• F I N A N S E I P R A W O F I N A N S O W E •
• JOURNAL OF FINANCE AND FINANCIAL LAW •
Czerwiec/June 2025 • vol. 2(46): 97–122

C O P E
Member since 2021
JM15102

Funding information: Not applicable. **Conflicts of interests:** None. **Ethical considerations:** The Author assures of no violations of publication ethics and takes full responsibility for the content of the publication.

NBP MONETARY POLICY IN 2020–2022 IN THE LIGHT OF CENTRAL BANKS' RESPONSES TO EXTERNAL SHOCKS

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https://doi.org/10.18778/2391-6478.2.46.06

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ABSTRACT

The purpose of the article. The aim of the article was to assess the effectiveness of monetary policy implementation under conditions of strong external shocks on the example of selected central banks and its implications for the formation of inflation expectations, taking into account the socio-demographic characteristics of selected groups of respondents.

Methodology. Study on the assessment of the scale and effectiveness of selected central banks' actions under monetary shocks caused by the COVID-19 pandemic and Russia's aggression against Ukraine, data analysis, analysis of results of two surveys conducted by the Author.

Results of the research. The survey results showed that the activity of the central bank in the area of monetary policy in Poland under conditions of shock is characterized by low effectiveness in the opinion of financial market customers. The chi^2 analysys proved that socio-demographic factors such as place of residence, gender, age, occupational status, current level of monthly net income, loan liabilities held and the scale of savings held may influence the evaluation of the effectiveness of the central bank's policies in Poland.

Keywords: NBP, monetary policy, crises, monetary shocks, non-standard monetary policy instruments.

JEL Class: E42, E50, E52, E58.

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NBP Monetary Policy in 2020–2022 in the Light of Central Banks' Responses to External Shocks

During the Covid-19 pandemic, it became a challenge for central banks to maintain the stable operation of payment systems that underpin national economies. Central banks had to develop a number of preemptive measures to limit the negative effects of the pandemic on the economy, prevent payment bottlenecks, curb the rising unemployment rate and the scale of corporate bankruptcies, and thus the declining manufacturing potential. Monetary policy during the pandemic period had to take into account the risk of deflation, which is characterized by negative consequences for economic growth over the long term (Financial Observer, 2022). In addition, central banks also had to grapple with the economic challenges brought on by the Ukraine war.

The main objective of the paper is to assess the effectiveness of the implementation of monetary policy under conditions of strong external shocks illustrated by the example of selected central banks andtheir implications for the formation of inflation expectations, taking into account the socio-demographic characteristics of selected groups of respondents. The first part of the article presents the results of the research on the evaluation of the scale and effectiveness of the actions of selected central banks under monetary shocks caused by the COVID-19 pandemic and Russia's aggression against Ukraine, which took place in 2020–2022. An analysis of the use of standard and non-standard monetary policy instruments under shock conditions introduced by selected central banks (ECB, Fed, NBP and NBU) was conducted. Currency derivatives used by central banks in Latin America were also reviewed. In addition, the scale of deviations of the inflation rate from the inflation target adopted by selected central banks (ECB, Fed, NBP, MNB and BNS) is presented.

The empirical part of the article focuses on analyzing the assessment of the effectiveness of the implementation of NBP monetary policy under shocks based on the results of the survey. A total of 250 people took part in the survey (117 in the first round and 133 in the second round). The first survey was conducted from July 2022 to January 2023 (a period of strong inflationary growth), and the second survey was conducted between March–April 2023 (the beginning of the disinflationary period). On this basis, two main research hypotheses were formulated stating that: (1) the first the monetary policy of the central bank in Poland under the conditions of the shock was characterized by low effectiveness in the opinion of financial market clients, which influenced the formation of inflation expectations; (2) socio-demographic factors such as place of residence, gender, age, occupational status, current level of monthly net income, loan liabilities held and the scale of savings held influenced the assessment of the effectiveness of central bank policy in Poland.

Standard and non-standard monetary policy instruments in a shock environment

Monetary policy can be considered in various aspects. Broadly speaking, it encompasses all government, banking and government-related activities that shape money and bank credit. Monetary policy is thus responsible for shaping the national monetary system and determining for a given country

a monetary unit that can be related to the valuation of bullion and foreign currencies. It also aims to determine the scale and type of monetary operations that can be carried out by the public authority, establishing and regulating the central banking system and commercial banking (Rutkowski, 2016, p. 31).

To regulate the credit money supply more effectively, the central bank uses a wide range of instruments offered by monetary policy. These instruments are divided into instruments of general control, selective control and persuasive influence (Kazmierczak, 2000, pp. 101–102). Events accompanying monetary shocks or financial crises make it difficult for the central bank to continue to conduct monetary policy undisturbed. Due to fluctuations in demand for bank reserves and liquidity disruptions, the central bank's ability to control short-term market rates diminishes. As a result of contagion to other financial market sectors from interbank market fluctuations, the correct transmission of monetary policy impulses is impeded. When a central bank has very low or almost zero interest rates, its situation is further aggravated because it cannot counteract the crisis with interest rate cuts. Therefore, central banks may opt for more active, non-standard instruments. These are defined as interventions by monetary authorities that aim to restore the appropriate level of transmission of monetary policy impulses and create stimulus to trigger the economy despite low or zero interest rates.

Non-standard monetary policy instruments are primarily intended to mitigate liquidity shortages occurring in depository institutions and relevant institutions in the financial market, direct purchase of securities from both the private and public sectors, and communication policy tools (Żywiecka, 2012, pp. 72–74).

Prior to the COVID-19 pandemic, many central banks pursued an expansionary monetary policy in which they did not provide for an additional reduction in interest rates or provided for it only to a very narrow extent. However, the pandemic shock forced central banks to increase the flexibility of monetary conditions to protect domestic economies from collapse. Therefore, those central banks that could, decided to cut interest rates. The others could not perform such an operation because they already had interest rates at zero or even negative levels. In addition to the aforementioned interest rate cut, central banks decided to use the widest possible range of monetary policy instruments. They implemented liquidity-providing operations and repos and currency swaps. Many central banks created or expanded asset repurchase programs and introduced credit easing. Some central banks also carried out currency interventions or directly financed governments in the short term (Niedźwiedzińska, 2020, p. 12).

The first and most popular line of defense against a pandemic used by both developed and developing country central banks was to cut interest rates and use liquidity measures. Asset repurchase programs and credit easing programs, along with their subsequent extensions, were much less popular in the first phase of defense against a pandemic shock, especially for central banks in developing countries. In the case of currency interventions, only Russia and Ukraine chose to use such a monetary policy instrument in the first phase of the pandemic, as shown in Table 1 (Forsal.pl, 2022).

Table 1

Monetary policy instruments used under COVID-19 pandemic conditions in selected countries

Instruments of monetary policy	Chosen countries
Interest rate cuts	Austria, Brazil, Canada, Chile, Czech Republic, Hungary, Iceland, India, Indonesia, Israel, South Korea, Mexico, New Zealand, Norway, Philippines, Poland, Romania, Russia, South Africa, Thailand, Turkey, Ukraine, United Kingdom, USA
New asset purchase programs with expansions	Austria, Chile, Hungary, Iceland, India, Indonesia, Israel, Japan, South Korea, New Zealand, Philippines, Poland, South Africa, Sweden, Thailand, Turkey, United Kingdom, USA
New credit easing programs with expansions	Austria, Chile, Hungary, India, Israel, Japan, South Korea, Mexico, New Zealand, Philippines, Poland, Romania, Russia, Sweden, Switzerland, Thailand, Turkey, United Kingdom, USA
Liquidity measures	Austria, Brazil, Canada, Chile, Czech Republic, Estonia, Hungary, Iceland, India, Indonesia, Israel, Japan, South Korea, Mexico, New Zealand, Norway, Philippines, Poland, Romania, Russia, South Africa, Sweden, Switzerland, Thailand, Turkey, Ukraine, United Kingdom, USA
Currency interventions	Russia, Ukraine

Source: own elaboration based on: Niedźwiedzińska (2020, p. 14).

As ECB interest rates had been close to zero since 2016, the bank could not conduct any further rate cuts in response to the pandemic crisis. Therefore, the ECB did not pursue expansionary measures using non-standard monetary policy instruments. In order to guarantee liquidity in the financial system and allow households and businesses indirect access to funding, one of the first actions taken by the ECB was the continuation of the Assets Purchase Program (APP). The premise of the program was the purchase of net assets, which would amount to €20 billion per month, and the purchase of €120 billion in excess. Another extraordinary program was the Pandemic Emergency Purchase Program (PEPP), which was an intensifying supplement to the APP. However, unlike the APP, the PEPP was characterized by greater flexibility in terms of asset structure, which made the program more responsive to disruptions in both the economy and the financial market. The PEPP allowed Euro system entities to purchase the entire instrumentation of assets that was available in the APP. This includes (Czuchryta & Kowalik, 2010, p. 45):

- government bonds,
- securities issued by supranational institutions from Europe,
- corporate bonds,
- securities that are asset-backed,
- bonds with collateral.

The ECB allocated a total of €1,850 billion to the PEPP. The main objective of the PEPP became to reduce credit prices and expand lending in the euro area, so that households, businesses and governments received financing as a relief in the crisis. Through the direct purchase of bonds from banks

under the PEPP, individuals and companies received more credit, while the purchase of bonds from companies generated an alternative source of credit. The purchase of bonds from banks and corporates had a positive impact on the growth of consumption and investment and thus contributed to economic growth. In addition, the ECB highlighted six key actions that played an important role in supporting the euro area economy. These were to seek to increase the lending capacity of banks, maintain lending despite current problems, increase the availability of credit to businesses and households, ensure affordable credit prices, support the economy in reducing pandemic shocks and ensure financial stability through cooperation with international institutions (ECB, 2023).

In March 2020 the ECB decided to implement an oversubscribed long-term refinancing operation (LTRO), which matured in June of that year. In addition, banks received liquidity assistance, which lasted until the implementation of the next phase of TLTRO III. In April 2020 the ECB decided, for the duration of the pandemic, to add new non-targeted extraordinary long-term refinancing operations (PELTROs) to its instrumentation. Their aim was to support liquidity protection in euro area monetary markets (Czuchryta & Kowalik, 2010, pp. 46–48).

The PELTROs consisted of seven over-the-counter operations, conducted by quota tender. The first of the operations took place in May 2020 and the maturity of the subsequent operations fell within the relaxation of collateral requirements. The PELTRO interest rate was 25 bps below the average rate of the main refinancing operations (ECB, 2020). In July 2021, one PELTRO operation reached a record high of around €28 billion (Corsi & Mudde, 2022, p. 19). As the ECB has strong links with economies outside the euro area, it has decided to introduce repo operations dedicated to selected central banks. In addition, the ECB has reactivated swap lines for the euro and for the currencies of payment in Denmark, Croatia and Bulgaria.

In addition, the ECB extended its cooperation with the central banks of Romania and Croatia for another six months (Czuchryta & Kowalik, 2010, p. 45).

The Fed started with standard monetary policy instruments, namely interest rate cuts. On 03.03.2020 and 15.03.2020, the US central bank decided to cut the federal funds rate (the interest rate charged to commercial banks for overnight deposits) by a total of 1.5 pp. As the federal funds rate is the benchmark for the other short-term interest rates used by the Fed and influences long-term rates, its reduction helped to reduce the cost of borrowing for households and businesses. The Fed has also benefited from quantitative easing. As the pandemic caused significant breaches in the Treasury securities and mortgage-backed securities (MBS) markets, the Fed defined as its initial priority ensuring that these markets functioned properly, as they are important for the rotation of credit in the economy. On 15.03.2020 the Fed decided that the main objective of quantitative easing should be to help the US economy and announced the purchase of a minimum of $500 billion worth of Treasury securities and $200 billion worth of government-guaranteed mortgage-backed securities.

In June 2020 the Fed decided to purchase Treasury bonds estimated at a minimum monthly amount of $80 billion and to purchase $40 billion worth of residential and commercial mortgage-backed

securities. However, as early as December 2020 the Fed decided to reduce the pace of bond purchases due to the progress made by the US economy in terms of employment and price stability, which it was aiming to achieve. In November 2021 the Fed continued to reduce its purchases (of Treasury bonds by $10 billion and MBS by $5 billion). A month later, the Fed doubled the reduction in asset purchases (Milstein & Wessel, 2024).

In addition to using normal repo operations, the Fed also introduced a new facility, called the Foreign and International Monetary Authorities (FIMA) Repo Facility. Foreign central banks that obtain a FIMA account enter into a repurchase agreement with the Fed, during which they exchange Treasury securities in exchange for dollars at a special exchange rate. This creates an additional source of temporary dollar liquidity and relieves pressure on global markets, helping them to operate more smoothly. The FIMA Repo Facility was first implemented on 31.03.2020 and was intended to remain only a temporary instrument for the duration of the pandemic, but on 28.07.2021 it entered the Fed's instrumentation on a permanent basis (Fed, 2023).

The Fed also decided to reinstate the Term Asset-Backed Securities Loan Facility (TALF), which required approval from the US Treasury Department. From 23.03.2020, households, consumers and small businesses were able to receive financing from the US central bank under the program for holders of asset-backed securities that were backed by new loans. Such loans included, for example, student loans, auto loans, credit card loans and loans guaranteed by the Small Business Administration (SBA). The Fed also added current commercial mortgage-backed securities and newly issued prime loan obligations with collateral to the list of eligible collateral. According to estimates, the TALF was expected to support a maximum of $100 billion in new loans in its initial phase. The TALF ended on 31.12.2020 (Milstein & Wessel, 2024).

Some central banks also used currency intervention in the pandemic. Latin American central banks used currency derivatives most frequently, and a listing of these is presented in Table 2 (Cantú et al., 2021, p. 16).

Table 2

Currency derivatives used by central banks in Latin America

Selected central banks	Preferred currency derivative	Goal
Banco Central do Brasil, Banco Central de Chile, Banco De La República i Banco Central de Reserva del Perú	Expansion of currency swap programs	To guarantee exchange rate hedging for market participants so that they become less exposed to foreign exchange risk
Banco Central de Chile, Banco De La República i Banco de México	Use of non-deliverable forwards	

Source: own elaboration based on: Cantú et al. (2021, p. 16).

Central banks of emerging Asian economies have also opted for foreign exchange interventions to counter destabilizing exchange rates. Bank Indonesia made foreign exchange intervention in the spot

foreign exchange markets and domestic NDFs. The purpose of Bank Negara Malaysia's intervention was to curb excessively high exchange rate volatility and maintain healthy levels of foreign exchange liquidity. The reverse was the case in Hong Kong, whose central bank had to undertake foreign exchange interventions to weaken the domestic currency against the US dollar due to a fixed exchange rate. The Monetary Authority of Singapore reintroduced a centered exchange rate band with a zero appreciation rate (Cantú et al., 2021, p. 16). The National Bank of Poland, in response to the pandemic, also made use of a wide range of monetary policy instruments in order to contribute as much as possible to limiting the negative effects caused by the crisis.

In the opinion of the Supreme Audit Office, monetary policy instruments were applied by the NBP in a manner conducive to stimulating economic activity during the pandemic. The implementation of new instruments or the modification of existing ones was preceded by an ongoing analysis of the Polish and international economic situation and scenarios examining the course of the pandemic and its effects. One of the first monetary policy instruments applied was the reduction of interest rates.

It was intended to support the financial situation of households and businesses, as there had been a decline in economic activity, a reduction in consumer and business sentiment and a reduction in wages and employment due to government tightening. The interest rate reduction process for 2020 is presented in Table 3 (NIK, 2021, p. 3).

Table 3

Modification of the main NBP rates in 2020 (data in percent)

Rate	From March 5, 2015	March 18, 2020	April 9, 2020	May 29, 2020
Reference	1,50	1,00	0,50	0,10
Lombard	2,50	1,50	1,00	0,50
Deposit	0,50	0,50	0,00	0,00
Rediscount of bills	1,75	1,05	0,55	0,11
Discount of bills	–	1,10	0,60	0,12

Source: NBP.

The NBP also implemented a non-standard monetary policy instrument, quantitative easing (QE). The scale of the program was thought to be the largest in Europe taking into account direct spending, with a value of 6.5% of GDP excluding loans and guarantees. The only countries to announce larger-scale quantitative easing were Australia, Japan and the US. According to the ING report, the NBP has allocated around 4% of GDP to QE (as of April 2020). During the program, Treasury bonds were bought, as well as bonds issued by BGK and PFR with maturities ranging from one to ten years. As of April 2020, as many as 85% of the bonds purchased were five-year bonds or instruments with longer maturities. ING's analysis shows that quantitative easing has had a positive impact on the Polish budget and made a difference to the economy through fiscal programs. QE is estimated to have helped preserve

jobs and enabled the economy to rebound more easily in 2020, albeit to a limited extent (Business Insider Polska, 2023). By buying bonds from the secondary market, the increase in the supply of Treasury and Treasury-guaranteed debt was neutralized (NIK, 2021, p. 9). Since the beginning of 2020 the NBP has repurchased bonds to the tune of PLN 144 billion, and the proceeds from the sale of bonds have been used by the government to finance "crisis shields" for companies most affected by pandemic austerity (Markowiak, 2022, pp. 65–66).

In April 2020 the NBP allowed commercial banks to obtain a promissory note loan, which enabled them to obtain a higher level of liquidity. The essence of the credit was the option to discount bills of exchange, which commercial banks received as a form of collateral for business loans. The promissory note credit did not gain much popularity, which the NBP explained by the potentially high level of liquidity that commercial banks had. In addition, in December 2020 the NBP decided to carry out a currency intervention, buying foreign currencies. This operation was aimed at preventing the negative effects of the appreciation of the zloty, which could have negatively affected economic growth and indirectly contributed to an increase in the inflation rate. From October to December 2020, the Polish zloty showed an increasing trend against other currencies (by 4% against the euro), while after the NBP's intervention, by the end of 2020 the zloty had depreciated (by 2.8% against the euro). The weakening of the zloty continued until March 2021 (NIK, 2021, p. 11).

The Polish central bank decided to help Ukraine and, on 21.03.2022, allowed the NBU to use the UAH/USD currency swap for one year (extendable), which may not exceed USD 1 billion (Financial Observer, 2023). In addition, the NBP applied its proprietary idea of buying the hryvnia. The program was conducted from 25.03.2022 to 09.09.2022. PKO Bank Polski was also involved in the operation, which made its branches available to carry out the action. According to data available as of 05.09.2022, the assistance to the Ukrainian central bank amounted to as many as 97,000 foreign exchange transactions, with an estimated value of UAH 690 million (Bankier.pl, 2023).

The National Bank of Ukraine also implemented non-standard solutions. On 21.02.2022 NBU introduced the possibility to purchase "cashless dollars" from its foreign exchange reserves and gold at its own current exchange rate. The use of such a solution was intended to protect Ukrainian citizens from the devaluation of the hryvnia. Dollars could be deposited for a minimum period of six months with the possibility of extending it, and as the maturity date approached, the accumulated currency could be exchanged for hryvnias. For the duration of the deposit, the dollars were kept with the NBU so that other financial institutions would not use them to carry out their own transactions. The new product was made available for sale in designated hourly banking sessions, and commercial banks were given a daily limit to purchase $50,000.

The NBU introduced this non-standard instrument to minimize pressure on the cash market and reduce demand for cash. The rate used by the Ukrainian central bank was, by design, more favorable than that offered in the market to encourage consumers to buy and reduce currency purchases at exchange offices, allowing the UAH exchange rate to be maintained at around 40 hryvnias per $1.

'Cashless dollars' contributed to the NBU's maintenance of foreign exchange reserves and gold. Ukrainian citizens were given the opportunity to insure their savings not only against devaluation but also against other market risks (EDialog, 2022).

Ukrainian commercial banks were able to hedge their foreign exchange risk by purchasing at the official NBU rate such dollar volume as corresponded to their deposit transactions, and deposit the currency thus obtained in a special account provided by the NBU, with the proviso that they would only be able to use such foreign exchange reserve to resell it to the central bank at the current exchange rate when the deposits matured. Deposit transaction costs have been compensated by the NBU through the introduction of interest payable in hryvnias on the foreign currency balance (NBU, 2023).

Evaluation of the effectiveness of the implementation of the NBP monetary policy – results of surveys

In order to analyze the evaluation of the effectiveness of the implementation of the NBP monetary policy in the examined period, two surveys were conducted with a total of 250 participants (117 in the first round and 133 in the second round). A diagnostic survey was used as the research method, while a survey questionnaire was the research tool. The survey was conducted in two cycles (no sample heterogeneity was used). The first survey was conducted between July 2022 and January 2023, where 117 responses were obtained. The second survey, was conducted in March–April 2023, where 133 responses were obtained. In both cases, the survey group included only people aged 18 and over. The surveys were designed to determine Poles' inflation expectations and their assessment of the price dynamics stabilization tools being introduced. A correlation analysis of demographic and social characteristics with the results obtained was also conducted.

The questionnaires for both surveys consisted of seven questions on the socio-demographic characteristics of the respondents (place of residence, gender, age, occupational status, current level of net monthly income, credit/loan liabilities held and savings held) and three extended, multi-faceted substantive questions. Both groups of respondents were diverse in terms of socio-demographic factors. Respondents' financial education was not relevant to the survey, as monetary policy decisions affect every Polish citizen, among other things, indirectly translating into commodity prices and loan instalments.

The place of residence was categorized in the survey into four main categories: rural area, city of up to 100 000, city of 100 500 000 and city of more than 500 000 inhabitants. The age was categorized between four groups: 18–25 years, 26–40 years, 41–60 years and above 60 years. All age ranges were represented in both surveys, which should be explained by the diversified way in which the questionnaire was distributed – it was not only made available on various online forums and groups, but was also handed out to respondents physically at the same time, in order to avoid the digital exclusion that often affects older people. However, people aged 18–25 made up the second largest group (25.6%). For those

aged 60 and over, the same number of respondents took part in both surveys (19 people). When analyzing the occupational status of the respondents (Figure 9), it can be seen that the majority in both surveys are employed under a contract of employment (42.7% and 59.4% respectively). This is also a consequence of the age of the respondents, who made up the largest age groups (18–25 and 41–60). These are therefore recent university graduates and those with significant work experience. The second largest group were students: 37.6% in the first survey and 18% in the second. Eight respondents in both surveys indicated that they were self-employed. One respondent in survey 1 and seven respondents in survey 2 are employed under civil law contracts (contract of mandate and contract for specific work). The least numerous group of respondents were unemployed: one unemployed person took part in the first survey and two in the second survey. The salary was categorized into fourcategories: below PLN 3,000.00, PLN 3,000.00-6,000.00, PLN 6,000.00-10,000.00 and above PLN 10,000.00. The vast majority of respondents in both surveys do not have any commitments of this kind (70.1% in the first survey and 60.9% in the second survey). In the first survey, the second most common answer was ‘up to PLN 10,000’, indicated by 15.4% of the sample, while 12.8% of respondents admitted to having credit or loan commitments in the range of PLN 10–300,000. In the second survey, the second most frequently indicated answer was ‘PLN 10–300 thousand’, which was selected by 21.1% of the respondents, and 14.3% have credit or loan commitments of less than PLN 10 thousand. Credit or loan commitments in the range of PLN 300–500 thousand were taken by two people in the first survey and five people in the second survey. In the first survey, 36.8% admitted to having savings of less than PLN 10,000. 34.2% chose the answer ‘PLN 10–300 thousand’ and 24.8% had not accumulated any savings. In the second survey, the most popular answer was PLN 10-300k, which was selected by 39.1%. 33.8% have no savings and 24.1% have accumulated savings of up to PLN 10k. The answer ‘PLN 300–500 thousand’ was selected by three and two people respectively. Two respondents in the first and second surveys admitted to having savings above PLN 500 thousand.

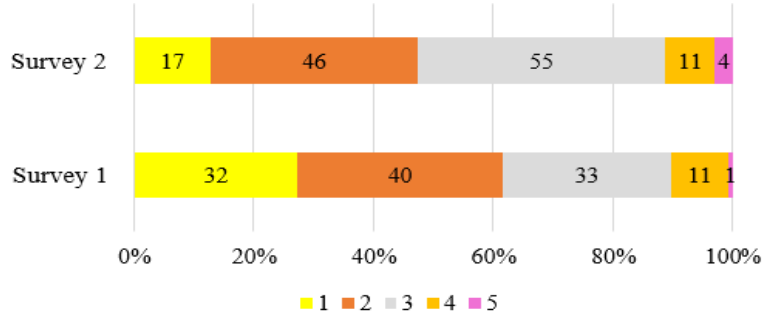
In the first question respondents were asked to assess various aspects of the central bank's functioning in Poland, including an assessment of the NBP's organization, its response to monetary shocks or the formation of interest rates, an estimation of the level of inflation and an assessment of government programs. In the next question, respondents were asked to estimate the level of inflation in the following six-month periods (in the first survey from 31.12.2022 to 31.12.2024, and in the second survey from 30.06.2023 to 30.06.2025). Questions also included requests to assess the impact of government assistance programs on price stability, including a reduction in the VAT rate on food, carbon subsidies or free ‘credit holidays’.

Respondents were asked to assess the effectiveness of the NBP's activities in the area of monetary policy, broken down into such aspects as: the organization of the NBP, maintaining a stable price level (implementation of the inflation target: CPI 1.5–3.5%), the chosen strategy of direct inflation targeting, responding to monetary shocks, interest rate formation, use of non-standard monetary policy instruments – purchase of assets on the market, information policy, trust in the central bank, accuracy of

projections/forecasts of inflation rate formation and the central bank's ability to bring the inflation rate back to the inflation target in the medium-term horizon of three years. Five answers were available for each question: 1 – definitely bad, 2 – rather bad, 3 – hard to say, 4 – rather good, 5 – definitely good.

Figure 1

Assessment of the NBP organization

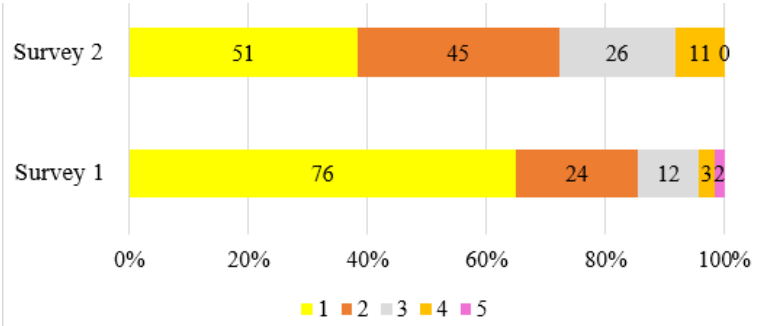


Source: own elaboration.

In the first survey, 61.5% respondents assessed the organization of the NBP negatively (27.4% chose the answer definitely bad and 34.2% rather bad). For 28.2% respondents, the assessment of the NBP in this respect was difficult to determine. 12 people rated the organization of the NBP positively, but only one thought it was definitely good. In the second survey, 47.4% rated the organization of the NBP as bad, with 12.8% as definitely bad and 34.6% as rather bad. 41.4% chose the answer difficult to say. As in the first survey, the smallest group of respondents was the group that assessed the organization of the NBP as good (11 respondents thought it was rather good and 4 thought it was definitely good). In the first survey, there is an apparent trend towards a poorer assessment of the organization of the NBP, while in the second survey there is a clear increase in the number of people who had no opinion on the subject (an increase of 166.7%). The least susceptible to change were the good response options (Figure 1).

Figure 2

Assessment of the maintenance of a stable price level (achievement of the inflation target: CPI 1.5–3.5%)

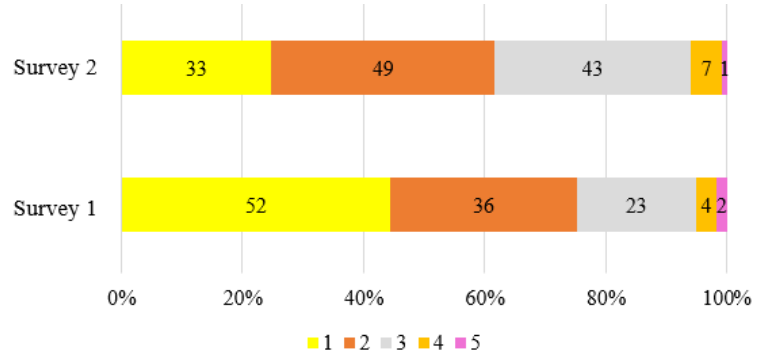


Source: own elaboration.

In the second segment of the question on the effectiveness of the NBP, respondents commented on the topic of maintaining a stable price level, which manifests itself through the implementation of the inflation target (CPI between 1.5% and 3.5%). In the first survey, as many as 85.6% respondents considered that the activities leading to the maintenance of a stable price level were carried out ineffectively (65% definitely bad, and 20.5% as rather bad). 10.3% gave the answer difficult to say. Only 5 respondents assessed the implementation of the inflation target as effective (3 persons chose the option rather well and 2 persons definitely well). In the second survey, 72.2% assessed the implementation of the inflation target as ineffective (38.4% as definitely bad and 33.8% as rather bad). According to 19.6% of respondents, it was difficult to say whether the stable price level had been realized. Both in the first and the second survey, it can be noted that the willingness to answer it is difficult to say is one of the smallest in the survey, which may indicate a high awareness of the respondents about the level of inflation in Poland and the NBP's activities related to maintaining a stable price level. 11 respondents chose the rather good option, but no respondent answered definitely good (Figure 2).

Figure 3

Evaluation of the chosen direct inflation targeting strategy

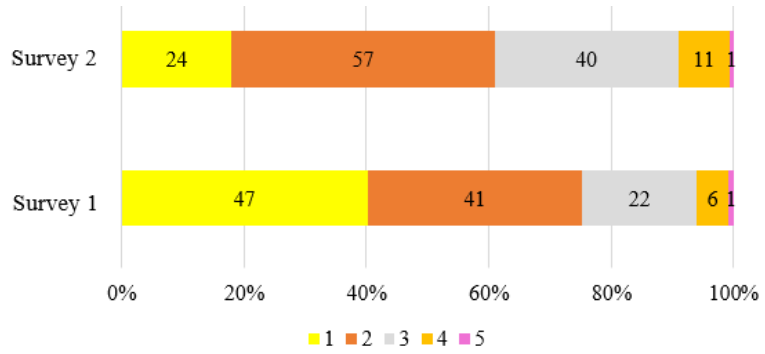


Source: own elaboration.

In the first survey, 75.9% of respondents considered the direct inflation targeting strategy to be inappropriate (44.4% of votes for definitely wrong and 30.8% for rather wrong). 19.7% of respondents answered difficult to say. According to only six people, the direct inflation targeting strategy is correctly chosen (four people described it as rather good and two as definitely good). In the second survey, 61.6% rated the direct inflation targeting strategy as wrong (24.8% chose the option definitely wrong and 36.8% rather wrong). 32.3% of respondents found it difficult to assess the direct inflation targeting strategy. However, the number of respondents who assessed it positively increased. According to seven respondents, the strategy was chosen well, and according to one respondent, it was definitely well chosen. Comparing the two surveys, it can be seen that, in the second survey, the number of respondents who gave the answer difficult to say increased by 12.6 pp. (Figure 3).

Figure 4

Assessing the response to monetary shocks

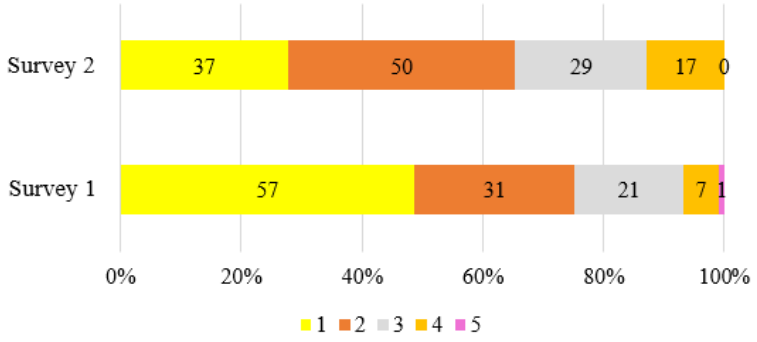


Source: own elaboration.

In the first survey, 75.2% respondents gave negative answers regarding the assessment of the response to monetary shocks (40.2% ranked it definitely bad and 35% rather bad). 18.8% respondents found it difficult to assess. Only seven people rated the NBP's response to monetary shocks as adequate (six people as rather good and one person definitely good). In the second survey, 60.9% respondents thought that the NBP reacted to monetary shocks in an inappropriate way (18% chose the option definitely bad and 42.9% rather bad). 30.1% respondents had no opinion on this issue. 12 respondents thought that the NBP reacted well to monetary shocks (11 people thought it reacted rather well and 1 person thought it reacted definitely well). In the first survey, the magnitude of the negative assessment of the response to monetary shocks was 14.3 percentage points higher. In the second survey, the willingness to answer hard to say increases by 11.3 pp. (Figure 4).

Figure 5

Assessment of interest rate developments



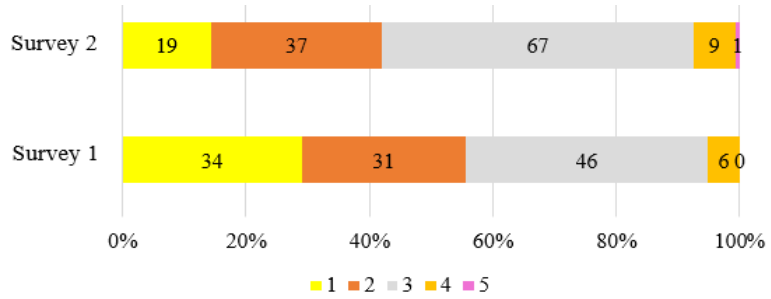
Source: own elaboration.

In the first survey, 75.2% o respondents assessed the formation of interest rates by the NBP as bad, of which 48.7% chose the option definitely bad and 26.4% rather bad. 17.9% of respondents answered difficult to say. Only one respondent rated the central bank's interest rate formation as definitely good and seven respondents as rather good (6%). In the second survey, the tendency to give

negative assessments decreased. According to 65.4% respondents, the NBP shapes interest rates inappropriately (27.8% answered definitely bad and 37.6% rather bad). 21.8% respondents (which is 3.9 percentage points more than in survey 1) had no opinion on this issue. In survey 2, the propensity to give positive answers almost doubled, with 12.8% rating the formation of interest rates as rather good (Figure 5).

Figure 6

Evaluation of the use of non-standard monetary policy instruments – asset purchases on the market

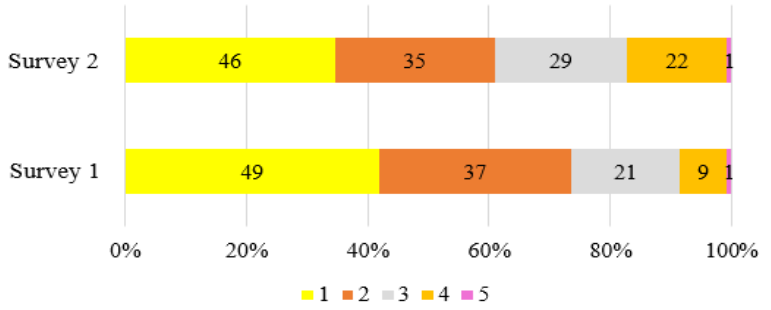


Source: own elaboration.

55.6% respondents in the first survey rated the use of non-standard monetary policy instruments negatively. 29.1% chose the option definitely bad and 26.4% rather bad. 39.3% respondents answered difficult to say. Only six people rated the use of non-standard monetary policy instruments as rather good. In the second survey, the propensity to rate the use of non-standard monetary policy instruments negatively decreased by 13.5 percentage points. 42.1 per cent of respondents rated the purchase of assets on the market as bad (14.3 per cent answered definitely bad and 27.8 per cent as rather bad). The frequency of selecting the answer difficult to say increased by 15 pp. (50.4% responses). The fact that so many people did not have an opinion on this subject may reflect the public's low awareness of the details of asset purchases in the market and knowledge of non-standard monetary policy instruments. Nine respondents rated the use of non-standard NBP monetary policy instruments as ‘rather good’ and one as definitely good (Figure 6).

Figure 7

Evaluation of the NBP information policy

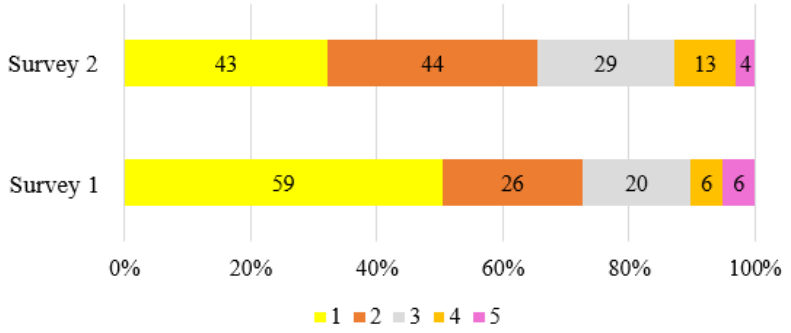


Source: own elaboration.

In the first survey, 73.5% respondents felt that the NBP's information policy is badly conducted (according to 41.9% it is definitely badly conducted and according to 31.6% it is rather badly conducted). 17.9% respondents chose the option difficult to say. Nine people assessed the information policy rather well and only one definitely well. In the second survey, the NBP's information policy was bad according to 60.9% respondents. As in the case of answers to the previous questions, there was a decreasing trend of negative answers. Their share decreased by 12.6 percentage points. 34.6% respondents assessed the information policy as definitely bad and 26.3% as rather bad. 21.8% had no opinion. 16.5% rated the NBP's information policy rather well. This is the first time that the share of respondents giving a positive answer on an indicated aspect of the NBP has been so high compared to previous questions (Figure 7).

Figure 8

Assessment of confidence in the central bank

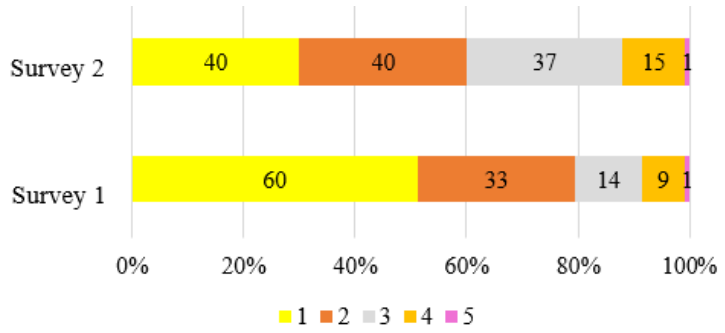


Source: own elaboration.

In the first survey, 72.6% respondents said that they did not trust the Polish central bank (50.4% definitely bad and 22.2% rather bad). 17.1% answered it is difficult to say. Six respondents (5.1%) rather trust the NBP and six respondents definitely trust the NBP. In the second survey, 65.4% respondents expressed negative trust in the NBP (32.3% have a definitely bad attitude towards trusting the Polish central bank and 33.1% have a rather bad attitude). 21.8% have no opinion on trust in the NBP. About 10% rated their trust in the NBP as rather good and 4 respondents rated it as definitely good. Comparing the two surveys, it can be seen that the tendency is to assess trust in the NBP positively significantly (for the answer rather good). Also the scale of negative assessment of trust in the Polish central bank decreased (7.2 percentage points), and the share of hard to say answers increased by 4.7 percentage points (Figure 8).

Figure 9

Assessment of the accuracy of projections/forecasts of inflation developments

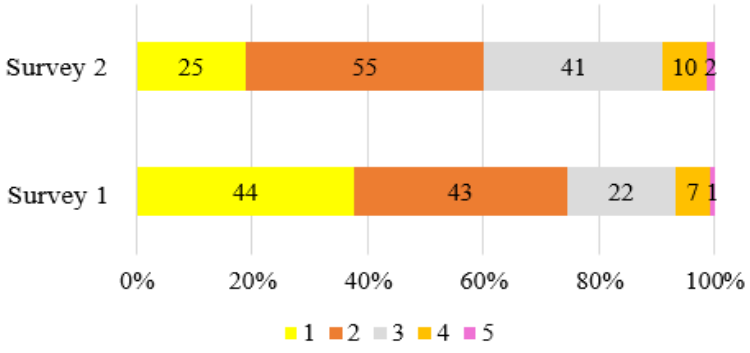


Source: own elaboration.

In the first survey, 79.5% respondents considered the accuracy of projections and forecasts of the inflation rate to be bad, with 51.3% rating it definitely bad and 28.2% rather bad. 12% of respondents answered difficult to say. Nine respondents rated the accuracy of the projections and forecasts of the inflation rate as rather good and one respondent as definitely good. In the second survey, 60.2% participants expressed a negative assessment of the accuracy of the above projections. For each of the negative options, the share of respondents was 30.1%. Compared to the first survey, it can be noted that the propensity to choose answers indicating a negative assessment of the accuracy of the projections and forecasts of the evolution of the inflation rate decreased by 19.3%. The share of hard to say answers was 27.8%, so there was an upward trend (by 15.8 points) compared to survey 1. 11.3% respondents rated the accuracy of projections and forecasts of the inflation rate as rather good. This is one of the higher results for this response option, as in other questions the 10% threshold is rarely exceeded for positive ratings (Figure 9).

Figure 10

Assessing the central bank's ability to return the inflation rate to the inflation target over a medium-term horizon of three years



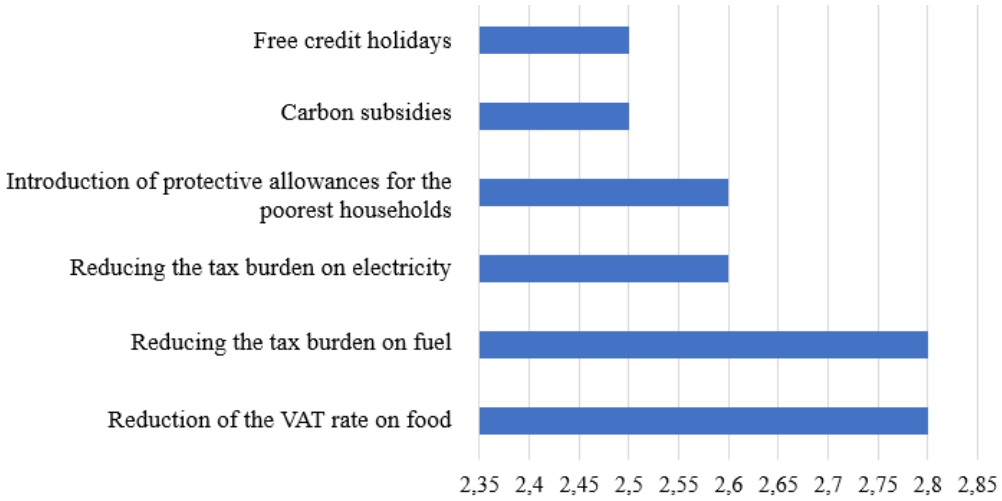
Source: own elaboration.

In the first survey, 74.4% respondents rated the central bank's ability to return the inflation rate to the inflation target over a medium-term horizon of three years as low. 37.6% answered definitely bad and 36.8% rather bad. 18.8% of respondents found it difficult to assess the NBP's ability to bring the inflation rate back to the inflation target. Seven respondents chose the option rather well and one definitely well. In the second survey, 60.3% of respondents felt that the NBP's ability to restore the inflation rate was low, in particular 18.9% rated it very bad and 41.4% rated it rather bad. Compared to survey 1, there was a 14.1 pp. increase in the share of this response in the sample. 30.8% of the respondents had no opinion on the subject, which represents a 12 pp. increase in respondent uncertainty compared to the first survey. In terms of positive response options, ten respondents rated the central bank's ability to bring the inflation rate back to the inflation target over a medium-term horizon of three years rather well and two rated it strongly well (Figure 10).

On the other hand, when analyzing the results from both surveys on the issue of the evaluation of non-monetary measures to mitigate the effects of inflation in Poland, it can be seen that the average rating ranges from 2.5 to 2.8 (Figure 11). The lowest rated measures according to respondents were credit holidays and carbon subsidies (2.5). The best rated ones were the reduction in the tax burden on fuel and the reduction in the VAT rate on food (2.8).

Figure 11

Average rating of non-monetary inflation mitigation measures in survey 1 and survey 2



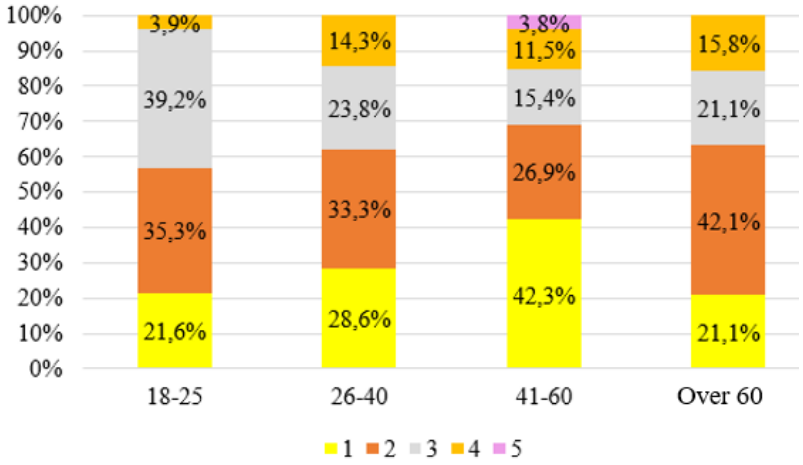
Source: own elaboration.

A chi-square test of independence was used to assess the significance of the association of selected socio-demographic factors with the evaluation of individual elements of monetary policy and the evaluation of individual non-monetary inflation mitigation activities.

In study 1, the age of the respondents was shown to influence the evaluation of central bank activities at the 5% significance level (NBP organization). With 12 degrees of freedom, a p-value of 0.000 was obtained there.

Figure 12

Relationship between age and assessment of NBP organization



Source: own elaboration.

In the 18–25 age group, the most popular answer was hard to say, which was selected by 39.2%, and rather bad, which was ticked by 35.3% of respondents. 33.3% of respondents aged 26 to 40 thought the NBP organization was rather bad and 28.6% thought it was definitely bad. 42.3% of respondents in the 41–60 group answered definitely bad, while 26.9% answered rather bad. 42.1% of respondents aged 60 and over thought the NBP organization was rather bad, while 21.1% thought it was neutral or rather bad. The group that assessed the NBP organization most negatively was the 41–60 age group, where 69.2% selected the answers definitely bad and rather bad together. Only 3.8% of respondents in the 41–60 group rated the organization of the NBP as definitely good (Figure 12).

Table 4

Relationship between socio-demographic factors and assessment of central bank performance – chi-square test results (maintaining a stable price level - meeting the inflation target: CPI 1.5–3.5%)

Variable	Survey 1			Survey 2		
	Degrees of freedom	p-value level	Verification of hypothesis	Degrees of freedom	p-value level	Verification of hypothesis
Sex	**4**	**0,011**	**Dependent variables**	**3**	**0,034**	**Dependent variables**
Age	12	0,821	Independent variables	**9**	**0,002**	**Dependent variables**
Residence	12	0,678	Independent variables	**9**	**0,003**	**Dependent variables**
Occupational status	20	0,725	Independent variables	**15**	**0,004**	**Dependent variables**
Savings held	**16**	**0,003**	**Dependent variables**	12	0,690	Independent variables

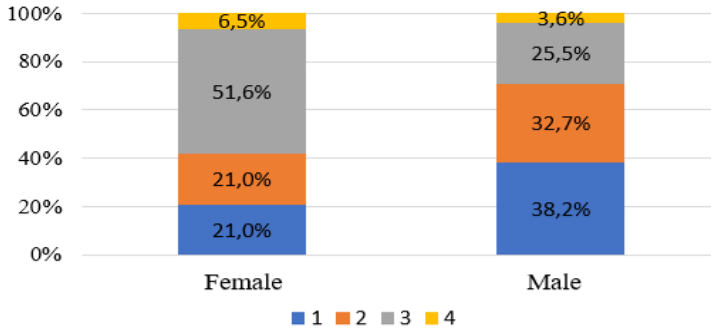
Source: own elaboration.

The highest correlation of selected socio-demographic factors with the evaluation of individual elements of monetary policy occurred in the case of the evaluation of the maintenance of a stable price level (achievement of the inflation target: CPI 1.5–3.5%), as presented in Table 4. It was shown that at the significance level of 5%, a significant relationship could be confirmed for six variables from both surveys (gender, age, place of residence, occupational status and savings held).

Relevance from other tests were demonstrated on the figures below.

Figure 13

Relationship between gender and assessment of the use of non-standard monetary policy instruments (asset purchases) in survey 1

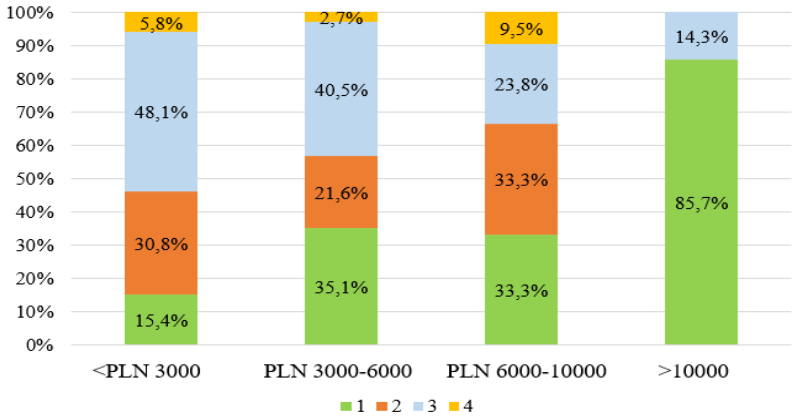


Source: own elaboration.

Male respondents rated the use of non-standard monetary policy instruments significantly worse than female respondents. 70.9% male respondents assessed the purchase of assets in the market negatively, while 42% female respondents gave combined answers of rather bad and definitely bad. Among women, the tendency to choose the neutral response option difficult to say also prevailed: this was chosen by 25.5% male respondents and almost twice as many female respondents.

Figure 14

Relationship between net monthly income and the assessment of the use of non-standard monetary policy instruments (asset purchases) in survey 1

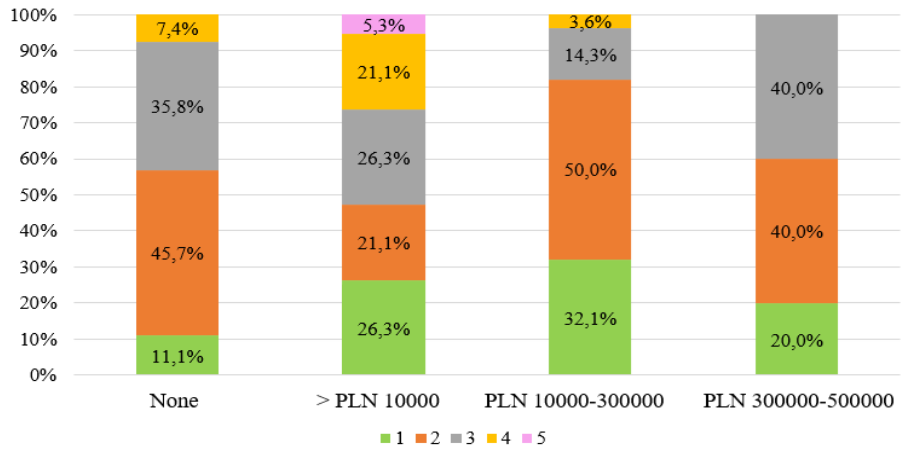


Source: own elaboration.

The most negative responses were given by respondents earning above PLN 10,000 where 85.7% assessed the use of non-standard monetary policy instruments as definitely bad. Respondents earning more than PLN 10,000 were the least diverse group, as in addition to the definitely bad response option, 14.3% chose the hard to say response. The highest total share of negative responses of 66.6% occurred in the group earning between PLN 6k and PLN 10k. At the same time, in this group, 9.5% respondents answered rather well, which was the highest share of positive answers compared to other groups of respondents.

Figure 15

Relationship between credit/loan liabilities held and assessment of response to monetary shocks in study 2



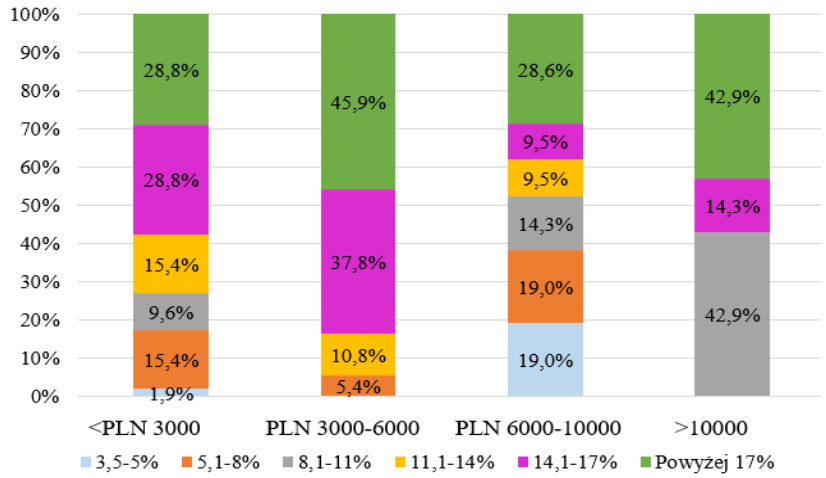
Source: own elaboration.

The group that rated the response to monetary shocks most poorly was the group with credit/loan commitments of PLN 10,000–300,000, where 72.1% respondents collectively answered rather bad and definitely bad. The smallest share of negative responses was in the group of respondents who took out a credit/loan of up to PLN 10,000, at 47.4%. This group had the highest share of positive responses – 21.1% of respondents rated the NBP's response to monetary shocks as rather good and 5.3% as definitely good (Figure 15).

For those earning up to PLN 3k, the most popular inflation expectations were the ranges of 14.1–17% and above 17%, selected by 28.8% respondents. 45.9% of those earning between PLN 3,000 and PLN 6,000 felt that the level of inflation would be above 17%, while 37.8% felt it would be between 14.1–17%. 28.6% respondents whose current level of monthly net income was between PLN 6,000 and 10,000 answered above 17%. The most popular answers given by respondents earning more than PLN 10,000 (42.9%) were above 17% and 8.1–11%.

Figure 16

Relationship between monthly net income and inflation assessment (30.06.2023) in study 1



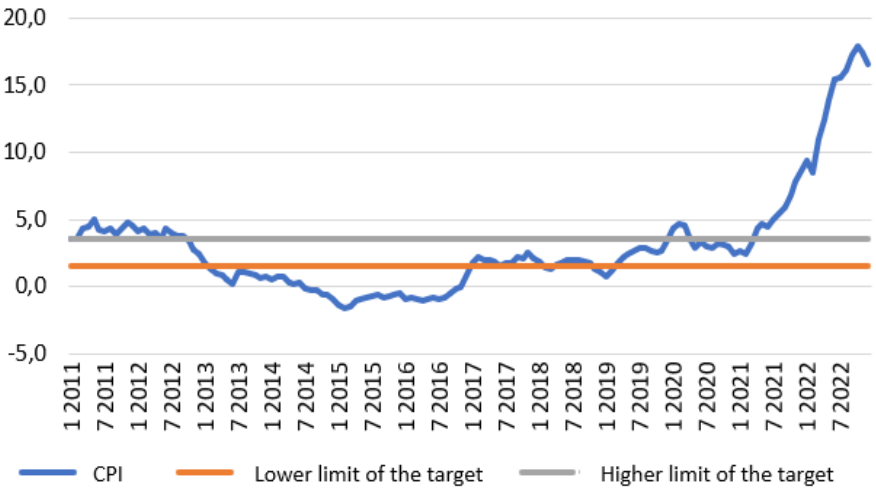
Source: own elaboration.

In Poland, the inflation target, measured using the CPI index, was set in the range of 1.5–3.5% year-on-year. In January 2020, the inflation rate exceeded the upper limit of the target by 0.8 pp. and inflation reached its highest value in 2020 in February (4.7%). In March 2020, the first official case of coronavirus infection was reported in Poland. In the following months of 2020, the downward trend in the inflation rate continued (disinflation) and the upper limit of the target was not exceeded, demonstrating the effectiveness of the inflation target. In 2021, the upper limit of the inflation target was exceeded in April (4.3%), so the implementation of the target only took place in the first two months of the year. In the following months of 2021, the inflation rate continued its upward trend and its values continued to exceed the designated upper limit of the inflation target. In the months of April–December 2021, inflation averaged 5.89%, and at its peak (December 2021) it reached 8.6%. In 2022, no month was able to keep inflation within the set inflation target. In addition, inflation continuously maintained a rising double-digit figure between March and December 2022. Inflation peaked in October 2022 with a CPI level of 17.9%, so the upper limit of the inflation target was exceeded by 14.4 pp. (511%). The evolution of the inflation rate in Poland is presented in Figure 17.

In 2021, the IMF assessed that the National Bank of Poland loosened the monetary policy stance in a quick and adequate way. In their opinion NBP effectively complemented the fiscal measures, which reduced the negative impact of the pandemic on the economy and the banking sector. The NBP's asset purchase program (PSA) was properly communicated and fulfilled its purpose of supplying liquidity to government bond markets and strengthening monetary policy transmission. The transparency of the PSA was high and all of the information about the NBP's securities purchases and holdings was publicly available (NBP, 2021). In order to compare the results of inflation forecast by respondents with a credible and professional forecast, a forecast made by the NBP has been presented (NBP, 2021).

Figure 17

Inflation rate in Poland in 2011–2022 and the NBP inflation target



Source: own elaboration based on: GUS (n.d.).

Table 5

Inflation projected by NBP in 2022–2025

Time of inflation forecast	Projected inflation in 2022–2025 [%]			
	2022	2023	2024	2025
July 2022	14,2	12,3	4,1	–
November 2022	14,5	13,1	5,9	3,5
March 2023	–	11,9	5,7	3,5
July 2023	–	11,9	5,2	3,6
November 2023	–	11,4	4,6	3,7
March 2024	–	3,0	3,4	2,9
July 2024	–	–	3,7	5,2

Source: NBP.

Analyzing the results of the respondents' inflation forecast with the inflation forecast by the NBP, it can be seen that there is a tendency for respondents to overestimate the level of inflation, particularly in the first survey, which took place between 31.12.2022 and 30.06.2024. 58.1% respondents thought that inflation would be above 17% by 31.12.2022, while the NBP estimated it at 14.5% in November 2022, a difference of three percentage points. Also by the end of June 2022 and the end of December 2022 more than 20% respondents were confident that inflation would be between 14.1% and 17%, while the NBP estimated it at 11.9 % in March 2023.

Table 6

Distribution of respondents (in %) assessing the level of inflation in the period between 30.06.2023–30.06.2025

Inflation	31.12.2022	30.06.2023	31.12.2023	30.06.2024	31.12.2024
Below 3,5%	0,9%	0,0%	0,0%	1,7%	5,1%
3,5–5%	2,6%	4,3%	3,4%	6,8%	10,3%
5,1–8%	7,7%	12,0%	12,0%	17,1%	17,9%
8,1–11%	13,7%	9,4%	16,2%	20,5%	25,6%
11,1–14%	1,7%	12,0%	20,5%	21,4%	15,4%
14,1–17%	15,4%	27,4%	23,9%	15,4%	13,7%
Above 17%	58,1%	35,0%	23,9%	17,1%	12,0%

Source: own elaboration.

Survey 2 was conducted between March and April 2023. As of 30.06.2023 37.6% respondents selected responses between 8.1% and 14%, which is lower than in the previous survey. On the other hand, in March 2022, the inflation forecast by the NBP was 11.9%, so this is already more similar to the previous forecasts.

In November 2023, the NBP projection assumed to continue extinction of the effects caused by the strong negative supply shock associated with the COVID-19 pandemic and Russia's aggression against Ukraine. The domestic demand and economic activity abroad were expected to recover, which would lead to a marked acceleration of economic growth in Poland in 2024–2025. Further fiscal instruments, including the increase of the parental benefit from PLN 500 to PLN 800 (from the beginning of 2024) and the permanent introduction of the fourteenth pension, were also said to support economic growth in this horizon according to NBP (NBP, 2023).

Table 7

Distribution of respondents (in %) assessing the level of inflation in the period 30.06.2023–30.06.2025

Inflation	30.06.2023	31.12.2023	30.06.2024	31.12.2024	30.06.2025
Under 3,5%	0,0%	0,0%	0,0%	1,5%	6,0%
3,5–5%	1,5%	2,3%	4,5%	6,8%	12,8%
5,1–8%	7,5%	7,5%	9,0%	16,5%	19,5%
8,1–11%	6,0%	7,5%	17,3%	19,5%	18,0%
11,1–14%	3,8%	17,3%	20,3%	14,3%	9,8%
14,1–17%	26,3%	21,8%	12,0%	12,0%	12,0%
17,1–20%	36,1%	19,5%	21,8%	14,3%	11,3%
20,1–23%	12,0%	20,3%	12,0%	12,8%	6,8%
Above 23%	6,8%	3,8%	3,0%	2,3%	3,8%

Source: own elaboration.

Conclusion

The main objective of the article was to analyze the use of standard and non-standard monetary policy instruments by central banks under shock conditions and to assess the public perception of the effectiveness of monetary policy of the National Bank of Poland, based on a survey carried out in two rounds. In particular, the following hypothesis were tested: (1) that the activity of the central bank in the area of monetary policy in Poland under conditions of shock is characterized by low effectiveness in the opinion of financial market customers; and (2) that socio-demographic factors such as place of residence, gender, age, occupational status, current level of monthly net income, loan liabilities held and the scale of savings held influence the evaluation of the effectiveness of the central bank's policies in Poland.

The first hypothesis was confirmed. The NBP activities were predominantly negatively rated, but there was an improvement in the evaluation during the beginning of the disinflation process (survey 2). The second hypothesis was also confirmed. In order to assess the significance of the association of selected socio-demographic factors with the evaluation of the effectiveness of the Polish central bank's actions, a chi-square test of independence was used and the significance level was set at 5%. The most frequently confirmed determinant of the evaluation of the effectiveness of central bank actions is the gender of the consumer, which showed a significant relationship with the evaluation of the NBP in terms of the effectiveness of maintaining a stable price level (in both surveys), the use of non-standard monetary policy instruments (in survey 1). Age had a significant impact on the assessment of the NBP organization (in survey 1) and the assessment of the effectiveness of maintaining a stable price level (in survey 2). A relationship was confirmed between the current level of net monthly income of customers and the central bank's use of non-standard monetary policy instruments (in survey 1). A significant relationship was found between occupational status and the assessment of the effectiveness of the NBP in maintaining a stable price level (in survey 2). The place of residence of customers also significantly affects the assessment of the effectiveness of the NBP in maintaining a stable price level (in survey 2). The assessment of the effectiveness of the central bank's response to monetary shocks depended on the level of credit/loan liabilities held by customers in study 2. The level of savings held influenced the assessment of the effectiveness of the NBP in maintaining a stable price level in study 1.

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Received: 12.05.2025
Accepted: 07.06.2025
Available online: 30.06.2025