

## **Liquidity Regulation Operations of the National Bank of Poland in Inflation Targeting Regime**

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### **ABSTRACT**

*The article examines the Polish experience of regulating the liquidity of the banking system in the inflation targeting regime. In particular, currency transactions on the accounts of the state and government organizations of the National Bank of Poland were analyzed. The role of base and market interest rates in liquidity regulation was studied. The operations of the National Bank of Poland on the open market were investigated as an influential instrument of monetary policy. In particular, the impact of basic, corrective and structural operations on the open market on liquidity was analyzed. Mandatory reserve requirements of the National Bank of Poland were also considered. In this case, attention is paid to the mediation mechanism in terms of mandatory reserve requirements for commercial banks.*

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### **Introduction**

In recent years, the emergence of external shocks requires countries to strengthen macroprudential measures regulating the liquidity of the banking system. In addition, central banks are tightening monetary policy in order to regulate the liquidity of the banking system. Such retaliatory actions are mainly carried out by the central banks of countries that have switched to inflation targeting. One of these countries is Poland – in recent years, the National Bank of Poland (NBP) has been paying special attention to liquidity regulation.

Poland, one of the countries that switched to inflation targeting, is considered one of the countries with a special experience of transition to this regime. This is due to frequent changes in the Polish monetary policy regime. That is, over the past 30 years, the NBP has chosen several monetary policy regimes and strategies and, accordingly, has pursued a monetary policy based on various goals. During the study of the Polish experience, it became known that this regime is being improved, further strengthening aspects in it in accordance with the trends in the development of the local market.

The National Bank of Poland uses several monetary policy instruments to regulate liquidity. Including extensive support for instruments such as foreign exchange transactions, exposure to market interest rates, open market operations, mandatory reserve requirements.

Studying the experience of Poland, which effectively regulates the liquidity of the banking system in the inflation targeting regime, and the practical use of priority aspects in it is of great practical importance for countries moving to inflation targeting at the current stage.

### **Literature review**

A number of studies were conducted on the practice of liquidity regulation in the banking system of the

NBP and the use of monetary policy instruments, some of which were discussed in the article.

Experts of the NBP say that “corrective operations on the open market” are used mainly in November and December of this year. That is, at the end of the year, they resort to corrective operations to issue bills with a shorter period compared to the main operations, when the liquidity in the banking system deviates from the trajectory of expectations. Corrective operations are also carried out in order to prevent sharp fluctuations in short-term interest rates[1, -p. 21.].

All commercial banks in Poland have the right to participate in structured operations on the open market. Ryszard Michalski claims that in March 2020, in response to the coronavirus pandemic, the NBP jointly with the government launched a “Quantitative easing” program. At the same time, the NBP carried out transactions related to the purchase of bonds issued by government bonds, “The Covid-19 Pandemic Relief Fund” and “The Development Fund”, in order to ensure the stability of the secondary securities market[2].

A new monetary policy strategy focused on inflation targeting in Poland has been researched by Jan Gottschalk and David Moore. According to him, within the general requirements of the inflation targeting strategy, it is emphasized that Poland will reduce fiscal dominance and the need to tighten budget restrictions. In addition, scientists argue that exchange rate policy has played an important role in the successful transition to inflation targeting and that the relationship between the short-term interest rate and inflation remains uncertain. Given this uncertainty, those who have put forward a proposal to expand the inflation target range or expand the target horizon[3].

However, in the case of studies by Magda Pekkala and other authors, the global financial and economic crisis emphasized the need to make some adjustments to the methods and regimes of monetary policy, in particular, to the inflation targeting regime. In this case, the consequences of the global financial and economic crisis were discussed in connection with the full 30-year experience of inflation targeting. At this stage, the aspects of the problem related to the instruments of macroprudential and monetary policy were briefly discussed, since these scientists focus on the strategic elements of the structure[4].

In our opinion, any central bank regularly monitors and regulates the liquidity of the banking system with the help of monetary instruments as part of the operational objective of monetary policy in the inflation targeting regime. In this case, it is important to regulate long-term interest rates in the banking system by means of interest rates on the interbank money market.

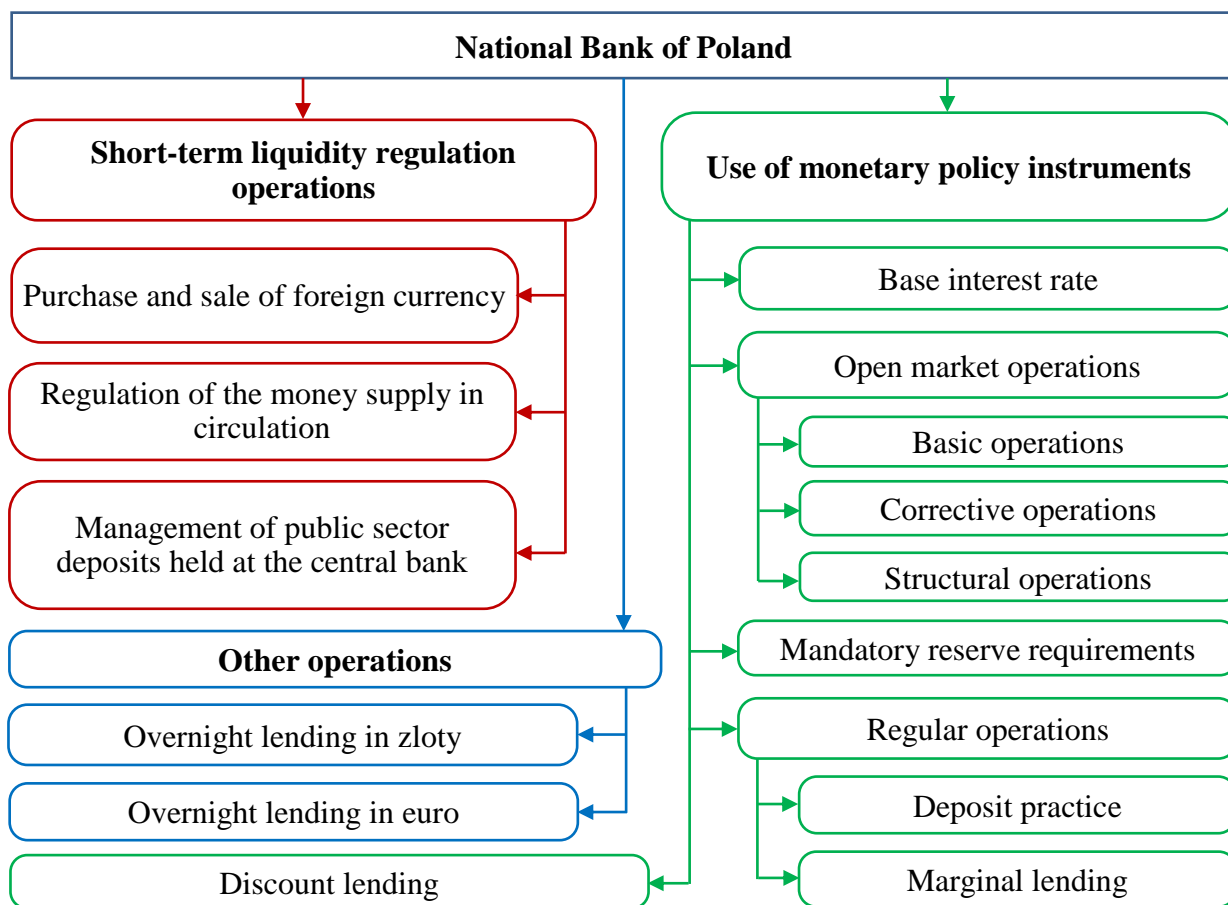
## **Methodology**

The thematic approach and views of several foreign economists were investigated. Based on the expression of the author's attitude to them, scientific and theoretical aspects of the article were formed. Also, the content and essence of the article were revealed on the basis of an analysis of the practice of regulating the liquidity of the banking system by the NBP in the inflation targeting regime and the use of monetary policy instruments. In carrying out this study, methods of comparative evaluation and scientific abstraction, system analysis were used.

## **Analysis and results**

In our previous article[5] the need to switch to the inflation targeting regime of the NBP and the initial stages of this process were analyzed. In this article, the practice of achieving the inflation target established by the NBP and the use of monetary policy instruments in this was investigated.

Like all central banks, the NBP conducts a number of operations as part of its activities as a monetary regulator (Figure 1).



**Figure 1. Structure of operations of the National Bank of Poland with liquidity regulation and monetary policy instruments<sup>1</sup>.**

Initially, the short-term operations<sup>2</sup> of the NBP aimed at regulating the liquidity of the banking system were analyzed. The practice of buying and selling foreign currency is considered one of the short-lived operations of the NBP. It should be noted that the NBP conducts a significant part of these operations jointly with the Ministry of Finance in accordance with the contract dated December 21, 2015[6]. In accordance with it, the contract imposes on the parties the following obligations on the maximum amounts of the volumes of input-output operations and the differences between them:

- the annual volume of foreign currency sold by the NBP to the Ministry of Finance should not exceed the equivalent of 10 billion euros;
- the annual volume of foreign currency purchased by the NBP from the Ministry of Finance should not exceed the equivalent of 20 billion euros;
- the negative difference between the annual volumes of foreign currency sold by the NBP to the Ministry of Finance and purchased from it should not exceed the equivalent of 10 billion euros;
- The positive difference between the annual volumes of foreign currency purchased by the NBP from the Ministry of Finance and sold to it should not exceed the equivalent of 10 billion euros.

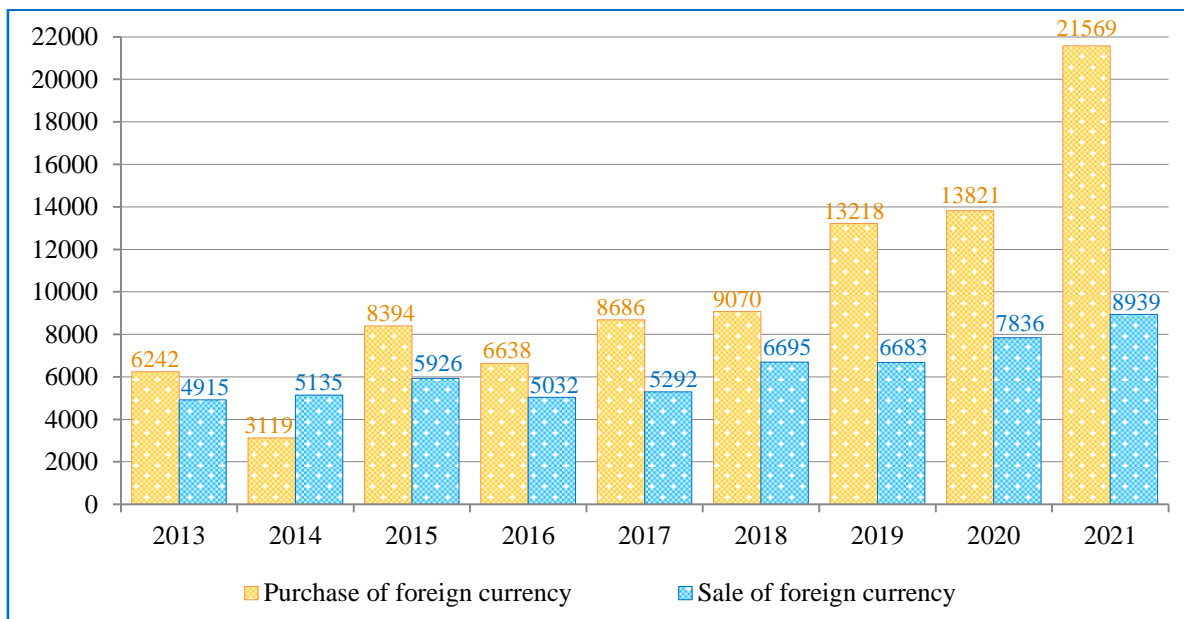
However, Figure 2 shows that in the coming years, changes may also be made to the maximum amounts in the contract concluded between the NBP and the Ministry of Finance.

At the same time, the volume of foreign currency acquired by the NBP in 2021 amounted to 21.5 billion euros, and the volume of foreign currency sold amounted to 8.9 billion euros. In foreign currency, the

<sup>1</sup> <https://nbp.pl/en> – Formed by the author on the basis of data from the official website of the NBP.

<sup>2</sup> The short-term liquidity of the banking system is calculated as follows: Money market securities issued by the NBP – REPO operations + currency exchange operations + balance of deposit and credit operations.

positive difference between purchase and sale transactions amounted to 12.6 billion euros (Figure 2). This increased the liquidity of the banking system to about 60 billion zlotys. At the same time, it is worth noting that even during the COVID-19 pandemic in 2020, the acquisition of foreign currency by the Ministry of Finance by the NBP caused excessive liquidity.



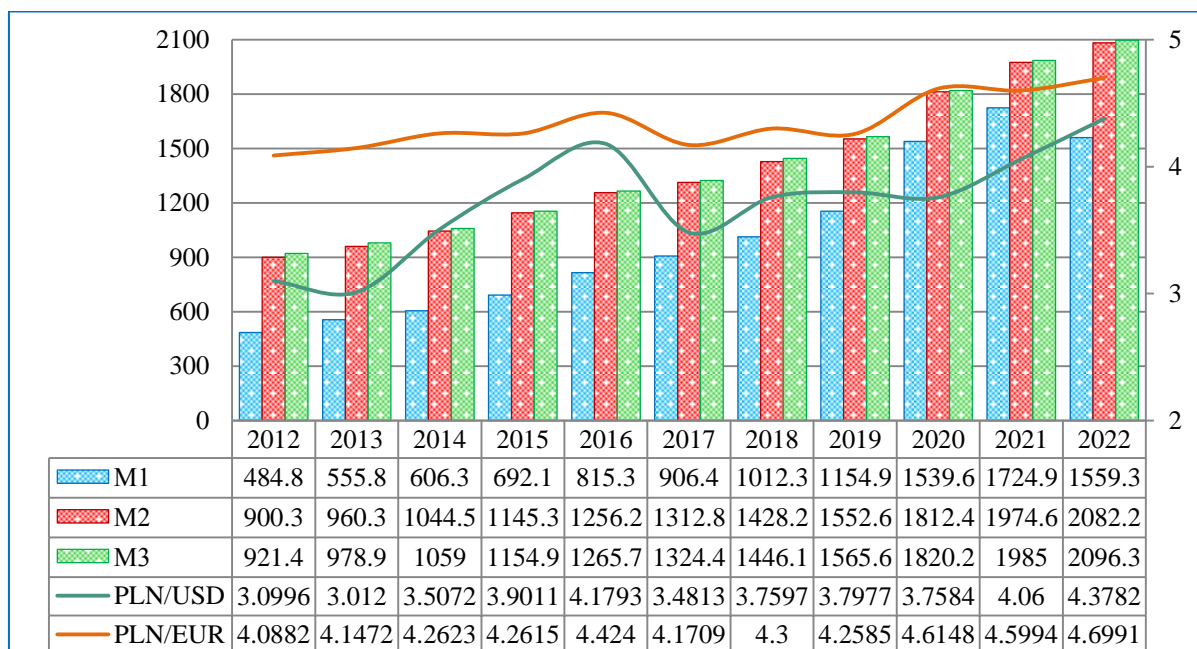
**Figure 2. The volume of foreign currency purchased and sold by the National Bank of Poland in 2013-2021, in millions of euros<sup>3</sup>.**

In 2021, the NBP purchased 72.3 billion zlotys from the Ministry of Finance, 25.5 million zlotys from the state and government organizations with special accounts with the NBP, and 351 million zlotys in foreign currency equivalent directly from the European Union fund. Also in 2021, the NBP sold foreign currency from the state budget in the equivalent of 30 million zlotys to transfer its membership fee to the European Union. In addition, foreign currency equivalent to 11 million zlotys was sold to the state and government organizations in special accounts with the NBP.

Short-term control of the money supply in circulation is an important practice of the NBP in regulating liquidity. This is achieved by regulating monetary aggregates. That is, “M1 (Narrow money) – includes banknotes and coins in circulation and deposits for up to one year. M2 (Intermediate money) – deposits for a period of M1 and up to two years. M3 (Broad money) – M1, M2 and monetar money market instruments, such as buybacks or money market fund units issued by financial institutions”[7] regulated. At the same time, it should be noted that the amount of money in circulation in Poland has acquired a stable growth trajectory at a low rate for 10 years. However, the introduction of internal and external restrictions against the background of the COVID-19 pandemic exerted additional devaluation pressure on the zloty exchange rate.

In the period 2019-2021, the zloty was devalued by 6.9% against the US dollar and by 8% against the euro. As a result, during this period, term deposits of legal entities and individuals in the national currency decreased, and consumer demand of the population increased sharply. Under the influence of this, the M1 monetary aggregate grew at a high rate, which also led to an increase in the amount of money in circulation (Figure 3).

<sup>3</sup> <https://nbp.pl/en> – Formed by the author on the basis of data from the official website of the NBP.



**Figure 3. In 2012-2022, the nominal exchange rate of the Polish zloty against the USD and Euro, as well as the change in the volume of monetary aggregates in circulation, in billions of zlotys<sup>4</sup>.**

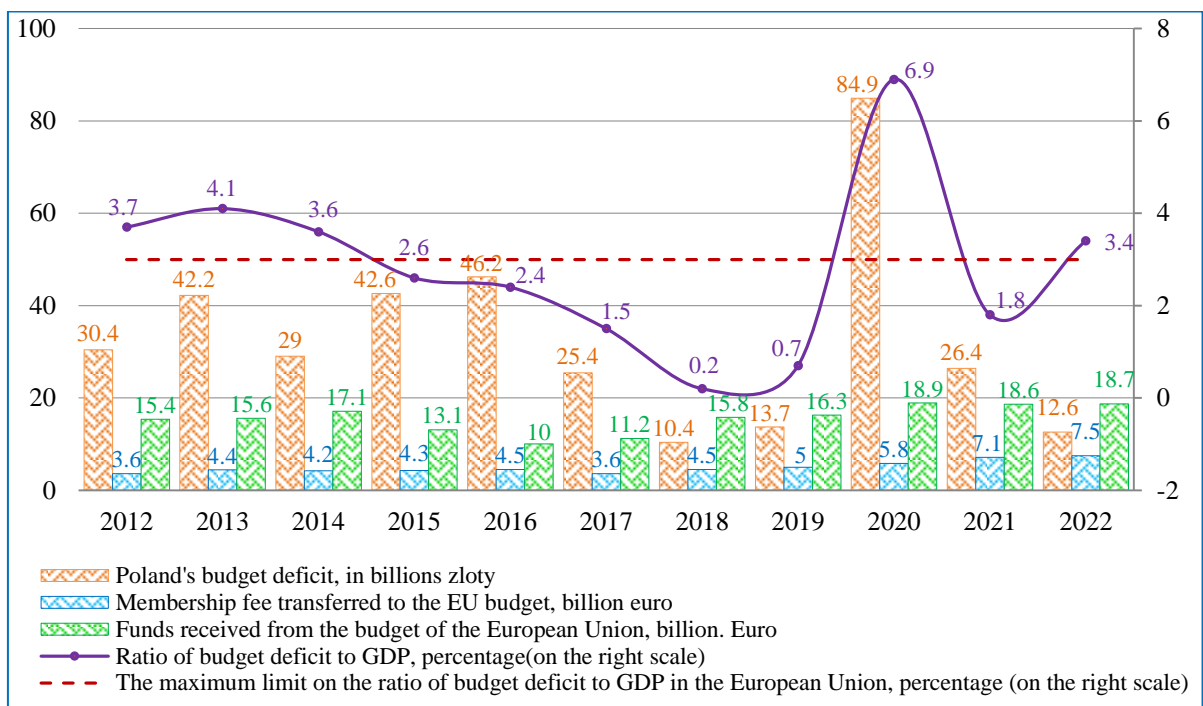
In 2022, the size of the M1 monetary aggregate has significantly decreased. However, there was also an increase in the total amount of money due to the active growth of the M2 monetary aggregate. The figure shows that the size of M1 decreased from 1.72 trillion zlotys in 2021 to 1.55 trillion zlotys in 2022. During the corresponding period, the volume of M2 increased from 1.97 trillion zlotys to 2.08 trillion zlotys, and the volume of M3 from 1.85 trillion zlotys to 2.09 trillion zlotys.

Another factor affecting the liquidity of the banking system is the following operations of the NBP on the accounts of the state and government organizations:

“changes in the volume of budget revenues and expenditures; issuance of treasury securities and settlements on them; Conversion of funds from foreign accounts of the Ministry of Finance in the NBP into zlotys, as well as changes in term deposits; Cash flows between Poland and the European Union (including payment of Poland’s membership fee to the EU budget); Payments related to the needs of the State budget for borrowing and other operations” [1, -p. 16].

Analyzing the figures of recent years, we can say that the budget deficit has decreased since 2017. Only in 2020, in the context of the COVID-19 pandemic, as a result of increased social spending, the provision of tax and other benefits for payments, the budget deficit increased to 84.9 billion zlotys. During this period, its ratio to GDP increased to 6.9 percent. In 2022, the budget deficit was reduced to 12.6 billion zlotys, and its ratio to GDP was 3.4 percent (Figure 4).

<sup>4</sup> <https://www.statista.com/> - developed by the author based on data from the official website.



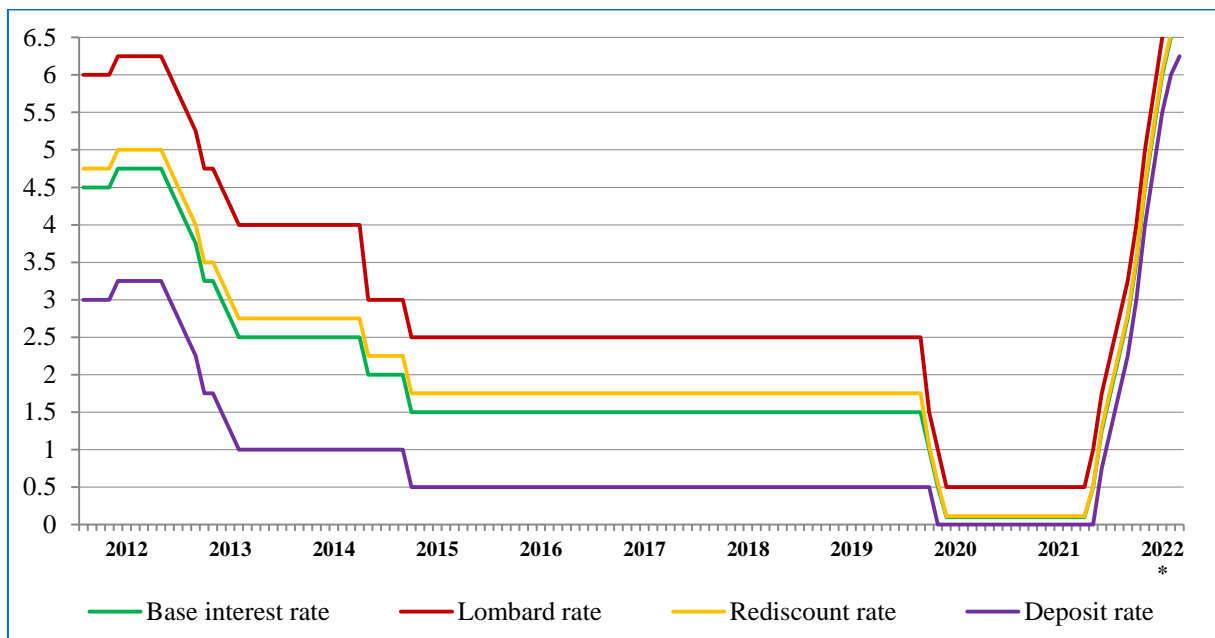
**Figure 4. Operations of the National Bank of Poland on accounts of the state and government organizations in 2012-2022<sup>5</sup>**

The figure shows that the funds received by the National Bank of Poland from the European Union exceed the funds paid for membership in the EU budget. This gap has increased from 2.2 times in 2016 to 3.2 times in 2020. Also, the amount of funds received by the National Bank of Poland from the European Union in 2012-2022 amounted to 170,7 billion euro. The amount of membership fees transferred to the EU budget was estimated at 54,5 billion euro.

After 2015, the ratio of Poland's budget deficit to GDP is formed below the maximum threshold of 3 percent set by the European Union (with the exception of 2020 and 2022). In particular, in 2021, the indicator in question was "Malta – 7.8%, Greece – 7.5%, Italy – 7.2%, Hungary and Romania – 7.1% each, Latvia - 7.0%, Spain - 6.9%, France – 6.5%. In total, in 2021, 15 member states recorded an indicator exceeding the EU threshold of 3%"[8].

External shocks in recent years have become an additional burden for the Polish economy. This led to a weakening of macroeconomic and monetary conditions. As a result, the National Bank of Poland has increased the efficiency and expanded the scope of use of monetary policy instruments. In particular, the change in the base rate gave an impetus to the growth of short-term market interest rates on the securities market (Figure 5).

<sup>5</sup> <https://www.statista.com/> - developed by the author based on data from the official website.



**Figure 5. Changes in the interest rate of the NBP in 2012-2022<sup>6</sup>**

It should be noted that the national central banks of the European Union can receive overnight loans from each other or place overnight deposits to each other under conditions established by the European Central Bank. The rates on overnight deposits and loans formed on the Polish interbank money market, firstly, determine the rates of the NBP on overnight deposits or overnight loans within the EU, and secondly, the width of the interest rate corridor of the NBP.

The NBP lowered the base rate in April 2020. As a result, the deposit rate decreased from 0.5 percent to 0 percent. This was maintained until October 2021. This decision of the regulator was aimed at stimulating domestic consumption by increasing the liquidity of the banking system. As a result of the stabilization of the macroeconomic situation in the corridor close to the main rate, other rates were formed, despite the increase in the base rate by the regulator in November 2021. In particular, as of September 2022, the base rate was 6.75%, the pawnshop rate was 7.25%, the discount rate was 6.8%, the deposit rate of the regulator was 6.25%.

The NBP actively uses open market operations as an influential instrument of monetary policy. Because open market operations effectively regulate liquidity in the banking system in the short term as part of the operational objective of monetary policy.

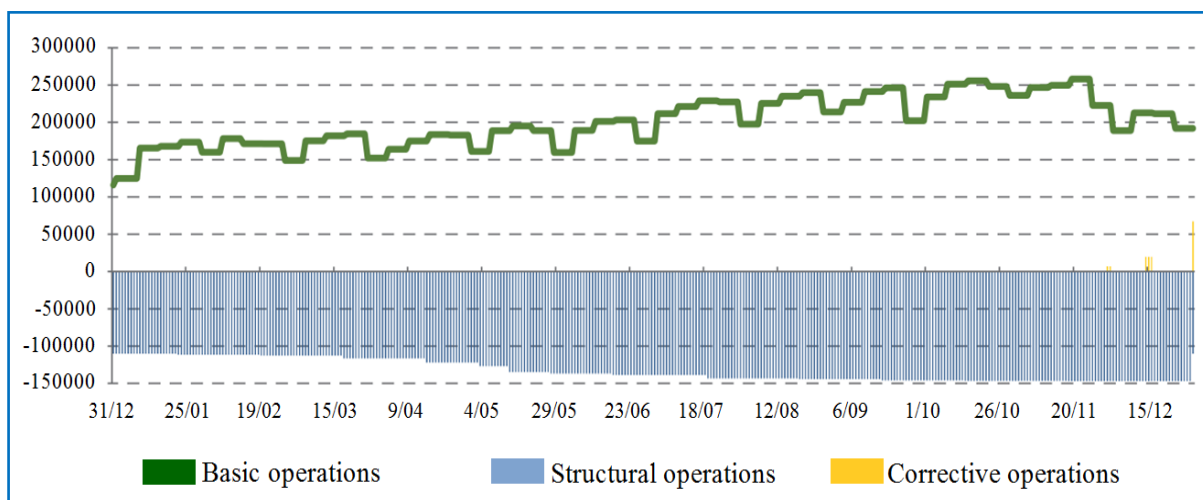
There are basic, corrective and structural types of open market operations, as shown in Figure 6.

**The basic open market operations.** In the regime of inflation targeting, open market operations have become one of the important instruments of the NBP. In this case, it is worth noting that the NBP, within the framework of operations on the open market, mainly issues bills of exchange for a period of a week. The average daily volume of issued promissory notes in 2021 was 205.9 billion zlotys. Of these, 99.8 percent are basic, and 0.2 percent are corrective operations. In 2021, the volume of bills proposed by the NBP amounted to 12.5 trillion zlotys, while the number of applications received amounted to 10.9 trillion zlotys. That is, since the volume of demand is equal to 87% of the volume of supply, the NBP has received all applications”[1, -p. 21].

**The corrective open market operations.** The NBP uses this type of operations mainly in November and December of the current year. That is, at the end of the year, they resort to corrective operations to issue bills with a shorter period compared to the main operations, when the liquidity in the banking system deviates from the trajectory of expectations. Corrective operations are also carried out in order to prevent sharp fluctuations in short-term interest rates.

<sup>6</sup> Developed by the author on the basis of the newsletter of the National Bank of Poland.

The average daily volume of corrective operations on the open market in 2021 amounted to 395 million zlotys. Also in 2021, the NBP offered promissory notes in the amount of 127 billion zlotys as part of corrective operations. The volume of applications received amounted to 96.2 billion zlotys. That is, the volume of demand was 75.7% of the volume of supply (Figure 6).



**Figure 6. Operations of the NBP on the open market in 2021<sup>7</sup>**

**The structural open market operations.** It should be noted that all commercial banks in Poland have the right to participate in structured operations on the open market. These operations are mainly aimed at providing liquidity in the secondary securities market in order to regulate long-term liquidity in the banking system. “In March 2020, in response to the coronavirus pandemic, the NBP jointly with the government launched a “Quantitative easing” program. In this regard, the NBP carried out transactions with government bonds, bonds issued by the COVID-19 pandemic Response Fund and the development Fund in order to ensure the stability of the secondary securities market”[2].

In 2021, the volume of structural open market operations amounted to 36.9 billion zlotys. At the same time, transactions were concluded with treasury bonds with a nominal value of 28.6 billion zlotys and bonds guaranteed by the government in the amount of 8.3 billion zlotys. In total, in 2021, the liquidity of the banking system was stimulated by the structural operations of the NBP on the open market totaling 37.7 billion zlotys.

In the inflation targeting regime, the NBP also actively uses mandatory reserve requirements. In particular, in recent years, in order to improve the efficiency of liquidity regulation in the banking system, an intermediary mechanism has been established for all commercial banks with respect to mandatory reserve requirements. Based on this, in 2021, the volume of mandatory reserves of almost all commercial banks was above the average level. In particular, in December, the minimum surplus for the whole year was recorded, amounting to 6.3 billion zlotys. The highest surplus was 32.1 billion zlotys in June. The volume of the surplus of mandatory reserves during the year was 2.2 times higher than the annual average (Figure 7).

<sup>7</sup> <https://nbp.pl/en> – Formed by the author on the basis of data from the official website of the NBP.





**Figure 7. The volume of mandatory reserves placed by Polish commercial banks in 2021, in billions of zlotys<sup>8</sup>.**

The intensification of forced reserve activities contributed to ensuring the stability of short-term market interest rates. In particular, “as a result of the increase by the National Bank of Poland of the requirements for mandatory reserves by 0.5-2% on October 6, 2021, the volume of allocated mandatory reserves increased from 8.2 billion zlotys to 35.3 billion zlotys. This has led to a reduction in the financing available to commercial banks and other credit institutions to 27 billion zlotys”[1, -p. 25].

## Conclusion

In the context of inflation targeting, the National Bank of Poland should pay special attention to the following:

firstly, it is necessary to determine the main goal pursued by the open market. It is also necessary that the government observed during a certain period does not fall under the influence of trading in the securities market. That is, the guarantee of repeated purchase of securities by the central bank within the framework of the development of the secondary securities market increases the interest of investors in this market, and also causes an increase in the price of securities. As a result, the central bank may lose an effective tool for attracting excess liquidity. Because, the rise in securities prices on the secondary market reduces the profitability of attracting liquidity for this instrument.

Secondly, the use of mandatory reserve requirements should be carried out in order to stabilize short-term interest rates. Because, the impact on the excessive liquidity of the banking system primarily affects short-term interest rates on the interbank money market. In our opinion, the central bank should not set a limit on the level of mandatory reserves set by each commercial bank so that it is above the average coefficient. Since the above-average level of mandatory reserves allocated by a commercial bank indicates that this bank carried out active deposit activities. This means that this bank has taken on serious obligations to customers. It is these obligations that negate the restrictions on deviations from the averaging level.

thirdly, when setting the inflation target, it is necessary that the central bank can determine the exact direction of the influence of the inflation factor. Foreign experiments show that in recent years, central banks of countries that have switched to inflation targeting are trying to move away from the strategy of the Ministry of Finance and rethink the main goal of monetary policy. That is, the central banks of the countries that have chosen the inflation targeting regime note that instead of targeting the nominal

<sup>8</sup> <https://nbp.pl/en> – Formed by the author on the basis of data from the official website of the NBP.

inflation rate, the real value of money and the stability of the financial system are priorities in achieving the inflation target. This makes it necessary to revise the concept of monetary policy and make institutional changes in its implementation in countries that have chosen the IT regime.

In general, today the International Monetary Fund recommends using a number of aspects of the Polish experience as one of the countries that have successfully switched to the inflation targeting regime. This serves to further increase the importance of research within this facility.

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