

The Impact of the Required Reserve on the Monetary Multiplication in the Republic of Macedonia

Aleksandar Dejanovski, Dori Pavloska Gorgioska

MIT University, Skopje, Macedonia

Abstract

One of the primary and most important tasks of any central bank is conducting monetary policy in the state. In Macedonia the only central and issuing bank is the National Bank of Macedonia, which is responsible for the monetary and financial stability in the country, while performing important functions, without which the overall economic and financial system could not exist. In exercising its functions, the National Bank of Macedonia uses a set of economic instruments and policies, from which in RM the most effective is the required reserve. This monetary tool is showing the best results in developing countries where the financial markets are not developed and where there is a high concentration of the banking sector (in RM banks occupy a good 98% of total financial institutions). The role of the reserve will be analyzed through the prism of its effects on the process of multiplication the money supply in the country and its contribution to generating or withdrawal of money by the central bank. The main goal of the paper is to research the required reserve, as a monetary instrument, and to qualify its impact on the monetary creation in the Republic of Macedonia. The basic methods, used in this paper are the positive analysis, comparative analysis and deductive approach.

Key words : Required reserve ratio, financial system, The National Bank of Macedonia, monetary policy.

1. Introduction

The implementation of monetary policy in the Republic of Macedonia is the basic task of the National Bank of Macedonia. The Central Bank is the 'money issuing bank' in the country, and as a privileged institution, is responsible for the execution of monetary policy in the country, maintaining the stability of the currency, regulating payments abroad, and controlling the financial and banking system in the country.

Basic functions of the Bank are: [1]

- preparation and implementation of monetary policy in the Republic of Macedonia
- regulation of the general liquidity in the banking system
- regulation of the liquidity of international payments,
- regulation of the exchange-rate
- managing and handling the foreign exchange reserves of the country
- supervision of banks and savings banks,
- issuance of banknotes and coins,
- work for the account of the RM
- country representation before the international financial institutions,
- establishment of an information system,
- other activities of the Central Bank

Managing and executing the monetary policy is essential, unique and most important function of the National Bank of Macedonia, as a Central bank in the country. **The monetary policy is a set of rules, regulations and instruments governing the structure and dynamics of the circulation of money and the money supply in a country, as well as circulation of money in the channels of playback.** The activities of the Bank are known as monetary financing. Monetary finances include cash finance activities of the central bank, commercial banks, insurance companies and other financial institutions. [2] Monetary financing is a specific segment of the science of Finance, along with public and corporate policy finances. The monetary policy is a particular scientific field, in scope within the monetary policies, that is directly related to credit, foreign exchange and the fiscal policy.

The role of the Central banks varies from country to country in terms of its goals, objectives and principles of operation. In developed countries, where a developed capital market exists, banks are less dependent to the central bank, in terms of providing funds, on the other hand, in developing countries, as is the Republic of Macedonia, banks are more dependent from the central bank, which has more dominant role in the conducting of the monetary policy.

Central banks in the performance of monetary policy are focused on achieving the following goals:

- price-stability
- economic growth,
- economic development,
- increased level of employment

The main objective of the monetary policy of the National Bank of Macedonia is the maintaining of price and financial stability, which implies a reduction of the minimum level of inflation in the long run and ensuring stability of the financial system. This objective remains from the monetary independence of Macedonia and the formation of the Central Bank in 1991 till today, although there are some arguments about changing the prime goal in economic growth. By the way, the maintaining of the price stability from the Central Bank has proved to be the correct and the best choice, especially for countries that are suffering from hyper-inflationary tensions and often loss of money value.

However, price stability often means sacrificing growth and in the long run does not generate economic development. In recent times there are many discussions about the purpose of monetary policy, so that, after the global economic crisis, for many countries, the main objective of monetary policy is the economic growth.

To achieve the main objective, the Central Bank can use some of the s.c. "secondary" respective intermediate targets, known as monetary targets. The possible intermediate targets are:

- inflation-targeting,
- exchange-rate targeting
- monetary-targeting

By accepting the exchange rate as the main intermediate target of monetary policy, the Central Bank is obliged to maintain a fixed value of the domestic currency in terms of one or several foreign currencies. The advantages of the exchange rate targeting are:[3]

- The choice of the exchange rate as a nominal anchor can quickly stabilize the domestic prices ,
- fixing the exchange rate, influence on reducing the inflation via fixing the produces price with the exchangeable foreign country prices,
- exchange - rate targeting is an effective mechanism for disciplining domestic monetary policy and the Central Bank,

- fixed exchange rates act as a mechanism that prevents the government to engage in excessive expansion , reducing inflation
- peg exchange rate and provides clear information on future price movements by all agents, making the Bank send a clear signal about the firm determination to eliminate inflation

The policy of targeting the exchange rate and maintaining a fixed relationship between the euro and the rate had stimulation effects on imports and negative effects on the exports, so there is objective need to become flexible rate, or possibly a management-flexible in order to ensure economic growth after World crisis in 2008, because after the recession, the resources for generating growth are limited, so the growth, by the statement of the former governor of the Central Bank, Ljube Trpeski, needs to be accomplished by devaluing the currency and stimulating exports. [4] But, there are many counter-arguments from many experts, because, that state where the price and exchange rate stability are the most important for the stability for the economy, and that, the growth can't be achieved without stability.

2. The basic tools for implementation of the monetary policy in the Republic of Macedonia

Within conduction of the prime and intermediate targets, the Central Bank uses a set of measures and instruments known as the operational framework. These monetary instruments vary from country to country and from bank to bank and generally depend on the level of development of the country, development of the financial system and the financial markets, as well [15].

The basic instruments for conducting monetary policy in the Republic of Macedonia are: [5]

- 1. operations-the "open" market**
- 2. reserve requirement**
- 3. instrument for intervention in extreme instances**
- 4. interest rate policy**

Open market operations are part of the operational framework in the developed countries, where there is a developed financial market and the Central bank can instantly purchase and sell treasury bills, which would generate more or less money and therefore achieve its main goal. Namely, if the quantity of the money in circulation is greater than necessary, then the Central Bank sells securities (treasury bills) that commercial banks buy, and also the excess of money

is withdrawn from the economy as a result of the Central Bank action, and vice versa, as well.

The operations on the open market in Macedonia are implemented through:

- *auction of treasury bills*
- *auction of Central Bank loans,*
- *currency swap transactions,*
- *fine tuning operations.*

Unlike the previous instrument, the reserve is usually used in developing or underdeveloped countries for conducting monetary policy. Commercial banks are required to hold a certain reserve of the most liquid assets-money- for prudential and legal reasons, known as the "required reserve". The reserves are held of some prudent reasons, due to the possibility of a sudden withdrawal from the depositors specific amount of money from the bank and as a result the bank becomes insolvent. The second reason for holding reserves is of the legal nature, as result of the legal duty of the commercial banks to hold a certain amount of money in the central bank.

The reserve requirement as an instrument of monetary regulation, consists of average allocated funds from banks and saving companies in the Central Bank account in amounts determined by the NBRM. The reserve requirement is actually a legal requirement that must be respected by all banks. The Republic of Macedonia has applied an uniform reserve requirement rate which is 10% for banks and 2.5% for saving companies.[6] The rate, can decrease and increase depending on the current situation. The reserve requirement ratio of the banks from 2009 - 2012 was 10.0% for liabilities in domestic currency and 20.0% for liabilities in domestic currency with foreign currency clause and 13.0% for liabilities in foreign currency. In the mentioned period, the reserve requirement for the banks in foreign currencies are set at a level of 77% of the calculated amount of liabilities in foreign currency. The reserve requirement for banks in foreign currency is allocated to specific foreign Bank accounts abroad, and is nominated in Euros. The Central Bank requires banks to allocate the reserve requirement till the 11th day of the current month to the 10th day of the following month. This calculation method allows the bank to set aside certain days less reserve requirement to set aside in the future and also to keep the average fulfilled all the time. The Bank is a banks that pays interest from the total amount of the reserved requirements by the banks, while in some other countries, the Central banks are not obligated to pay.

Table 1 reserve requirement ratio in RM [7]

Period	Liabilities in local currency	Liabilities in local currency with foreign clause	Liabilities in foreign currency
IX-2011	10,00	20,00	13,00
X-2011	10,00	20,00	13,00
XI-2011	10,00	20,00	13,00
XII-2011	10,00	20,00	13,00
I-2012	10,00	20,00	13,00
II-2012	10,00	20,00	13,00
III-2012	10,00	20,00	13,00

Instruments of Central Bank ultimately intervention can apply only in such a case when a bank will face a situation falling into liquidity problems are temporary and when the same bank can't otherwise provide funding. In this case the Central Bank provides short-term loans (at a much higher interest rate), which should be returned in the future.

Interest or discount policy is a specific instrument of the Central Bank, which directly influences the money supply from the banks, by increasing or decreasing the interest on the discount loans that are approved by the Central Bank to commercial banks. The banks are losing the interest to borrow from the Central Bank, when the discount rate increases, and therefore as a result have less money to give loans to entrepreneurs, and vice versa.

3. Monetary multiplication

Monetary instrument is the variable that the Central Bank performs daily control [8]

The link between deposit and potential liquid assets (in the form of reserves created in Central Bank), allow the Bank to control the money supply. Namely, whenever banks make loans, they automatically generate new deposits, and therefore need to increase reserves in the Central Bank. This connection between liquid assets and deposits creates the relationship between the monetary basis and the targeted monetary aggregate known as the monetary multiplier. The process of the monetary multiplication is actually a process of creation and withdrawal of money by the Central Bank as a discrete act.

As we can conclude, the monetary multiplication can be represented mathematically as the ratio between changes in bank deposits (M1) and changes in the liquid assets (M0). The monetary aggregate M0 represents the sum between reserves (rr) and ready cash flow (G). However the Central Bank can control only the amount of the monetary base M0, while the public alone are deciding how much of the aggregate M1 will remain in the form of bank deposits and how much to be kept in ready cash (not bearing interest).

$$\text{Multiplier of monetary base (monetary multiplier)} = M1/M0 \text{ [9]}$$

Table 2 multipliers at the money market in random five countries in 1994. [10]

Country	M0(% from GDP)	M1 (% from GDP)	Multiplier	Cash flow in circulation
France	3,61	21,24	5,88	15,06
Japan	10,54	32,32	3,07	23,54
USA	6,54	18,28	2,83	28,78

As we can see from the table, the countries that tend to hold more cash on average, have lower monetary multipliers.

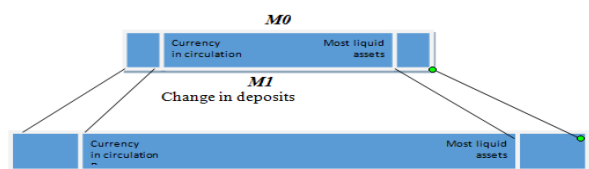


Figure 1. Connection between M1 and M0 [11]

In the absence of cash in circulation, the monetary base would have kept commercial banks and the whole M1 aggregate would be in the form of bank deposits (which it is not), so the decision of the public to keep part of the money in the form of cash, the banking sector loses some of the most liquid assets, which restricts its activity to lend. As a result of this observation we can conclude that the greater the share of cash in M1, the less liquid assets M0, and the lower the monetary multiplier.

4. The impact of the required reserve on the monetary multiplication in the Republic of Macedonia

The reserve requirement is the main instrument used by the Bank as part of the implementation of the monetary policy in the country [12]. The largest number of banks within their practice systems lend as much as it possible (paying attention to the prudential

component). This procedure is profitable as long as the interest of the countries exceeds the cost of servicing deposits. As a result of this process, the banks could simply give unlimited credit (if they pay), based on the increase in deposits (as required monetary multiplier) [13]. Namely, as a result of the monetary multiplier, banks can continually increase their deposits, with an increase of their most liquid assets. Giving loans to other banks, they automatically generate and increase deposits, which in turn would allow giving more loans (and increased profits as a result of the higher interest rate the same). However, this assertion is not completely correct, because according to the provisions of the Central Bank the most liquid funds must not be lower than the rate of reserve requirement (rr) multiplied by the amount of deposits.

$$\text{The most liquid assets (R)} \geq rr \times \text{deposits (D)} \text{ [10]}$$

Analogous to this equation we can calculate the amount of deposits that could not exceed the product of the constant and most liquid assets inverse value of the reserve or

$$\text{Deposits (D)} \leq (1 / rr) \times \text{most liquid assets (R)}$$

The multiplier of liquid assets 1 / rr is called as **the Money multiplier**.

The value of the total deposits in the banks can be estimated via the next formula:

$$\text{TD (total deposit)} = \text{ID (initial deposit)} \times 1/rr \times 100 \text{ [10]}$$

Based on the previous equation, we can conclude that the reserve directly affects the growth of deposits and the creation of money supply, and therefore has significant effect on the monetary processes. The monetary multiplier, by definition, is much smaller than the factor of liquid assets (1 / rr), as a result of holding cash by the public. The monetary base multiplier decreases when the public is holding more cash. As we conclude, the Central Bank controls the monetary multiplication, via the size of the reserve, i.e. directly through control of liquid assets in banks. The impact of reserve requirements on the process of multiplication can be demonstrated through the next illustrative example:

ASSETS		LIABILITIES	
2000	20 000	1800	18000
18000		16200	

Bank 1

ASSETS		LIABILITIES	
1800	18000		
		16200	

Bank 2

Figure 2. Statements of 2 Banks

If a specific client deposited a sum of 20 000 denars in the Commerce Bank, the bank would automatically create money by simultaneously increasing its liabilities (new deposits) and their assets (deposit become the most liquid assets). If the reserve requirement rate (given by the Central Bank) would be 10%, it would mean that deposited 20 000 denars, the Stopanska banks have to set aside 10% or 2000 as compulsory reserve within the Central Bank, while the remaining 18 000 denars would could use to provide loans or buying securities to achieve income from interest. If Stopanska bank decided to give credit to another bank as the Commercial Bank, it would have approved 18 000 denars.

From the remaining 18 000 denars, the Commerce banks must set aside 10% or 1800 denars within the Central Bank, while the amount of 16 200 denars (18 000 – 10% (1 800)) may grant credit to a third bank etc.. The total increase in the money supply would be the sum of these hikes. If the process of multiplication continues infinitely, the total increase in the money supply (M1 or aggregate) would be 200,000 denars. Thus we can conclude that all commercial banks have multiplied the initial deposit of 20,000 dinars, ten times, ($200,000 / 20,000 = 10$), exactly as the amount of the reserve requirements. If you do not keep cash (element that the Central Bank can't control), and if the reserve is 10% then the monetary multiplier is 10 (Multiplier would be equal at the $1/rr$, or $1/0.1 = 10$). But the rise in the reserve requirements would significantly reduce banks' reserve money and as a result, the monetary multiplier would be significantly lower. If, for example the reserve would be 20% the base money multiplier would be 5 (due to the amount of the inverse value of the reserve $20/100$ or 0.2), so the monetary multiplier would be $1/0.2 = 0.5$. Based on this observation we can conclude that, if the Bank wants to increase the money supply in circulation it can simply reduce the required reserve ratio, so the banks would have more money for lending and monetary multiplier would rise.

5. Conclusion

As we can conclude, there is a strong connection between the reserve requirement ratio and the money supply in countries where the monetary policy can be used, as an economic instrument for the government subjects. The impact of the reserve requirement ratio is significant in the Republic of Macedonia, as well, but, as we saw, this instrument isn't used properly, unlike the other monetary instruments. The reserve requirement ratio plays crucial role in the processes of the monetary multiplication in the countries, and should be used commonly, in the Republic of Macedonia, as well.

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Corresponding author: Aleksandar Dejanovski
Institution: MIT University, Skopje
E-mail: dejanovski_a@yahoo.com