a Single Account system, marked by total centralization and utilization of an integrated financial management information system. The CB acts as manager of this Single Account in many of these countries and utilization of commercial banks for bank transaction services is also quite common.

Table 3 - Examples of Single Account Systems - selected countries

Country	Coverage	Degree of Centralization	Role of Commercial Banks	Cash-on-hand of IFMIS1
France	National government and regional entities	Completely centralized	No participation	Yes, including an interface with the CB for
United Kingdom	National government	Completely centralized	Significant participation	Yes
Australia	National government	Mixed architecture (combines elements of centralized and decentralized models of the Single	The CB is the Single Account manager, with some commercial bank involvement	Yes
USA	National government	Decentralized	The CB is the Single Account manager, with some commercial bank involvement	Yes
Sweden	National government	Decentralized	Commercial banks provide bank transaction	Yes
New Zealand	National government	Completely centralized	Commercial banks provide bank transaction	Yes
Brazil	National government	Completely centralized	Some commercial bank involvement	Yes
Peru	National government	Mixed architecture (combines elements of	Completely involved, with the Single Account	Yes
Colombia	National government, but including "public	Completely centralized	The CB is manager of the Single Account, but	IFMS is in a process of stabilization and
Russia	National government	Completely centralized	Little involvement of commercial banks	Yes
India	National and state governments	Mixed architecture (combines elements of	Collections and payments are made through	Yes, for the federal level
Indonesia	National government	Decentralized	-	In development

Source: Pattabayak e Fainboim (2010)

[1] IFMIS is the acronym for Integrated Financial Management Information System

Taking up the question of where federal government cash availability should be maintained, Keser (2000) apud Bajo (2001) affirms that concentration of resources in a single MoF account at the CB is a generalized practice among the developed economies. In the same sense, Pattanayak and Fainboim (2010) also affirm that "since the central bank acts as fiscal agent of the government, custody of the Single Account in most countries belongs to the central bank, in theory, it could also be done at a commercial bank". There are various reasons for having custody at the CB:

- greater facility in controlling resources;
- lesser maintenance costs, differently from what occurs when accounts are maintained at private institutions;
- ensures competitive neutrality among private sector agents;
- facilitates management of financial system liquidity; and
- minimizes the credit risk offered by commercial banks.

[15] For more detailed information on the content of the table, see Pattanayak and Fainboim (2010).

Obviously, the questions of both control and cost are not insurmountable obstacles to the option of utilizing private banks to receive available government cash resources, though they do demand certain maintenance costs. In the first place because technological advances would make it possible to develop software that manage consolidation of various bank accounts in real time and, secondly, because it is possible to negotiate bank tariff exemptions in the case of a client with such enormous balances in its current account as would occur with a government[16] .

As far as the question of controlling liquidity is concerned, Meyer (1997) defends centralization of MoF resources at the CB because utilization of MoF resources has important impacts on money and exchange markets. If this impact can be sufficiently upsetting to the point of going against CB credit policy, centralization of these resources at the CB allows the institution to analyze the general financial situation at any moment, provide suitable advice to the government and take the appropriate corrective measures.

For the same reason, though with a different interpretation, there are those who criticize centralization of MoF resources at the CB, as evinced in articles published by Cysne (1990), Ogasavara (1991) and Garcia (1994). In their opinions, it would be preferable to maintain custody of the Single Account outside the CB, considering that the MoF cash flow impacts monetary policy, creating pressures capable of leading the CB to issue currency or withdraw currency from the system. In other words, MoF financial execution affects system liquidity.

As a result, on any given day, when the MoF spends more than it collects, it provokes monetary base expansion. However, when inflow is greater than outflow, this results in monetary base contraction. Consequently, the CB must carry out compensatory operations in order to maintain system liquidity in line with the strategy designed to control monetary aggregates.

Neutralization of the daily impact of the MoF cash flow usually occurs through open market operations. With this, according to Cysne (1990), "there are difficulties in supporting the daily evolution of the monetary base and consequent fluctuations of market interest rates". Therefore, "none of this would occur if the Treasury had an account outside the CB. Credit in one bank would be debit in another bank, greatly facilitating CB control of the monetary base. The argument here is that the STOA[17] causes a great deal of noise in monetary policy, making monetary control particularly difficult", Garcia claims (1994).

However, it is important to stress that many are the factors that impact the monetary base, and the single account, though very significant, is just one among them. At the same time, the CB is able to adjust impacts on liquidity through daily repo operations without a great deal of difficulty. In this sense, the

[16] The United States system is a good example since, aside from the account at the Federal Reserve, the Treasury also has accounts at various private financial institutions. Moreover, a system is in place for controlling the flow of all of these accounts in such a way that resources are never lacking at the Fed to honor payments of contracted outlays. At the same time, it has instituted a calendar of "deposit auctions" in order to guarantee that deposits held at private institutions obtain the best possible earnings. For greater detail, see Garbade et al. (2004).

[17] STOA is the acronym for the Single Treasury Operating Account.

monetary authority will not stop managing liquidity, nor will liquidity become significantly less volatile, if the single account is maintained outside the CB.

As is already clear, centralization of MoF deposits at the CB is not a unanimous position. Though it is adopted in such countries as France, Spain, Japan and Switzerland, others, such as the United States, also allow these deposits at commercial banks.

If one opts for the MoF to centralize deposits in an account with the CB, the simplified balance sheet of these institutions would be as follows:

CB Balance Sheet:

ASSETS (A)	LIABILITIES (L)
International Reserves (IR)	Currency issued (CI)
National Treasury Bonds (bNT)	Banking Reserves (BR)
Loans to the private sector (Lps)	Other Resources (OR)
	NET WORTH (NW)

MF Balance Sheet:

ASSETS (A)	LIABILITIES (L)
National Treasury deposits in the CB (dNT)	National Treasury securities in the CB (bNT)
Net Domestic Assets	National Treasury securities outside the CB
	External Debt
	NET WORTH (NW)

FIGURE 2 – Simplified CB and MoF Balance

1.4 Earnings on the National Treasury Account

Another important question that permeates the existence of an account at the Central Bank (whether it be a single account or not) concerns the earnings generated by these resources. In this case also, there is no widely accepted guiding principle. In countries like Australia, France and England, for example, the MoF account at the central bank generates earnings; in contrast, MoF accounts at the CB in the United States, India, Japan and Germany do not.

According to Liener (2009), "the central bank normally pays earnings on temporary excess cash resources or they are placed in financial market instruments". For the author, recognizing the value of money over time, investment of temporary single operating account excess resources in interest-bearing instruments is one of the best government cash management practices.

In his turn, Williams (2009) affirms that, among the OECD countries, the best practice is to pay earnings on single operating account resources at market interest rates. The author cites the following benefits of this practice:

- it enhances accounting transparency while avoiding implicit cross subsidies associated to administration fees[18] ;

- it avoids economically unsuitable decisions on the part of the MoF in the application of its deposits, including targeting them to commercial banks with low credit ratings; and

- it reduces the risk that the extra part of the "profits" generated by the CB be utilized on greater administrative outlays.

Another possible justification for paying earnings on the MoF account at the CB is to avoid doubts regarding the performance of government control agencies (such as the Budget Court). Since government resources deposited in an account at any commercial bank would generate earnings, the choice of a non-interest-bearing account at the CB could lead to criticism on the part of auditors, particularly in those cases in which the opportunity to invest in commercial banks exists. On the other hand, there are others who argue that, if the MoF account did not generate earnings, the CB result would be greater and, therefore, there would be larger transfers of gains to the MoF at the end of the period, in those cases in which positive results are regularly transferred to the MF.

Constitution of an account within the CB reserved exclusively for payment of maturing debts is opportune. However, if the MoF single operating account at the CB does not bear interest, creation of this "cushion" becomes difficult, since it would be hard to justify this account before auditors or other public authorities. The objective must be clear: minimize refinancing risk, transmitting a sense of security in relation to MF's capacity to honor its payments in moments of market instability and reticence with respect to acquisitions of public sector securities or when the MoF does not feel ready to corroborate the rates obtained at auctions. This reserve is also quite useful in creating conditions for public debt managers to work as agents tasked with stabilizing the secondary market at moments of intense volatility (Pereira, Pedras and Gragnani, 2009).

Notwithstanding possible interpretations that earnings on the MoF account at the CB would be nothing more than anticipated transfers of positive results, the question of whether or not to pay earnings on the MoF account remains significant. There is no guarantee that the MoF will receive the same amount of resources in both situations. Greater CB gains with the MoF caused by non-payment of earnings on the MoF account could effectively lead to a reduction in the CB positive result with the private sector, since larger

[18] The question of cross subsidies comes up because the rates paid do not reflect costs; all things being equal, the sources of cheap CB funds make it possible to increase income, allowing for the existence of a subsidy to other activities (Williams, 2009).

CB gains may stimulate subsidies to that sector, or because the CB may become more lenient in controlling its own outlays[19]. Meyer (1995) concludes that, if MoF revenues can decline when the single account at the CB does not bear earnings, then earnings should be credited to that account. The reason for this, as already seen, is that the MoF would receive these earnings if its account were maintained at a commercial bank[20].

It is important to stress that the same reasoning used to earmark the positive CB result to public debt reductions is also valid for deciding how to target earnings on available government cash deposited at the CB. The reason for this is that targeting to payment of the public debt is directly related to the origin of the resources and the need for not utilizing them for other purposes. Since they are capital revenues, it is preferable to target these resources to payment of capital outlays, such as amortization of the public debt.

Since these revenues are generated in the MF-CB framework, payment of the public debt, preferably that held by the CB, with these resources ensures that monetary policy will not be adversely impacted. On the contrary, targeting these revenues to payments of other types of expenditures outside the CB produces an expansionary impact on the monetary base, requiring compensatory measures on the part of the CB to avoid alterations in financial system liquidity. This would negatively impact both monetary policy efficiency, by requiring constant CB interventions to preserve the equilibrium of the currency supply, and public debt management, since it requires the MoF to resort to the market in order to pay debts maturing with the monetary authority.

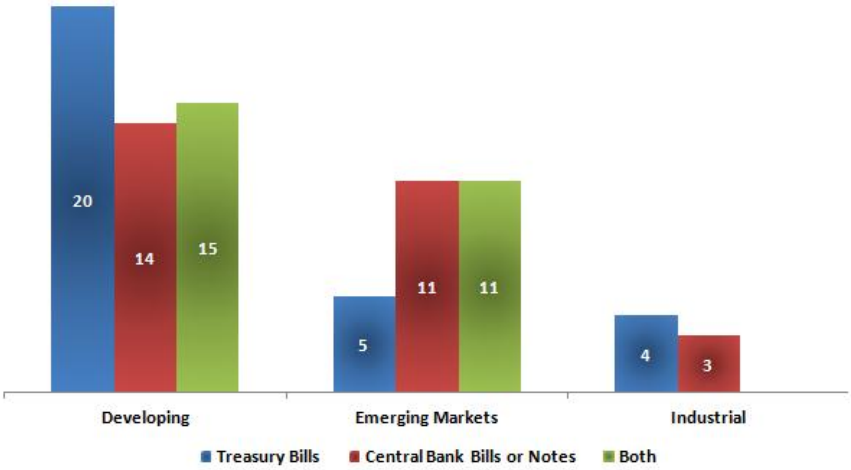
Analogously, Williams (2009) defends the position that, to ensure transparency and deal with financial incentives in the best possible way, the MoF should pay rates compatible with the transactions of the single account in order to compensate the CB for the costs of the services offered.

1.5 Public Securities as Monetary Policy Instruments

In general, monetary authorities utilize public securities to manage banking reserve supply and demand, guarantee repo operations and support a payment and settlement system. The question to be dealt with under this topic is which security the CB should utilize for purposes of monetary policy execution: MoF securities or securities issued by the CB itself? Empirically, central banks can be distributed almost equally into three groups: those that use MoF securities exclusively, those that utilize only their own securities and those that utilize both.

[19] See Meyer (1993).
[20] One should recall that if there is no provision for the MoF to cover possible CB losses, payment of earnings on the MoF account at the CB makes an enormous difference.

As the following graph demonstrates, Nyawata (2012) came to this conclusion based on a sampling of 84 countries[21], of which 29 pertain to the first group, 28 fall into the second group and 26 into the third. However, when one separates the countries according to development levels, it becomes evident that the distribution is not as uniform as first thought. One expects that the higher the degree of development, the greater will be the separation between fiscal and monetary policy. In other words, greater exclusive use of MoF securities is expected among the more developed countries.



Source: Nyawata (2012)

FIGURE 3 - Monetary policy instrument by development level

However, Nyawata (2012) found the following to be true: among the developing economies analyzed, exclusive use of MoF securities is more common, while the participation of CB securities is greater among the emerging nations. In numerical terms, 40% of the developing countries use MoF securities exclusively, a figure that drops to just 18% among the emerging economies. In their turn, 41% of the emerging countries use only CB securities, while just 28% of the developing countries have this characteristic[22]. Although the number of industrialized countries considered in the sampling is small (just seven), it is common knowledge that other countries from this grouping that were not included also utilize only MoF securities, including the USA and European Union. This corroborates the thesis that, in general terms, the

[21] The industrialized countries are: Australia, Canada, Germany, United Kingdom, Denmark, Iceland and Sweden. The emerging economies considered are: Brazil, India, Peru, Singapore, Uruguay, Armenia, Azerbaijan, China, Indonesia, Kazakhstan, Mexico, Romania, South Africa, Tajikistan, Turkey, Ukraine, Belarus, Bolivia, Chile, Costa Rica, Croatia, the Czech Republic, Quirquistan, Malaysia, Poland, Russia and Thailand. The developing countries included in the sample are Afghanistan, Albania, Bahamas, Botswana, Barbados, Belize, Cambodia, Cape Verdi, Dominican Republic, Fiji, ECCB, Ethiopia, Ghana, Gambia, Guinea, Haiti, Iran, Jamaica, Jordan, Kuwait, Laos, Lebanon, Lesotho, Macedonia, Malawi, Maldives, Mauritania, Mauritius, Mongolia, Mozambique, Myanmar, Namibia, Nepal, Nicaragua, Nigeria, Oman, Papua New Guinea, Pakistan, Samoa, Saudi Arabia, Serbia, Sierra Leone, Syria, Tanzania, Trinidad and Tobago, Uganda, Uzbekistan and Vanuatu.

[22] Contrary to what would be expected in theoretical terms, the explanation for this result may be found in the grouping of countries proposed by the author. For example, significant emerging countries were not considered (China, for example), while others with very little international significance are listed (Tajikistan and Quirquistan, for example). At the same time, there are such important absences as the United States and the European Union

more developed the economy, the greater will be the tendency for the CB to use MoF securities for purposes of monetary policy execution.

Based on empirical data, this section has the objective of summarizing the major theoretical points discussed by Nyawata (2012), particularly in light of the fact that the article in question is relatively recent and includes an interesting overview of international literature on this theme.

In this sense, the first step in determining whether preference should be given to a specific security is to stipulate the desired characteristics of those to be used by the CB in its monetary policy execution. Nyawata op.cit lists the following points: the security in question should be under CB control, it should be available in sufficient quantities and maturities, should stimulate the mechanisms of monetary policy pass-through, should be compatible with CB operational independence, be liquid and have a minimum level of credit risk.

The latter two characteristics may be present in both CB and MoF securities and aid in avoiding financial losses for the CB. The other characteristics listed depend to some degree on existing institutional arrangements between the MoF and CB. These aspects will be discussed in greater detail in the following paragraphs. Nyawata op.cit also attributes importance to some operational/institutional questions, including: auction format, business platform, systems for determining prices and settlement, structure and operation of the payments system, monetary policy design, procedures followed in exchange and money market operations, and management of international reserves and public debt.

Anticipating the conclusion put forward by Nyawata op.cit, the author suggests essentially that CB and MoF securities have similar characteristics, making them equally qualified for the function of liquidity management. However, potential differences and conflicts may arise depending on the institutional, legal and administrative arrangements that impact decisions on maturity profiles, volume restrictions and the lack of a formal agreement between the MoF and the CB. Furthermore, when one considers three aspects: (i) integrated overview of public sector financing, (ii) public policy on financial market development, and (iii) positive externalities that public securities exert on other financial instruments and the rest of the economy; with this, exclusive use of the MoF security is seen as the most adequate option.

Starting at this point, therefore, we will make a brief analysis of these aspects in order to better clarify the reasons for the preference for MoF securities expressed by Nyawata op.cit. Notwithstanding the use of CB securities to ensure the autonomy of the monetary authority and control liquidity or, in other words, to avoid any dependence on MoF security issuances, the author acknowledges the challenges that exist in utilization of these securities, more specifically: potential conflicts with government objectives in public debt management; limited externalities for the development of the money market, given that participation is often restricted to banks; possible weakening of the CB balance sheet with consequent

threats to the credibility of the institution[23]; and potential segmentation of the market, particularly if the maturities of the MoF and CB securities are similar.

A few comments on these aspects are appropriate at this point. In historical terms, MoF securities have been associated to positive externalities for the financial sector and rest of the economy. In general, one can cite the following as stylized characteristics of MoF securities:

- they are considered to be virtually free of credit risk, serving as tools for hedging against interest risk and as guarantees for such similar markets as repo and derivative operations;
- they serve as a price reference for other financial assets, as well as for extracting information on inflation and the GDP outlook; and
- they allow for concentration of liquidity in a few key maturities.

With regard to market fragmentation, one can affirm that CB securities tend to operate at the short point of the interest curve, generally with maturities of less than 12 months, while MoF securities tend to be concentrated among longer maturities. Some central banks began issuing their own securities due to the lack of appropriate MoF securities. The presumption here is that if MoF securities are available in sufficient volumes and there are no legal restrictions on their utilization as monetary policy instruments, the CB will have no need of issuing its own securities. Aside from this, when there is an appropriate maturity structure, the use of the same instrument for debt management and monetary policy strengthens the role of MoF securities as a tool for developing the financial market. Moreover, in a scenario in which the CB also issues securities, one winds up having two sovereign debt issuers, something that could certainly be prejudicial to liquidity, coupled with the potential for a possible run on CB securities in detriment to MoF bonds at moments of greater financial instability.

The proposal is that there should be only one market for public securities issued by the MF, with the government making issuances beyond its borrowing requirements, so that part of the securities can be targeted to the CB for purposes of monetary policy execution. As Williams (2010) recalls, this arrangement demands trust between the two institutions, since the monetary authority depends on the willingness of the MoF to always accept its requests for additional bond issuances for use as monetary policy instruments. According to the author, the major benefit of this mechanism is the increase in secondary market liquidity, since the entire public debt is consolidated. In those countries in which secondary markets have not yet achieved significant development, MoF securities are usually the preferred instruments due to their greater volumes. In this way, they tend to fulfill their role as catalysts in fostering the development of these markets.

[23] For example, in this case the CB would have to bear the burden of paying interest on its securities, which could become quite voluminous in times of high interest rates and liquidity.

Based on what has been discussed to this point, it is clear that the choice between MoF and CB securities must be guided by determining which of them: (i) favors enhanced monetary policy transmission, (ii) contributes more to the development of liquid markets, and (iii) ensures greater CB operational autonomy. In the opinion of Nyawata (2012), MoF bonds possess characteristics that make them an ideal instrument for market development. They facilitate development of the interest curve and are essential to understanding the direction indicated by monetary policy. Improved monetary policy signaling reflects improvement in the pass-through channels of that policy.

Consequently, Nyawata op.cit concludes that the factors that contribute to the preference for MoF securities in relation to CB bonds are (i) an integrated perspective of the public sector[24], according to which the taxpayer has final responsibility for losses suffered by the CB; (ii) concern with fostering and developing money markets and (iii) the pursuit of positive externalities for the entire economy.

Assuming a context in which there is exclusive use of MoF securities, one pertinent question remains: what type of treatment should be given to MoF securities maturing in the CB portfolio? Theoretically, there are two major alternatives: (i) the security is redeemed and paid in cash by the MoF to the CB; (ii) the MoF rolls this security over at the CB(or, in other words, exchanges the matured security for a new security still to mature).

A brief explanation should be offered here on the operational mechanics of each one of these alternatives so as to better evaluate their pros and cons. The following premises will be assumed for this purpose: (i) the MoF centralizes deposits of its cash reserves in an account at the CB, (ii) the federal government has no operational surplus and (iii) money market liquidity is in a balanced position.

In practical terms, redemption of the securities consists of the following steps: (1) the MoF pays cash in the amount due for the bond that has matured; (2) the MoF issues a new bond on the market in order to collect the resources required to cover payment of the security that has matured; (3) in order to regain the equilibrium of money market liquidity that was reduced as a consequence of step (2), the CB normally purchases public securities on the market. In other words, in practical terms the bond that matured was indirectly replaced by a new bond in the CB portfolio.

The second alternative is precisely to make a direct exchange of the security that matured in the CB portfolio, through a rollover operation between the MoF and the CB with no intermediaries and, therefore, without interfering in money market liquidity. To do this, one can hold a noncompetitive

[24] An integrated view of the public sector considers the overall financial situation of the CB and of the government as a whole. Governments may opt for acknowledging the cost of sterilization operations explicitly in their budgets or indirectly in central bank balance sheets, resulting in lesser distribution of positive results to the government and/or losses that are prejudicial to the central bank balance sheet, possibly generating a need for recapitalization.

auction restricted to the CB, utilizing the average rates practiced in the primary market auction as the benchmark.

Although it is possible to argue that the question of liquidity fluctuations that arose in the first option is easily administered and foreseeable, there is still potential for generating volatility in the rates of the securities issued, due to the impact of issuances of an additional volume on the primary market aimed at collecting resources for purposes of paying bonds that mature in the CB portfolio. Therefore, this second option, which involves direct MoF issuances to the CB, would seem more adequate since, aside from not causing additional work in the task of managing liquidity, it ensures that transactions between the two government entities do not have deleterious impacts on the public bond market.

Despite this, one notes that the institutional design of this item is different from one country to another. For example, member countries of the European Union opted for the first alternative. The Maastricht Treaty goes so far as to prohibit CB access to the primary market (in an effort to avoid the possibility of the monetary authority financing the fiscal authority). Brazil and the United States allow the CB to replace securities maturing in its portfolio directly with the MF, as is explicit in the second alternative. Other countries, like India and Pakistan, allows the CB to acquire MoF bonds on the primary market[25], competing with other auction participants under equal conditions.

[25] A clarification is apropos here. Permission for the CB to acquire MoF securities directly on the primary market does not necessarily imply that the CB is financing the latter. However, by making CB participation in primary market auctions legal without defining a maximum limit, one does open space for this type of financing.

CHAPTER II: RELATIONS BETWEEN THE NATIONAL TREASURY AND THE CENTRAL BANK IN THE BRAZILIAN ECONOMY

In this final section, the objective is to evaluate the Brazilian institutional design as regards the following: (i) the treatment given to Central Bank of Brazil positive and negative results, (ii) custody of the Ministry of Finance Single Account, (iii) the policy of earnings applied to that account and (iv) the nature of the public securities used for purposes of monetary policy execution. This will be done through a comparison with international literature (as already cited in the previous sections of this paper).

2.1 Central Bank of Brazil Result

With respect to the CB result, there are three provisions in legislation that deal with this question. In the first place, article 8 of Decree Law no. 2376/1987 affirms that "the results obtained by the Central Bank of Brazil (…) will be (…) transferred to the National Treasury after offsetting possible losses from previous years". On that occasion, a mechanism for transferring the positive result to the MoF was created, while negative results were to be offset by subsequent positive results generated within the Central Bank itself.

However, according to Nunes (2000), as of the second semester of 1994, the CB "began posting consecutive negative results due fundamentally to changes in the relationship introduced toward the end of the 1980s, alterations in exchange policy after 1994 and in operations classified as quasi-fiscal or, in other words, those that are not specifically earmarked to monetary policy execution". In order to resolve this situation, the negative results were reclassified as "Results to Be Offset", an asset account, "with this, negative results would be included in accounting until they could be offset with positive results in future fiscal years" (Nunes,op.cit.).

The second point was Provisional Measure no. 1789/1998, which determined that negative CB results would require more careful treatment, making it possible for the MoF to cover such results, without generating constraints for the monetary authority. At the same time, it introduced a symmetric mechanism into treatment of CB results. A reading of article 3 of that Measure facilitates understanding of this point:

"After calculating possible constitutions or reversions of reserves, the result in the annual Central Bank of Brazil balance sheet will be considered:

I - if positive, a Central Bank of Brazil liability with the federal government, to be paid by the 10th business day following approval of the balance sheet by the National Monetary Council;

II - if negative, a federal government liability to the Central Bank of Brazil, to be paid by the 10th business day of the fiscal year subsequent to that of approval of the balance sheet by the National Monetary Council."

Parallel to this, paragraph 1 of that same article determines that, following transfer, positive CB results would be targeted to amortization of the MoF public debt, with priority to the debt held by the CB[26].

The third event was article 7 of Complementary Law no. 101[27], dated May 4, 2000 (Fiscal Responsibility Law), which consolidated the question, ensuring what had already been foreseen in Provisional Measure no. 1789/1998[28]. In other words, the Fiscal Responsibility Law incorporates the guarantee that the positive result generated by the Brazilian monetary authority constitutes MoF revenues and will be targeted exclusively to payment of the Federal Public Securities Debt, with priority to amortization of the debt with the CB. At the same time, item 1 of the aforementioned article 7 guarantees that "the negative result will constitute a Treasury liability with the Central Bank of Brazil". Thus, there is a clear rule for dealing both with positive and negative CB results, in such a way as to maintain stability in terms of worth.

2.2 Exchange Variation Treatment for the MF-Central Bank of Brazil Entity

With regard to this topic, one must clarify how Brazilian legislation understands the treatment to be given to CB results generated by exchange rate fluctuations. Law no. 11,803, dated November 5, 2008, determines that the carrying costs of international reserves and the result of exchange swap operations on the domestic market carried out by the CB will be transferred to the federal government. As highlighted by Higa and Afonso (2009), "though this was already done in the past, this law gave greater transparency to the results of management of reserves and those consequent upon exchange rate variation, since there was a certain discomfort on the part of the monetary authority caused by the negative results generated by the carryover of international reserves (exchange appreciation led to constant accounting losses, weakening the institution's image)".

Thus, since 2008, the results produced by international reserve management and exchange swap operations have been appropriated into a specific account designated Exchange Equalization. With

[26] See paragraph 1 of article 4 of the aforementioned law.

[27] It is important to recall that what is described as a complementary law is only approved and altered by the National Congress when there is a specific quorum, in contrast to ordinary legislation. In other words, while ordinary legislation can be approved by a simple majority (or, said another way, a majority of the members of Congress present at the session), a complementary law requires an absolute majority (half of all members of the legislative body, plus one). Consequently, the requirement for this majority in the case of a complementary law is viewed as protection against governing authorities who do not take the question of equilibrium between the fiscal and monetary authorities with sufficient seriousness.

[28] Current Provisional Measure 2179-36/2001.

adoption of the new rule, the CB result was separated into two distinct groups: (i) results of exchange fluctuations and (ii) results of other CB operations, with the obligation of transferring the entire result tied to exchange to the MF, whether positive or negative, just as already occurred with the overall CB result.

2.3 Deposit of Available Federal Government Cash in Brazil

With respect to available federal government cash resources, these are managed by the MoF and held in custody by the CB in the Single Account. According to Higa and Afonso (2009), "implementation of the Treasury Account was part of a series of institutional modifications introduced by the federal government as of 1986 leading, among other things, to creation of the National Treasury Secretariatand separation of the responsibilities of the two institutions". The article 164, §3 of the 1988 Federal Constitution itself consolidated this understanding, by determining that available federal government cash resources are to be deposited in the CB.

2.4 Earnings on the MoF Account in Brazil

One should recall that resources maintained in the Single Account generate earnings referenced to the yield of federal public securities in the CB portfolio. Article 1 of Provisional Measure no. 1789/1998[29], already cited above, determines that "as of January 18, 1999, federal government cash-on-hand deposited at the Central Bank of Brazil will generate earnings according to the weighted arithmetic average rate of the intrinsic yield of domestic Federal Public Debt Securities issued by the National Treasury and held by the Central Bank of Brazil".

2.5 Use of MoF Bonds for Monetary Policy Purposes

Article 34 of the Fiscal Responsibility Law cited above forbid the Central Bank of Brazil from issuing public debt securities as of May 2002 (exactly two years after publication of the law). On the other hand, Fiscal Responsibility Law allowed the CB to acquire MoF securities on the issuance date at market prices, with the exclusive purpose of refinancing the federal securities debt maturing in its portfolio.

One should keep in mind that this treatment only consolidated the constitutional understanding that the CB could not finance the MF, a practice already adopted since the Constitution. Thus, § 1 of article 164 of

[29] Current Provisional Measure 2179-36/2001.

the Federal Constitution determines that "The Central Bank is prohibited from directly or indirectly granting loans to the National Treasury and to any organ or entity that is not a financial institution".

Consequently, as discussed in section 1.5, the Brazilian case falls into the second alternative mentioned in that section or, in other words, there is a mechanism of direct exchange of securities that have matured in the CB portfolio, consisting of a rollover operation with no intermediaries between the MoF and the CB. Therefore, no unnecessary additional pressures are brought to bear on the purchase and sale rates of public securities nor do these operations interfere with money market liquidity. The exchange consists solely of a noncompetitive issuance to the CB, referenced to the average rates practiced in public offers of the security in question. One particularity of the Brazilian case is that it only permits rollover of the principal value adjusted by a price index, excluding the share of "real interest" of that debt from this system[30].

Going back to 2002, from that point forward the Brazilian CB utilized MoF securities exclusively for monetary policy purposes. However, Fiscal Responsibility Law did not set out the details on the mechanism to be used for incorporating these securities into the monetary authority portfolio, if necessary. It is possible that this need was not envisioned at the time, in light of the voluminous MoF security portfolio at the CB.

Starting in 2006, however, the CB initiated a policy of accumulating international reserves in substantial amounts, as a way of avoiding excessive appreciation of domestic currency against the dollar. In order to sterilize the excess liquidity generated by this policy, the CB carried out repo operations using MoF securities from its portfolio as guarantee. As these repo operations began rising to significant levels, the risk of not having sufficient securities in the monetary authority portfolio to back these operations was noted.

In this framework, in 2008, Law 11,803/2008 authorized the federal government to issue securities directly to the CB in order to ensure maintenance of its public debt securities portfolio in volumes required for monetary policy execution. The subject was even regulated by the Ministry of Finance in 2009, determining that the MoF would issue securities to the CB whenever the free securities[31] in its portfolio dropped below R$ 20 billion[32].

With this rule, it is possible to conclude that the Brazilian institutional design guarantees Central Bank operational autonomy without the need for that institution to issue its own securities for monetary policy purposes. In other words, the Brazilian case is marked by the positive aspects of the exclusive utilization of MoF securities, as discussed in section 1.5: there is no conflict with public debt management;

[30] In other words, in practical terms the MoF is obligated to seek the resources needed for rolling the amount of the matured debt expressed as "real interest" on the market.
[31] Portfolio of Treasury bonds in the CB less the stock of repo operations on the market.
[32] The issuance must occur in up to 10 days after this limit is reached and must be in an amount that is at least sufficient to restore the minimum volume, though the value of each issuance cannot be less than R$ 10 billion.

segmentation of the market and competition for investors between the CB and the MoF are avoided; and it is guaranteed that the CB balance sheet will be immune to deterioration rooted in interest payments on the bond portfolio.

CONCLUSION

This text has demonstrated the importance of the institutional aspects at the core of the relationship between the fiscal authority and the monetary authority, in terms of both strengthening a government's fiscal position and contributing to greater CB operational autonomy.

A central bank should not concern itself with its balance sheet result, but rather operate with the exclusive objectives of ensuring the purchasing power of the national currency and preservation of a solid and efficient financial system. In this sense, the institutionality of the treatment to be given to positive or negative results can guarantee that the CB will be totally free to perform its classic functions.

This paper also demonstrated that, in the framework of a positive CB result, one must analyze the nature of the result. Putting this in different words, the gains generated by the differential between asset and liability interest differ from those that are the fruit of exchange fluctuations. In the first case, the result is closely linked to a previous MoF decision to issue debt, making transfer of this result to the MoF for purposes of reducing the public debt fully coherent. In the second case, it is important that one also defend transfer of the result to the MF[33], since the CB will be able to count on coverage of possible negative results in the future caused by devaluation of exchange reserves. With this institutional design, the monetary authority will not generate structurally negative net worth to the point of imposing constraints on the pursuit of its principal objectives.

Another important point analyzed in the framework of the MF-CB relationship was deposit of available federal government cash resources. This paper demonstrated that a consensus exists regarding the need for centralizing these resources in a single operating account or in a small number of accounts, mainly in light of the benefits generated by minimization of waste in the use of public resources. On the other hand, there is no consensus regarding who should have custody of this operating account, the CB or commercial banks.

Another question related to the existence of a Ministry of Finance account at the CB is that of earnings. Many theoreticians, such as Williams (2009), affirm that, among OECD countries, the best practice is for the operating account to generate earnings at market interest rates. This gives rise to enhanced accounting transparency, while avoiding the implicit cross subsidies associated to administration fees and application of deposits in commercial banks with low credit ratings, reducing the risk that the extra part of the "profits" generated by the CB be jeopardized by higher administrative fees.

From the theoretical point of view, the final question discussed dealt with deciding what is the best indirect monetary policy instrument: MoF or CB securities? Though empirical data does not indicate favoritism to one position in detriment to the other, it would certainly not be mistaken to affirm that the

[33] Also for purposes of debt reduction.

more developed an economy, the greater will be the tendency for the CB to utilize MoF securities for monetary policy purposes. Parallel to this, Nyawata (2012) presents a theoretical argument in favor of this option since, according to the author, the exclusive use of MoF securities for monetary policy objectives results in an integrated public sector perspective, fosters money market evolution and development and generates positive externalities for the entire economy.

Finally, one notes that the Brazilian institutional design between the MoF and CB closely follows the principles defended in the theoretical discussion. The reason for this is that, among other factors: (1) treatment of the CB result is marked by a symmetric, functional and transparent rule (independently of whether the result is positive or negative); (2) a single account system that centralizes available federal government cash resources exists, with custody at the CB and clear rules on earnings generated; and (3) MoF securities are used exclusively by the CB for purposes of monetary policy implementation.

BIBLIOGRAPHY

- BAJO, A. *A National Treasury in Croatia – a Reality or a Possibility?* Institute of Public Finance of Croatia, 2001.
- BUITER, W. H. *How Robust is the New Conventional Wisdom in Monetary Policy?* mimeo, European Institute, London School of Economics and Political Science, 2006.
- CARVALHO JÚNIOR, A. C. C. D. *Coordenação entre Políticas Fiscal, Monetária e Cambial: a sistemática de repasse de resultados entre o BACEN e o Tesouro Nacional*. XVI Prêmio Tesouro Nacional de 2011.
- CYSNE, R. P. *Depósitos do Tesouro: no Banco Central ou nos bancos comerciais?* – Rio de Janeiro: Fundação Getúlio Vargas, Escola de Pós-Graduação em Economia, jul. 1990. 10p. (Ensaios Econômicos da EPGE, n.155)
- DALTON, J. e DZIOBEK, C. *Central Bank Losses and Experiences in Selected Countries,* IMF Working Paper/05/72, 2005
- DOMINGUEZ, K. M. E.; HASHIMOTO, Y. e ITO, T. *International Reserves and the Global Financial Crisis*, NBER Working Paper No. 17362, Agosto/2011
- GARBADE, K. D. ; PARTLAN, J. C. e SANTORO, P. J. *Recent innovations in Treasury Cash Management*. Current Issues in Economics and Finance, Federal Reserve Bank of New York, 2004.
- GARCIA, M. *Política monetária e cambial: algumas lições do período recente para o real*. Texto para discussão nº 330, Departamento de Economia, PUC-RJ, 1994.
- HAWKINS, J. *Central bank balance sheets and fiscal operations*. BIS Papers nº 20, 2001.
- HIGA, A.; AFONSO, J. *Algumas inter-relações da política fiscal com a monetária, cambial e creditícia no Brasil*. Brasília: Centro de Estudos da Consultoria do Senado, 2009 (Texto para Discussão, n. 66).
- LIENERT, I. *Modernizing Cash Managenement*. FMI, 2009.
- McCAULEY, R. N. *Consolidating the public debt markets of Asia*. BIS Papers nº 30, 2006
- MEYER, A. (1997) *Lucro do banco central, remuneração da conta do tesouro e financiamento do déficit do tesouro nacional*. In: Meyer, Arno (org.), Finanças Públicas: Ensaios Selecionados. Brasília, IPEA/FUNDAP, p. 151-207
- NUNES, Selene P. P. *Relacionamento entre Tesouro Nacional e Banco Central: aspectos da coordenação entre as políticas fiscal e monetária no Brasil*, in Finanças Públicas- IV Prêmio SMF de Monografia. Brasília: Ministério da Fazenda, 2000.
- PEREIRA, F. M., PEDRAS, G. B. V. e GRAGNANI, J. A. *Mercado secundário da dívida pública* In: SILVA, A. C; CARVALHO, L. O. de; MEDEIROS, O. L. de; (Org.). Dívida pública: a experiencia brasileira. Brasília: Secretaria do Tesouro Nacional: Banco Mundial, p. 415-442, 2009
- PATTANAYAK, S. e FAINBOIM, I. *Treasury Single Account: Concept, Design, and Implementation Issues*. IMF Working Paper WP/10/143, 2010.
- Reserve Bank of India "*Report of the Internal Group on Liquidity Adjustment Facility*", Reserve Bank of India Bulletin, Jan/2004

- ROBINSON, D. J. e STELLA, P. *Amalgamating Central Bank and Fiscal Deficits* em *How to Measure the Fiscal Deficit, ed. by M. I. Blejer and A. Cheasty* (Washington: International Monetary Fund), 1993.
- STELLA, P. *Do Central Banks Need Capital?*, IMF Working Paper, no 83, International, 1997.
- STELLA, P. e LONNBERG, A. *Issues in Central Bank Finance and Independence* IMF Working Paper 08/37, 2008.
- SULLIVAN, K. *Profits, dividends and capital - considerations for central banks* in Neil Courtis and Benedict Mander (eds) Accountancy Standards for Central Banks, London: Central Banking Publications, 2003.
- WILLIAMS, M. *Government Cash Management: International Practice*, Oxford Policy Management Working Paper 2009 - 01.
- WILLIAMS, M. *Government Cash Management: Its Interaction with Other Financial Policies*, International Monetary Fund, Fiscal Affairs Department, jul/2010.