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The Role of Intermediation and Seigniorage in the Changes of Monetary Policy in Tunisia

El Mehdi Ali Griguiche*

The purpose of this paper is to study major changes in Tunisian monetary policy implementation conditions, and their effects. It focuses on the role of the central bank as a strategic participant in the finance of the economy, and the recycle of saving into investment. It aims to analyze new conditions of the efficiency of the settlement system through central bank balance sheet and its impact, not only through autonomous and discretionary factors, but also through liquidity factors of operators other than banks.

Keywords: Monetary policy, Transparency, Original sin, Currency mismatch, Fiscal dominance, Debt intolerance.

JEL classification : E52, E58, E63

1. Introduction

Since the revolution in Tunisia, the central bank is trying to innovate in its monetary policy, in its decision-making structures, and its mandate. What is role of the central bank in the economic flows? What are the major developments in the implementation of the monetary policy? How the central bank does satisfies the liquidity needed for the economy, and the requirement of the settlement of transactions? How the central bank of Tunisia (CBT) gets to clarify targets?

To answer these questions, and clarify the role of central bank intermediation, we will adopt the following plan. The first section will deal with the analysis of the central bank balance sheet. This will enable us to identify innovative moments in its openness and its transparency. The second section deals with the role of the central bank intermediation. The third section will talk about the evolution of the central bank's role in the economy, and the monetary policy implementation condition.

As a public institution, the central bank mission is to sustain good monetary policy and to support financial stability. In 1958 October 18, the central bank established the Dinar as a new monetary unit. The law 58-109 fixes the configuration of the payment and settlement system feature. The use of checks and banknotes safeguards the overall settlement of transactions through banks balance sheet. Central bank manages the reserves of gold and foreign exchange. In cooperation with the Ministry of Finance and other public authorities, Central bank has other functions: the control, the monitoring, and the stabilization of the financial system.

Thus, central bank has an appropriate legal framework that ensure currency emission monopoly and the safeguard of financial stability. In addition, it provide banking services and a treasury state management too. Since the social crisis in Tunisia, three main tendencies raised in the course of Tunisian Central Bank monetary policy.

- Better clarify the central bank intermediation,
- Better clarify the governance of the central bank and the monetary policy targets;

* El Mehdi Ali Griguiche, University of Carthage, IHEC Carthage, email : elmehdi.griguiche@ihec.rnu.tn

- Improve openness and transparency. Knowing that decisions of the CBT were in the past confined in the black box of confidentiality.

This paper concern these three issues. It shows that the central bank has a new responsibility since the global crisis of 2007. This crisis offer new opportunities to rise central bank transparency, and make better monetary policy.

First, it reviews the history of the monetary policy and the main changes of monetary policy implementation since the world crisis in 2007. Second, economic conditions and the improving intermediation role of the central bank of Tunisia are discussed. And third, summaries of current and possible new opportunity involving changes in monetary policy regulation in regards to the new challenges to clarify targets and foster central bank autonomy are provided. Finally, extensions that can serve as optimal directions for future research on new monetary policy in less developing countries are suggested.

The next section describes the model used to tell us the history and the evolution of the central bank intermediation. Then the section 3 argues on main changes in the monetary policy practice in Tunisia since the 2007 crisis. Section 4 discusses how good governance of the Seigniorage and currency mismatch can improve flexibility and strengthen the autonomy of the central bank.

2. History and Evolution of the CBT Intermediation

In order to identify the main changes in the implementation of monetary policy in Tunisia since the 2007 global crisis, we first consider a simple model in our analysis from the central bank's balance sheet.

On two economic period, central bank balance sheet is as follows:

$$\Delta\mathbf{FA} + \Delta\mathbf{Bg} + \Delta\mathbf{CB} = \Delta\mathbf{Db} + \Delta\mathbf{N} + \Delta\mathbf{FL} + \Delta\mathbf{Dg} + \Delta\mathbf{K}$$

FA represents foreign assets (gold and foreign currency) held by the central bank, Bg claims on the government ,CB loans to banks (discount), Db reserves of commercial banks, N is bills and coins , FL external liabilities of the central bank, Dg government deposits, and K capital and other minor elements.

The evolution of the monetary base $\Delta\mathbf{MB} = \Delta\mathbf{D} + \Delta\mathbf{N}$ can be described by changes in net foreign assets $\Delta\mathbf{NFA} = \Delta\mathbf{FA} - \Delta\mathbf{FL}$, changing on domestic net claims on the state $\Delta\mathbf{NDAg} = \Delta\mathbf{Bg} - \Delta\mathbf{Dg}$, and the changing of banking finance $\Delta\mathbf{CB}$.

Assuming central bank capital unchanged (capital and technical reserves), we get:

$$\Delta\mathbf{MB} = \Delta\mathbf{NFA} + \Delta\mathbf{NDAg} + \Delta\mathbf{CB}$$

Then, monetary base per unit of income Y is:

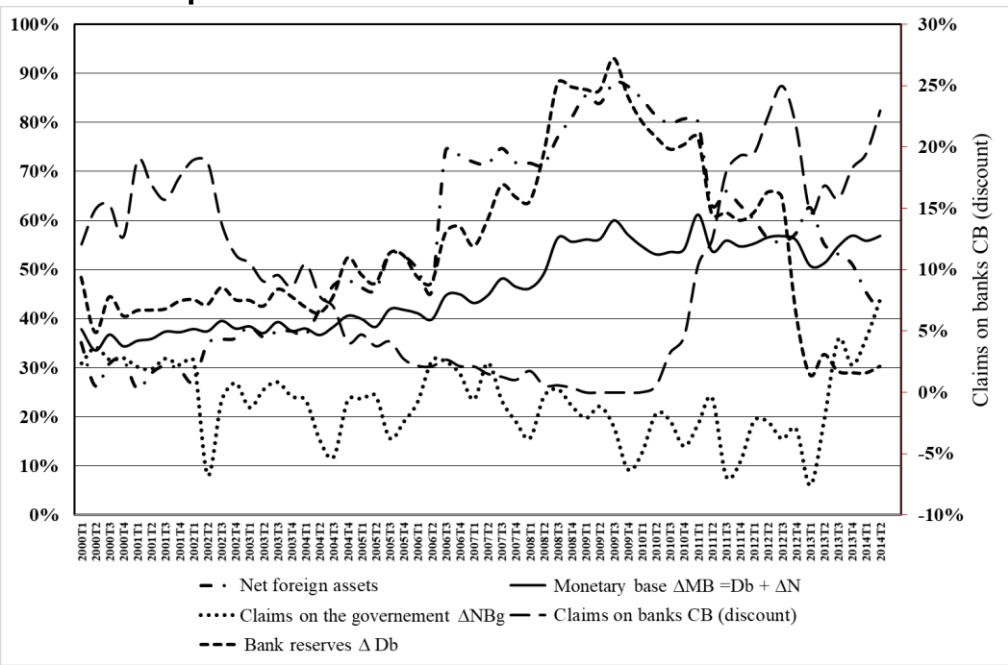
$$\frac{\Delta\mathbf{MB}}{\mathbf{Y}} = \frac{\Delta\mathbf{NFA}}{\mathbf{Y}} + \frac{\Delta\mathbf{NDAg}}{\mathbf{Y}} + \frac{\Delta\mathbf{CB}}{\mathbf{Y}}$$

By plotting the central bank sheet balance, it is possible to identify three distinct periods (see graph 1 further down).

2.1 Between 2000 and Early 2004

The monetary base growth is mainly due to the accumulation of domestic and foreign assets. In this period, central bank ends the discount policy and keeping bank funding.

Graph 1: Central bank balance sheet in % of GDP



Source: Statistics of the Central Bank of Tunisia

2.2 From 2004 to 2010

Central bank has over accumulated international liquidity in this period. Central bank has also implemented the financial integration of Tunisia to international finance. The main challenge to achieve this target requires eluding harm foreign capitals that destabilize real economic and financial assets. These risks were high in the context of the capital account liberalization. Funds amount, to recycle into productive investment, were too large relative to the size of local markets. Therefore, domestic financial system has not been able to absorb these funds with less fluctuation in domestic asset prices and the exchange rate.

The Central Bank of Tunisia strengthened its interventions in the foreign exchange market, in a situation of speculative attacks on the currency market, and excessive appreciation of the exchange rate. Consequently, central bank recycle the funds abroad in placement deposits and foreign bonds.

Even with these measures of monetary policy, the profusion of capital flows has led to periods of euphoria and an appreciation of the Dinar, interrupted by periods of decline in capital flows and a currency depreciation, which have made a huge damage for the economy.

In this period, economic openness of Tunisia on the rest of the world have involves major changes in the central bank financial intermediation.

External finance for Tunisian and foreign companies was important. In this setting, non-residents have invested their savings in Tunisian assets. They were able to diversify their international portfolios and benefit from high returns extended by the country. Meanwhile, the Central Bank of Tunisia has improved the accumulation of foreign assets that become the main source of money increase. This construct was designed to prevent an appreciation of the currency over the period 2000 and 2007, and avoid speculative attacks on the Tunisian Dinar.

3. Main Changes in the Monetary Policy Practice

3.1 The Year 2007 is an Important Date for the Central Bank

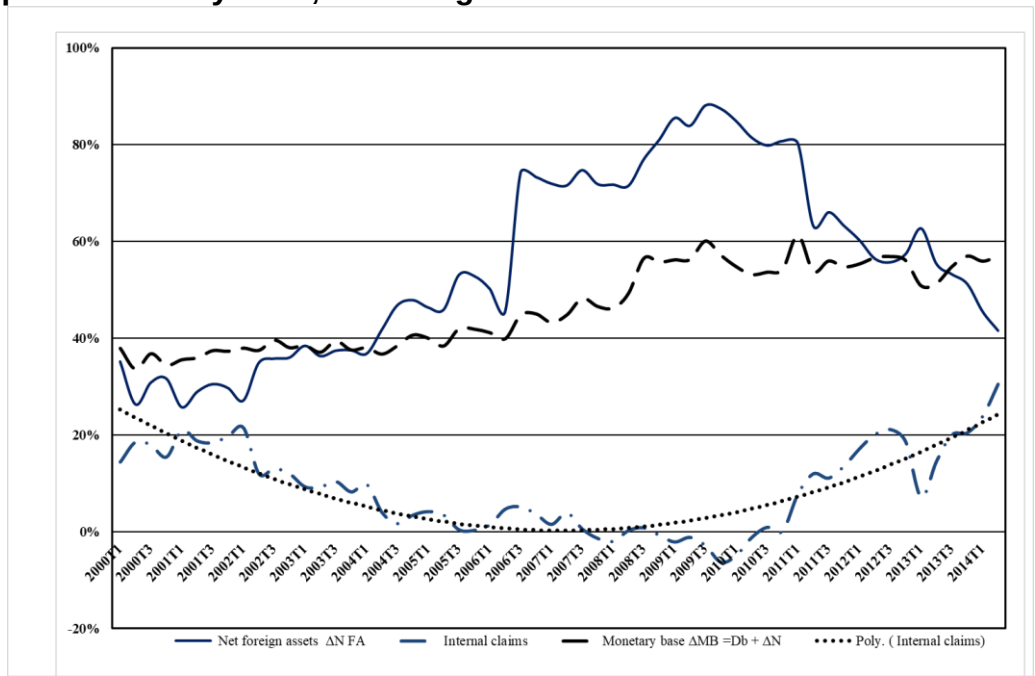
Two thousand and seven is an innovative year in the central bank intermediation, and the practice of monetary policy. This turning point matches with the burst of the housing bubble in the United States and the start of financial crisis worldwide. It was a chance to exit the monetary cycle from international trade, and to join the domestic businesses cycle.

3.2 The Year 2010

In this year, central bank comes off monetary emission cycle from the international trade cycle and connects to the domestic businesses cycle. This decoupling has prevented a breakdown in the liquidity of the economy. It also allowed avoiding deflation, and the collapse of the entire system of payment. It gives the occasion to reactivate the rediscount window and refund banks. Money creation moved from outside money, to inside money.

Central bank in Tunisia improves his role of intermediation from a former dominant fiscal policy. It improved the economic integration of Tunisia to global finance, enhanced monetary base control and the liquidity of economy. The exit from the monetary cycle from the International business cycle makes better the internal economic finance, than the rest of the world (see Graph 2).

Graph 2: Monetary base, net foreign assets and internal claims in % of GDP



Source: Statistics of the Central Bank of Tunisia

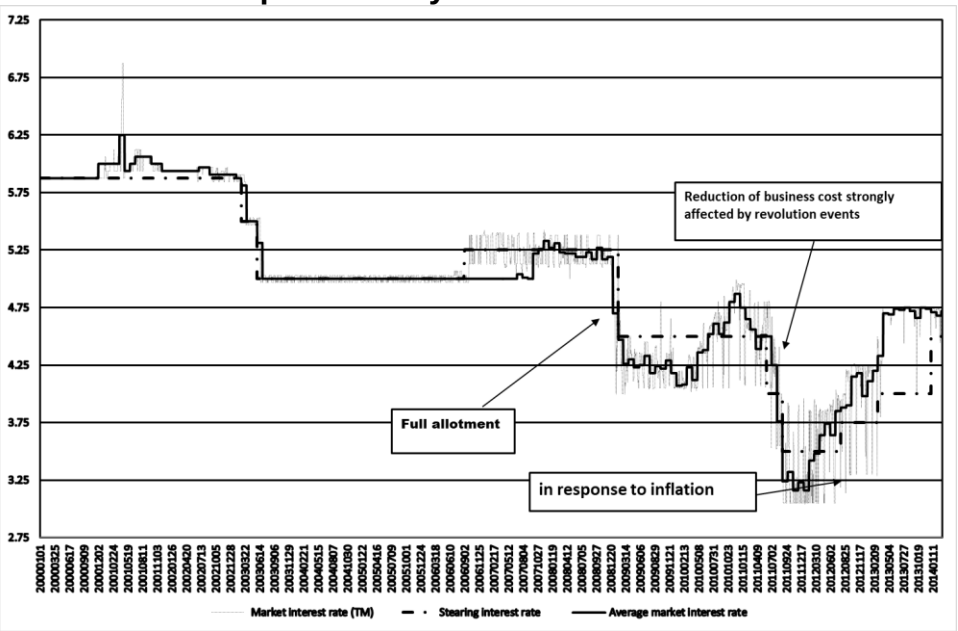
Specifically, this policy leads to a more autonomous monetary policy. Now the central bank has the opportunity to choose between a fast political on the monetary base control, and managing of the expectations on the foreign exchange market. Or, choose a slow policy spread out over time to control monetary base and nominal exchange rate.

From 2009, the central bank focus on the first type of monetary policy. A quick policy of "full allotment", very costly in terms of liquidity and recovery of credibility. As an institution of public character, central bank could not do better than help distressed banks, to safeguard payment and settlement services, and prevent systemic risks from the collapse of payment system.

This policy has positive aspects in several respects. In particular, in monitoring and control of the monetary base. However, it can severely damage the credibility of the central bank in future choices. Especially when central bank intermediation may exhibit an asymmetry of information and moral hazard on the part of banks behaviors.

In fact, this process makes easier asset transformation at the money market. It reduces the cash cost management. The net gain is an outset of a free monetary policy, and a new opportunity to practice an active monetary policy in accordance with modern way of the liquidity control.

Graph 3: Money Market interest rate

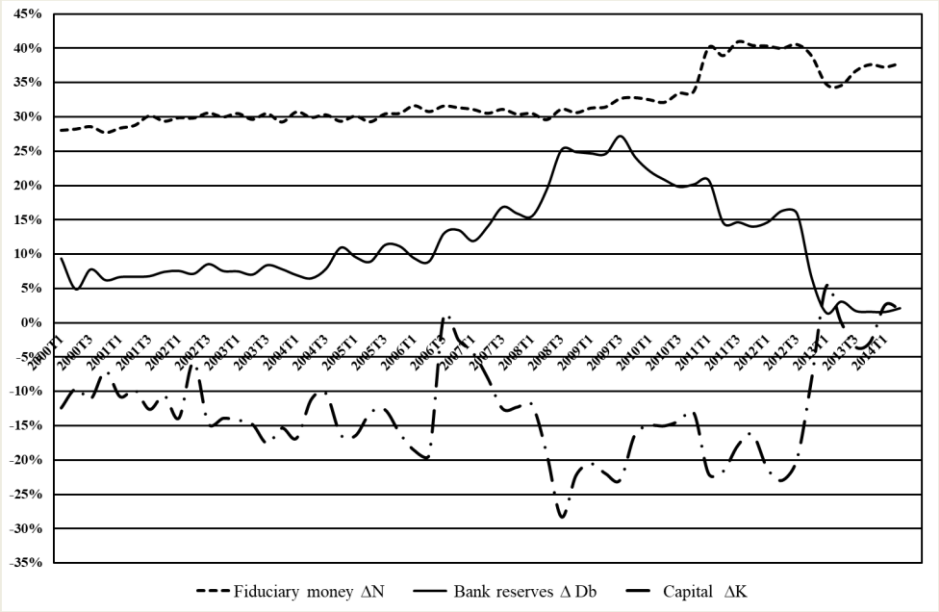


Source: Statistics of the Central Bank of Tunisia

After the revolt of 14 January 2011, a new governor invested the central bank of Tunisia. The new policy was a quantitative easing to alleviate financial burden on businesses affected by the revolution. This policy can avoid deflation of the economy without being able to contribute to the adjustment of the twin deficits. Furthermore, quantitative easing did not take into account neither the reaction functions of the operators in the markets, nor feedback effects. Consequently, this policy helped to consolidate further the balance sheets of banks, but not that of the central bank balance sheet.

In the second quarter of 2012, it took the central bank of Tunisia to reconsider this policy, to manage its monetary base. Now central bank is interested on asset and liability management policy, capital fine-tuning, similar to conventional bank policy.

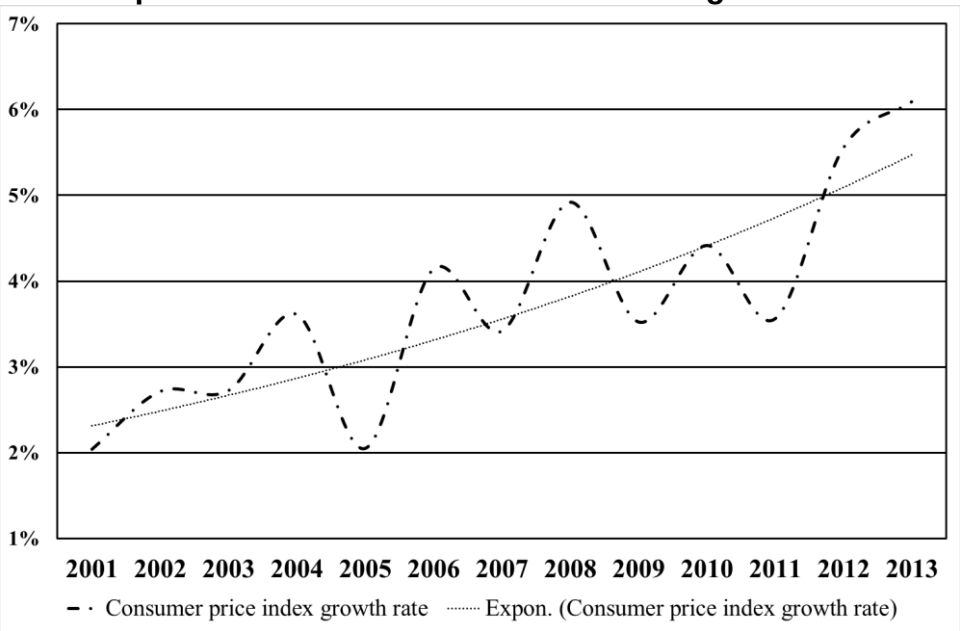
Graph 4: Monetary base in % of GDP



Source: Statistics of the Central Bank of Tunisia

Now, the central bank of Tunisia comes open to modern management of liquidity performed by major central banks. Specifically, central bank of Tunisia set up an entire program of transparency to the environment. It implemented also bilateral agreement with other central banks for the development of the monitoring and control of the overall economic liquidity.

Graph 5: Inflation: consumer Price index growth rate



Source: Statistics of the Central Bank of Tunisia

3.3 The Year 2012

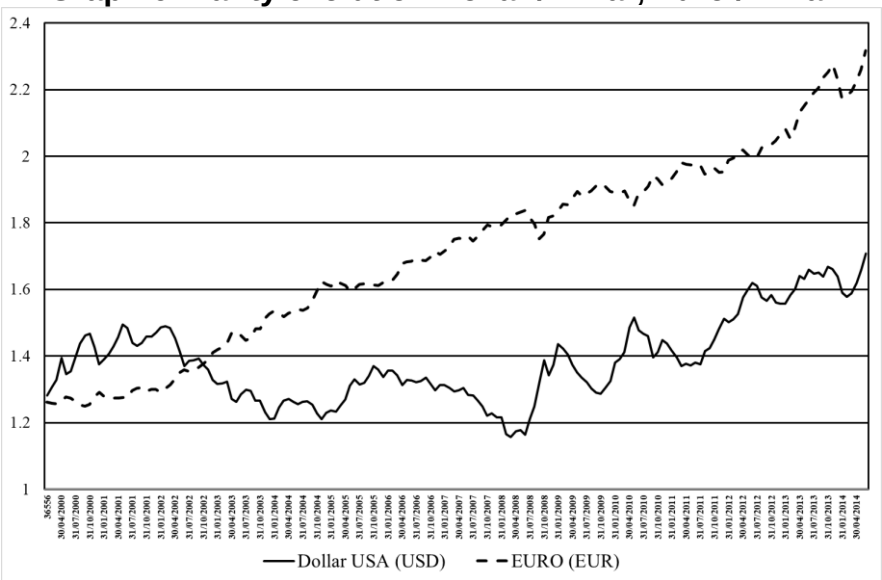
In response to inflation, the latter governor of the central bank increases the rate of liquidity in the money market. He focus on the openness strategy and transparency, launched by the former governor. Now the central bank is closer to its monetary base, and the risks associated with it. Contrasting with earlier monetary policy, the result was quite satisfactory on the side of central bank balance, but not on the side of banks balances, and the operators on the currency market. Nevertheless, claims on banks has improved, bank reserves are not at the meeting, and the under-capitalization of banks is intensified.

4. Clarify Targets and Autonomy Increase of the Central Bank of Tunisia

Now, according to the method of asset-liability management, central bank performs intermediation in an increasingly unstable and risky market. Despite these risks, the governor of the central bank tries implement a policy of rigor in monitoring and control of the monetary base. The strategy is to make the choice between taking the risk of disconnection between the nominal exchange rate and the real exchange, and better control on monetary base.

Four percent inflation is implicitly the Central Bank target. This target can improve the central bank balance on the side of the assets and on the side of liabilities. Nevertheless, central bank was deprived of being able to converge expectations in monetary, and currency market. For the governor of the central bank, the ball is in the court of the other sectors of the economy. The challenge is how better manage the balance sheet of the central bank. How to make good monitoring and control on assets and liabilities. To achieve these goals, the governor suggest a strategy for the modernization and the development of the Tunisian economy over the period 2015-2020.

Graph 6: Parity evolution Dollar / Dinar, Euro / Dinar

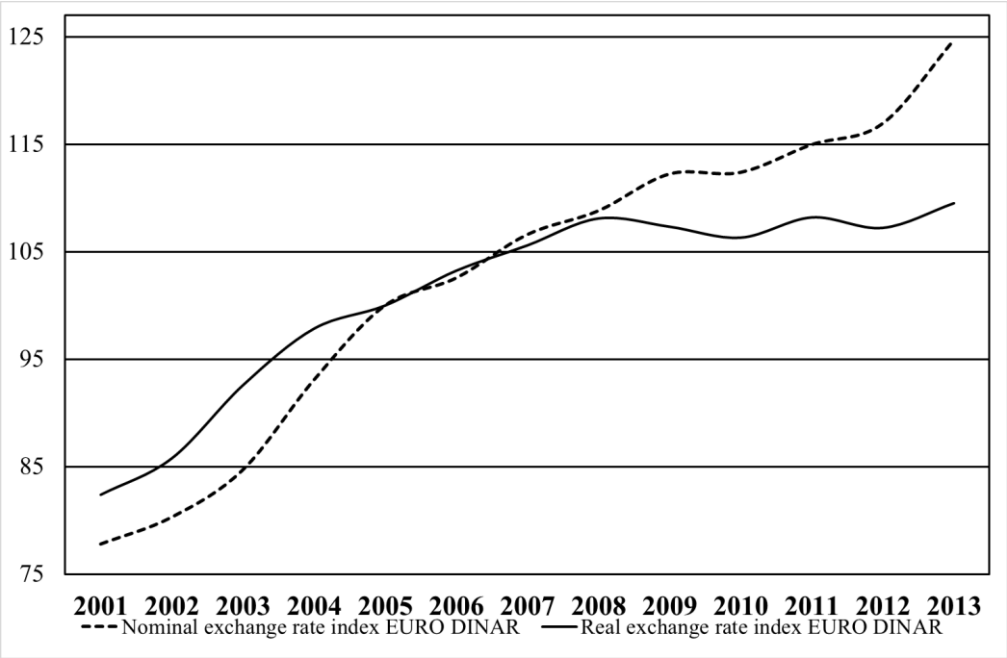


Source: Statistics of the Central Bank of Tunisia

Nevertheless, actual monetary policy of the central bank remains overdetermined. It is overdetermined in that it acts both on liquidity through bank balance sheets, and on the balance sheets of traders on the securities and currencies markets. The new monetary

policy in Tunisia is yet to be invented. The new policy should relax constraints, and maintain sovereignty over the central bank currency. It stay that to make choice between these two goals is a challenge.

Graph 7: Evolution of the exchange rate Euro Dinar



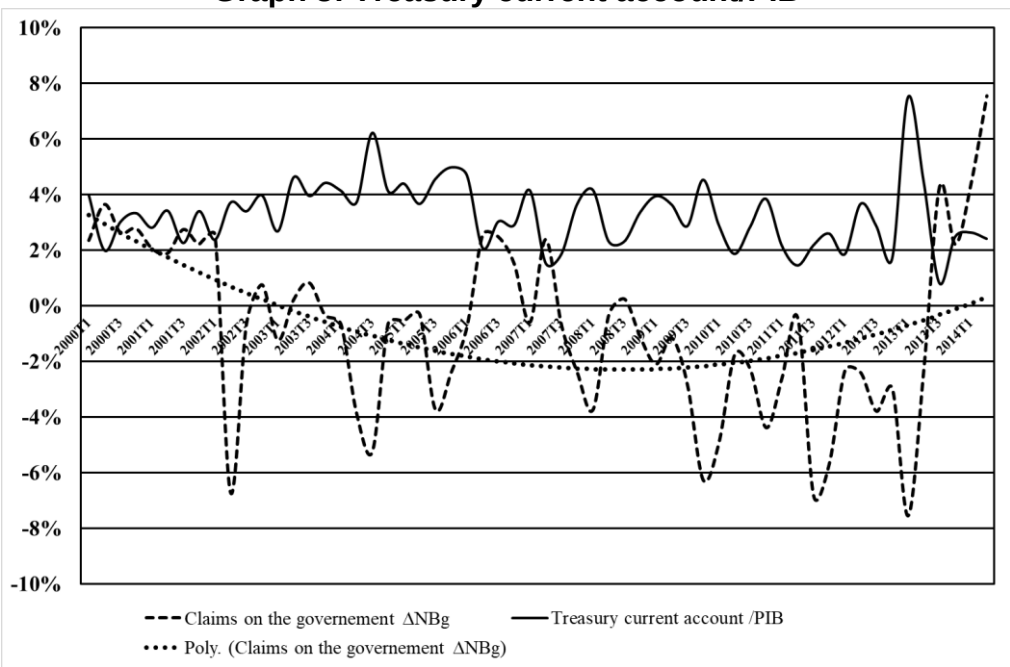
Source: Statistics of the Central Bank of Tunisia

The practice of this policy depends on the development of theoretical and practical knowledge on this issue. By itself, the disconnection of the nominal value of money to its actual value is an idea. It guarantees for a while adjusting balance sheet of the central bank through inflation.
This is a deliberate choice towards greater flexibility in the currency market. However, if the current cycle of the economy is lagging behind the monetary cycle, new risks emerge continually.

These risks include the fiscal dominance, original sin, the sin of the action, the currency mismatch. Other risks include the loss of autonomy and monetary sovereignty, and amplification of seigniorage. These factors prevent sharply the central bank to achieve its goal (controlling inflation), and to pursue a new strategy for asset and liability management.

4.1 Seigniorage[i] and Fiscal Dominance

Graph 8: Treasury current account/PIB



Source: Statistics of the Central Bank of Tunisia

To measure the seigniorage, we calculate the real income coming from money creation. If B is the monetary base, then ΔB/P is called seigniorage.

$$\text{Seigniorage} = \frac{\Delta \mathbf{B}}{\mathbf{P}}$$

Multiplying the top and bottom by B

$$\text{Seigniorage} = \frac{\Delta \mathbf{B}}{\mathbf{B}} \times \frac{\mathbf{B}}{\mathbf{P}}$$

Seigniorage = growth of monetary base x the real monetary base

For a given growth rate of money supply, more the monetary base is higher, more the seigniorage is important.

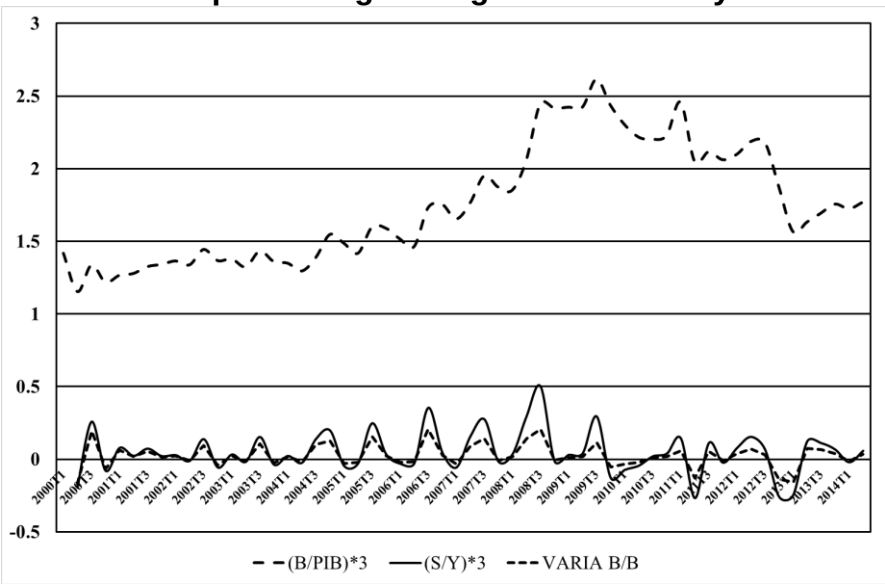
Dividing the above equation by the real income y, we get:

$$\frac{\textbf{Seigneuriage}}{\textbf{real income}} = \frac{\left[\frac{\Delta \mathbf{B}}{\mathbf{P}}\right]}{\mathbf{y}} = \left[\frac{\Delta \mathbf{B}}{\mathbf{B}}\right] \times \frac{\left[\frac{\mathbf{B}}{\mathbf{P}}\right]}{\mathbf{y}}$$

Thus, the ratio of seigniorage and real income is equal to the rate of growth of monetary base $\left[\frac{\Delta \mathbf{B}}{\mathbf{B}}\right]$ times by the ratio of the real monetary base on real income.

For example, when the government has a budget deficit of 7% each month, then the seigniorage should be 7% of real income.

Graph 9 : Seigneuriage / real revenu y



Source: Statistics of the Central Bank of Tunisia

Suppose that from Figure 9, the monetary base is $\frac{\left|\frac{B}{P}\right|}{y}$= 1,77 months of income in June 2014. So, the last equation tells us that the growth rate of nominal monetary base must be equal to (7%) / (1.77) = 3.94%. This rate is marginally higher than 3.3% actually achieved.

Does the government can finance a deficit of 7% of the state budget by growth in the monetary base of 3.94%? Obviously no, because as the monetary base increases, inflation accelerates. However, if inflation increases, the opportunity cost to hold money increases. Operators drop their currency. All depends on how economic agents adjust their real balances in response to inflation.

4.2 Original Sin, Sin of Action and Currency Mismatch

The central bank has the privilege to create its own currency. The non-convertibility of currency does not allow the country to borrow abroad in its own currency, and it cannot hedging risk vis-à-vis nonresidents. Such a situation is the original sin. What causes the original sin? Original sin is a situation where a high liquidity premium is required in the absence of a secondary market in smaller economies. In such situation, foreign investors would not want to hold debt in national currency, and refuse to cover hedging transactions with residents. To escape the original sin, the small economy should become a leading economic power. Which is particularly impossible in a near future.

In situations of original sin, the risk country increases. Because frequent currency depreciations weigh heavily on the debt service. The central bank target is fuzzy because non-residents are reluctant to fund ex ante a country whose funding becomes very sensitive to ex post economic constraints. Therefore, mitigation of original sin largely escapes the country.

In this case, we should speak of sin by action than of original sin. The sin by action is the outcome of inflation and a result of a poor liquidity management. This discourages foreign and even domestic investors to invest in government securities, especially long-term securities, denominated in local currency.

In this case, sin by action is due partly to the original sin. Thus, in the presence of original sin, absence of secondary market requires longer periods for the adjustment of structural deficiencies. Consequently, the economic debt will be in foreign currency. Debt will be more vulnerable to currency fluctuations. It also implies an over accumulation of currencies for commercial reasons and precaution reasons to convince non-residents to invest in assets on debt securities market without secondary market, and hedge against speculative attacks.

Hence, the factors that partly explain original sin and the sin by action are based on elements of institutional weaknesses. They involve high transaction costs, high risks, and currency mishmash. When the economic debt is in foreign currencies, net value of assets denominated in foreign currency will be deeply affected by exchange rate fluctuations. Thus, currency mishmash is related to factors of structural economic deficiencies. So, under no circumstances currency mismatch should be confused to original sin.

In theory, there are two types of asymmetry. Asymmetry involving transfers between residents and non-residents, and asymmetry between the same residents. A deepening of the currency mismatch increases country risk and a possible debt crisis. In a crisis, sin by action of the central bank amplifies the currency mishmash, increases costs and transaction risks. Mismanagement could lead to debt intolerance and have a large impact on the credit quality. Debt intolerance is the consequence of mismanagement in the past or the present. It involve a very high inflation and a default incident.

The liquidity management mistakes often result in the failure of inflation control. These failures are symptoms of institutional disappointments. They require deep reforms, and long spending time. On the other hand, crises that come from debt intolerance are durable and of stifling effects. They can weaken the system of payment and the financing system. They may even damage tax recovery and the economic growth in the long term.

The effects of sin per action involve also strong effects memories. In times of inflation, investors accentuate this mechanism. They escape the currencies with high risks and high costs of detention. Subsequently, an economy that does not pay attention to the consequences of poor liquidity management, will experience higher adjustment costs, large borrowing costs, and could often make default of payment. However, good governance of liquidity can always overcome the difficulties of debt intolerance, currency mismatch, and original sin.

4.3 Balance Adjustment, Autonomy and Sovereignty

An economic involved in a process of monetary cycle further than six months, will make more inflation than is necessary. This state of matters amplifies the risk of dissonance in real factor markets. Central bank may need more transparency in its banking intermediation for more legitimacy. However, it is unrealistic to follow this kind of monetary policy in the context of the control, at the same time, of the exchange rate and the interest rate. The adjustment via the central bank balance sheet, in these conditions, would be particularly restrictive. There are two options for central bank. Either a setting free the exchange rate, and/or a release of the interest rates.

Up to now, central bank is not interested in any exchange market reform, or of banking and financial system reform.In a globalized world, central bank is an intermediary among financial intermediaries. In any way, it cannot control both liquidity, yields and risk across

all markets. Central bank needs to be innovative in not only its openness and its transparency. It still necessary to develop the risk management strategy.

Central bank must make his hands free by currency liberalization reform and / or financial reform, for greater autonomy in the exercise of monetary policy. In globalized world, new practices of modern management of liquidity should be done in an increasingly complicated environment. This environment is neither that of institutions nor of markets, but networks. In a network environment, central bank should invent its strategy through banking and financial networks. Thus, the future of new practices of monetary policy should be in the context of risk-sharing, feedback internalization. Not just in the choice between transparency and sovereignty, but also between evolution and revolution.

Now, institutions are no longer solid. The sovereignty as much the liquidity are no longer absolute. They are relative to risk increase, rise of new requests, and a legitimacy of institutions. The planning of monetary policy in this new world concerns the divergence of interests, and the rise of conflicts. Between the certainty and uncertainty in currencies, markets grow new methods of convergences and divergences. These convergences and divergences do not concern the comparison of the return with market risk, but regard the comparison of risks scenario with the reference risk anticipated, according to the rules of the new finance.

5. Conclusion

The new monetary policy should be designed and implemented, in the process of the dematerialization of currency and the financial deepening. In the future, central bank cannot manage the exchange rate risk unilaterally and in autocentric way. Globalization makes the risks immediate and difficult to isolate. The old adjustment policies via the balance sheet, via interest rates and exchange rates are always overdetermined. They lead only to an over-accumulation of foreign exchange currencies.

In front of commercial and speculative attacks, adjustment policies will involve excess liquidity in the banking sector for the portfolio reasons, and illiquidity of the real sector for financial repression reasons and incapacity to recycle the saving funds into productive investments.

The sovereignty over money is never absolute. It is always relative. Sovereignty is related to the needs, and expectations, of economic operators. Think differently the new monetary policy in Tunisia will do not allow the central bank to recover neither its autonomy, nor its sovereignty over money. Obviously, central bank can never take the role of banks in the country business funding. Certainly, central bank is a bank like any other bank. However, it must always innovate in the implementation of its monetary policy. The central bank must invent new ways to manage its balance sheet and its intermediation between those who have a need for funding and those who have a funding capacity.

Endnotes

[i] To measure the seigniorage we follow the method of Olivier Blanchard and David Cohen, Macroeconomics, edition Pearson 2007.

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