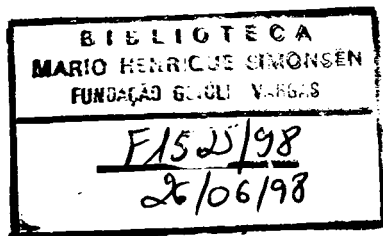


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CURRENCY ACCOUNTING IN THE CENTRAL BANK
BALANCE SHEET

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INTRODUCTION

This paper examines the economic justifications of the accounting practices used for currency in the central bank balance sheet: currency issued is written as a financial liability of the bank. The problem arises from the fact that, normally, modern paper money has no guarantee of convertibility into precious metals, or into foreign money, or into any other good or real resource.

The problem also comes from the fact that the seignorage stemming from the issuance of paper money is a source of real resources for the central bank. There are then, two interrelated aspects to be considered: the convertibility or not of paper money (which may be a liability for the central bank, or not) and the seignorage from its issuance (which, consequently, may be considered as a source of capital for the bank, or not).

These two aspects will be carefully considered both for central banks and for commercial banks. It will be pointed out that the accounting practices of these banks should differ. In particular, in the conclusion of the paper, it will be suggested a new classification for currency in the central bank balance sheet: it should be considered as part of the equity of the bank. Monteiro (4) defended this practice in his recent work.

THE CONVERTIBILITY OF MODERN PAPER MONEY

Modern paper money is, in general, a legal tender money, i.e., any inhabitant is legally obliged to receive this money as payment for debts acquired from others; in particular, the government fiscal authority accepts tax payments done with this money. Its acceptance comes from a social convention, with a formal dimension (laws) and an informal one (any person accepts paper money payments because he knows that everybody, in the many markets of the economy, also accepts it). So, the currency of a country is accepted by each one because it is accepted by all, and vice-versa.

The value of the currency of a country does not depend on the value of the substance of which it is made, nor on the existence of any unlimited convertibility, at a guaranteed fixed price, into any precious metal or foreign money (such a guarantee would be extended by the issuer of the paper money - normally the central bank - which would then have a stock of precious metals or of foreign money, to honor it).

The Brazilian Central Bank, and many others central banks of the world, issue unconvertible currency, i.e., pieces of papers that are only exchangeable into themselves, since, usually, there is no more than one central bank per country, and, consequently, no more than one currency per country . It is a (legal tender) monopoly situation in which a holder of the national currency does not expect to exchange it with the central bank for any good or alternative currency; and this holder of the national currency does not consider himself as a creditor of the central bank, because he is not expecting any payment from it. Besides, if he ever thought he is a creditor, since, by law, any debt may be paid with legal tender (currency), the most a holder of legal tender could expect and obtain is to exchange currency for currency. Clearly, there is no justification for considering currency as a financial liability of the central bank.

Such a condition, of non-convertibility (implying non-liability), is quite recent. The Bretton Woods accord, on the international monetary system, involved the convertibility of the many national moneys into dollars, and the convertibility of dollars into gold. But in 1971 the Bretton Woods accord (or what was left of it) was formally extinguished, with the suspension of the gold convertibility of the dollar. So, from this international aspect, there is also no reason to consider the currency of any country as a financial liability of its central bank.

It should be mentioned that it is quite common for many governments (including the Brazilian government) to adopt fixed exchange rate policies, or constant interest rate policies. This attitude could be interpreted as the establishment of a sort of convertibility into

foreign money, or into bonds, of the national currency. Consequently, some would say that, in this case, the currency should be considered as a liability in the central bank balance sheet. But a closer examination of the problem leads to a different conclusion.

Normally, fixed exchange rates or constant interest rate policies are not adopted to increase the acceptance, by the public, of the domestic currency. These policies are generally part of stabilization efforts, although they may cause vulnerability to speculative attacks and instabilities. But even when these happen, the problem is in general due to wrong relative prices, or something else, and not because of a lack of acceptance, by the public, of the currency issued by the central bank¹. When the fixed exchange rate policy is changed or suspended, normally the population continues to use the now “unconvertible” national currency, without qualms. This currency is issued monopolistically as the legal tender; there is not much choice to the public².

In this aspect, the central bank differs essentially from the commercial banks. The money issued by these banks (their demand and time deposits) must be convertible into currency at the appropriate time. If a bank fails to pay a time deposit when it becomes due, the withdrawals from the public would be massive. If a commercial bank fails to guarantee this convertibility, and all its competition guarantees it, it would certainly go bankrupt. In fact, an important difference between a commercial bank and a central bank is the existence

¹ The recent Argentinean stabilization plan was based on the maintenance of parity between pesos and dollars. The regimen is one of currency board, and seems to be an exception to what was said in this paragraph. The currency board regimen creates a liability for the central bank since the domestic currency is almost like a local substitute for the dollar. Pesos are convertible into dollars on demand, and the central bank has to maintain international reserves to preserve the regimen. In the recent past, Argentina went through a process of hyperinflation with extensive dollarization of the economy. And to increase the confidence in its monetary reform and new currency, the Argentinean government established the convertibility of pesos into dollars. So, this case seems to be more than just a fixed exchange rate situation.

² The basic function of a modern central bank is to defend the value of its currency through price stability, i.e., to guarantee that the citizens of the country may convert their money into any good or service produced by the economy at stable prices. This kind of convertibility need not be achieved through guaranteed currency transactions with the central bank. Consequently, it does not create an accounting liability for the central bank, corresponding to the currency it issued in the past. To stabilize the economy is a duty of the central bank, and, in this sense, a liability; but it is not a financial liability, to be written as such in the balance sheet.

of a monopolistic condition for the later: central bank money is the legal tender, and only convertible into itself.

SEIGNORAGE AND THE ISSUANCE OF CURRENCY

The excess of the face value over the cost of production of money is called seignorage (see Black (2)). The issuance of currency by a central bank is, then, a source of real resources for this bank. It is part of the seignorage captured by the financial system and by the government (central bank) because they issue papers that can serve as money for the population. In this context, the seignorage may be considered as a form of payment from the public to the financial system, and to the central bank, for the monetary services they are producing.

If these services were rendered in a competitive environment, i.e., by several commercial banks and central banks competing among themselves, probably the seignorage extracted would tend to be zero. Although the cost of issuing currency and demand deposits (and other monetary papers) is much lower than their face value, the competitive environment probably would lead to interest or service payments to the holders of money; and only normal profits would accrue to the issuers of money. But, in the case of less than perfect competition, or even monopoly, the conclusion would be quite different. Let us consider initially the commercial banks, and then the central banks.

When a commercial bank, acting in a less than perfectly competitive environment, issues a certificate of deposit, and the public considers this paper as quasi-money, the interest paid on this certificate may be lower than what is paid on other similar (in terms of risk and maturity) financial papers with less liquidity, and, consequently, providing a smaller amount of monetary services. The commercial bank would obtain extra profits because it pays a smaller interest rate on the certificate it issued. These extra profits are the seignorage

captured for the monetary services rendered, and may be kept as long as the competition does not provide similar monetary services.

It is interesting to observe that the seignorage obtained does not change at all the fact that the certificate of deposit is a financial liability of the commercial bank. When the maturity date arrives it must be paid (in legal tender money). The economics of the situation suggests that the correct accounting practice for the certificate of deposit, must be of considering it a financial liability of the bank. But, since the seignorage it obtains from it tends to appear as a larger flow of future profits, eventually the market value of the bank would exceed its book value. And possibly, to make economic reality and accounting practice coincident, its ability to issue certificate of deposits rendering monetary services would have to be considered, in its balance sheet, as part of its net worth. It may be written as an intangible item, such as a bank license.

So, the certificate of deposit with monetary services is clearly a financial liability of the bank, but the value of the flow of future profits, stemming from the seignorage captured, is an item of the net worth of the bank.

In a fully competitive environment, with many commercial banks issuing financial papers providing monetary services, much probably the seignorage obtained by them would tend to zero. The potential gains would be competed away, and the customers of the bank would receive monetary services at their extremely low marginal cost of production.

Almeida (1), in his study about the Brazilian financial system, concluded that, even in periods of high inflation, the average rate of return on capital invested in the financial sector did not exceed what was obtained in other areas of the Brazilian economy. He explained this fact by observing that the financial sector in Brazil seems to be quite competitive, and would give away to its customers (as free services, for instance) any seignorage captured. The conclusion is that, in principle, in a competitive environment, the seignorage obtained by commercial banks should not be included in its balance sheet as an intangible asset, part of

its net worth. Notwithstanding, all the deposits of commercial banks, competitive or not, are financial liabilities of these banks.

In the case of a central bank, with monopolistic power to issue currency, and with power to extract reserve requirements from the commercial banks (paying on these reserves a rate of interest lower than the market rate), the situation is quite different. It is clearly capturing seignorage, and its eventual inclusion in the net worth of the bank is quite natural. Competition will not reduce it. The monopolistic power given by the government to the central bank produces a permanent stream of extra future profits. This monopolistic power is then a sort of equity item due to the owner of the central bank (the government itself).

The calculation of the seignorage captured by the central bank should be done through the present value of the flow of future extra profits, coming from its issuing power and its reserve requirement power. Three observations about central banks are important at this point.

Firstly, the fact that seignorage is obtained from the reserve requirement power does not make the compulsory reserve deposits of commercial banks on the central bank, a non-liability of the latter. Compulsory deposits, satisfying reserve requirements, continue to be financial liabilities of the central bank (commercial banks expect to receive them back eventually), although they generate a flow of seignorage gains which could be capitalized as a sort of intangible balance sheet item of the bank.

Secondly, the paper money issued by the central bank is not, in fact, a financial liability of this bank. The holders of currency do not expect any payment from the central bank (this is quite different from the case of compulsory deposits; commercial banks expect payment of their reserve deposits). Consequently, the paper money issued should not be written in the books as a financial liability of the central bank. And the seignorage obtained from it could be capitalized as a sort of equity of the bank.

Finally, the calculation of the potential seignorage obtained by the central bank is not an easy matter. It involves projections of the future behavior of the demand for money, which may vary due to income growth and due to interest rate (or inflation) changes. Yet, there is the possibility of estimating the seignorage obtained from the issuance of currency (only) by considering the total nominal value of the currency issued up to the present. This nominal value is an underestimate of the potential seignorage, because it excludes the gains from reserve requirements, because it is backward looking (i.e., it is an estimate of future gains based on past gains), and because the price level of the period when the currency was spent is not known now - at least not easily. If the country suffered past continuous inflation (as is the case of Brazil), the last factor mentioned would tend to increase the underestimate of the potential seignorage.

Still, the nominal value of the currency issued up to date (a stock quantity) may be considered as an estimate of the currency seignorage, i.e., of the present value of the future annual flow of seignorage from issuing paper money. Observe that it should be considered an estimate of future gains, not an accumulated value from past gains, which could have been somehow extracted previously from the central bank (as some suggest they have been: see Pastore (5)), and therefore should not be written in its balance sheet³.

³ It seems that the estimate would be quite good if, for instance: (i) the income elasticity of money demand were equal to one; (ii) the constant growth rate of the economy were equal to half the interest rate used to calculate present values; and (iii) nominal interest rates were steady and equal to real interest rates. See the Appendix.

CURRENCY: LIABILITY AND SEIGNORAGE, CONCLUDING REMARKS

The previous sections suggested three conclusions:

1. In the case of the private financial system (including state banks), their demand deposits, time deposits and other quasi-moneys, must be considered financial liabilities in their balance sheets. These items are convertible into currency (legal tender) on their maturity date. Furthermore, if the commercial banks are acting in a competitive environment, there is no reason to suppose that they have a special intangible asset, namely, the capacity to provide monetary services at low cost relative to revenue (seignorage). Any gains from this possibility would be competed away.
2. In the case of the central bank, the value of the currency issued is not a financial liability of the bank. No holder of currency thinks of himself as a creditor of the central bank. The uniqueness of the legal tender generates this situation. So currency should not be written as a financial liability of the central bank. Besides, the seignorage obtained from the issuance of currency represents an asset given to the central bank by the government (owner of the bank). Consequently, it may be written in the books as a equity item. And, the nominal value of the currency issued up to the present date may be considered as an (under) estimate of the potential seignorage to be obtained by the bank (estimate of the stock value of the future seignorage flow).
So, it seems to be a movement in the correct direction, of economic realism, to write, in the balance sheet of the central bank, the currency issued as an equity item, and not as a financial liability.
3. The compulsory reserve deposits of the commercial banks on the central bank are clearly financial liabilities of this bank, and must continue to be written as such in its books. In this aspect they differ from the currency issued. But, like currency, they generate seignorage. A future estimate of the seignorage obtained from the reserve requirement

power could eventually be written as an equity item in the balance sheet of the central bank.

This seems to be the correct conceptual relationships among the several aspects involved in this problem, namely, the uniqueness of non-convertible legal tender money, the monopoly power given by the government to the central bank to issue currency and establish reserve requirements, and the seignorage obtained by the monopolistic central bank and the competitive commercial banks.

These economic concepts have not been considered adequately in the accounting practices of central banks, which tend to follow the rules adopted for commercial banks (from which most central banks originated). Yet, the British and the American Central Banks have been using accounting practices which distinguish the seignorage gains. The Bank of England, for instance, has kept, for more than a century, separated balance sheets for the movements with banking origin ("Banking Department") and the movements stemming from the issuance of currency ("Issue Department"). Monteiro (3) describes this practice. Most of the other central banks seem to follow accounting rules quite similar to those applied to commercial banks.

CENTRAL BANK CAPITALIZATION

Besides its basic function of stabilizing the economy, in terms of prices, interest rates and exchange rates, quite a few central banks are obliged to give a measure of security to the financial system, avoiding major losses to the depositors in bankruptcies cases. The objective is to contain the so-called systemic risks, arising from the propagation shocks caused by the failures of major financial institutions. Besides, many central banks have other quasi-fiscal tasks. Consequently, they need real resources to achieve their many functions. So, the capitalization of central banks is a matter of extreme importance for their adequate

functioning. See about these problems the papers by Stella (7), Fry (3) and Robinson & Stella (6).

Realistic accounting practices for central banks seem to be, then, of maximum importance, in order to reflect the real resources available to the bank. The explicit consideration of the seignorage gains and of the non-liability character of the currency issued is a modification in the direction of economic realism.

In the recent Brazilian experience, there was a very substantial reduction of the rate of inflation in 1994, and, consequently, a huge increase in the demand for money. The possibility of a large non-inflationary issuance of currency brought a substantial once-and-for-all increase of seignorage resources available to the Brazilian Central Bank. Most of it was used in quasi-fiscal operations, to clean up potentially damaging bankruptcies cases of quite a few financial institutions. Yet, in the future, the expansion of the demand for currency should follow the path of the real income growth of the Brazilian economy. No once-and-for-all gain should happen again. This fact must be clearly shown to the Brazilian society. In order to continue to practice the quasi-fiscal tasks demanded by society, the Brazilian Central Bank will need capital from the government Treasury. In this context, the correct accounting of the seignorage gains is very important to show clearly the cost of the quasi-fiscal operations.

APPENDIX

Some conditions for the nominal stock of currency issued to be equal to the present value of the seignorage flow from currency:

1. If the constant (instantaneous) growth rate of the economy were equal to g , and c_0 were today's currency, and if the income elasticity of the demand for currency were equal to one, then currency at time t would be $c(t)=c_0 \exp(gt)$
2. The present value of seignorage would be $\int_{t=0}^{\infty} \exp(-\rho t) dc$, where $dc=c_0 g \exp(gt) dt$ and ρ is the instantaneous discount rate.
3. The value of the integral above is $c_0 g / (\rho - g)$, which is equal to c_0 (the nominal value of currency now) if $\rho = 2g$. So, if the rate of growth of real income were equal to 3% per year and the discount rate were 6% per year, for example, then the currency issued up to now would be a good estimate of the future seignorage present value.

REFERENCES

1. Almeida, Ilton S., "Avaliacao e Desempenho do Sistema Bancario Brasileiro: 1988 - 1996", Rio de Janeiro: EPGE/FGV, 1997
2. Black, S., "Seignorage" in the New Palgrave: Money, edited by Eatwell, John and Murray Milgate, Macmillan Press, April 1989
3. Fry, Maxwell J., "The Fiscal Abuse of Central Banks", IMF Working Paper, 1993
4. Monteiro, A. C., "Notas sobre Senhoriagem do Banco Central", Fevereiro 1998
5. Pastore, A.C., " Senhoriagem e Inflacao: o Caso Brasileiro", manuscrito, Agosto 1996
6. Robinson, David J. & Stella, Peter, " Amalgamating Central Bank and Fiscal Deficits"
7. Stella, Peter, " Do Central Banks Need Capital?", IMF Working Paper, 1997

ENSAIOS ECONÔMICOS DA EPGE

300. CRESCIMENTO ENDÓGENO, DISTRIBUIÇÃO DE RENDA E POLÍTICA FISCAL: UMA ANÁLISE CROSS-SECTION PARA OS ESTADOS BRASILEIROS - Victor Duarte Lledó e Pedro Cavalcanti G. Ferreira - Fevereiro 1997 - 41 pág. (esgotado)
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