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Reaction of the National Bank of Poland to the Impact of the COVID-19 Pandemic

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Abstract:

Purpose: *The aim of this article is to analyse the actions taken by the National Bank of Poland (NBP) in view of the impact of the COVID-19 pandemic during first two years since its outbreak.*
Design/methodology/approach: *This paper primarily focuses on the implementation of new tools; it also looks at the change in the previous instruments and in the parameters of the NBP's monetary policies.*
Findings: *The NBP's stance on the transformation in the field of central bank currency digitalisation and on the need to keep traditional money in circulation is also outlined.*
Practical implications: *Results of this study could be employed to alleviate the effects of future financial crises and to ensure a balance between the Central bank traditional and digital currency.*
Originality value: *This article presents one of the first evaluation studies of the operations carried out by the Polish Central bank during the first two years of the COVID-19 pandemic and outlines the consequences of economic interventionism.*

Keywords: *Central bank, monetary policy, quantitative easing, COVID-19 pandemic, cash, Central bank digital currency.*

JEL codes: *E42, E58, F64.*

Paper type: *Research article.*

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1. Introduction

In Poland, the COVID-19 pandemic began in March 2020. The first infection was recorded on 4 March 2020 while the first economic restrictions were announced on 13 March 2020. However, it was already on 16 March 2020 that the National Bank of Poland (NBP) reacted to the outburst of the pandemic, before some other central banks did. Central banks in non-euro zone UE countries usually responded in approximately two and a half week (17 days) after the first infection was recorded. In extreme cases, it took them longer to react, e.g., 5 days (Bulgaria) and 42 days (Sweden) (Kozińska, 2021, pp. 109-110).

The outburst of the COVID-19 pandemic gave rise to the 2020+ crisis, called the Covid crisis. It was, however, different from the previous ones (e.g., the 2007+ financial crisis), among others due to its cause, impact and the way it developed. Additionally, the Covid crisis is accompanied by the significant geopolitical changes. Also, the processes of digitalisation and climate policies accelerated. Therefore, the response to the impact of the COVID-19 pandemic should not be assessed in isolation from the other, often related trends observed in the contemporary world.

The aim of this article is to analyse the actions taken by the National Bank of Poland (NBP) in view of the impact of the COVID-19 pandemic during first two years since its outbreak. This paper primarily focuses on the implementation of new tools; it also looks at the change in the previous instruments and in the parameters of the NBP's monetary policies. The NBP's stance on the transformation in the field of central bank currency digitalisation and on the need to keep traditional money in circulation is also outlined.

This article presents author's observations on the actions taken by the Polish central bank during the first two years of the COVID-19 pandemic. For the purposes of this study, the author relied on the method of critical analysis of the literature and available sources, descriptive and comparative studies and a case study. The analysis carried out in the paper is based on the data available until 28 February 2022 (cut-off date).

2. Quantitative Easing

Among the non-standard instruments used by the NBP in reaction to the 2020+ crisis, the implementation of the quantitative easing policy should be mentioned in the first place. This step should be seen as historic and unprecedented: never before has the NBP undertaken this kind of operation; neither has the great majority of the non-euro zone EU central banks.

According to the NBP, the purpose of the quantitative easing policy is to change the long-term liquidity structure in the banking sector, to ensure the liquidity of the secondary market of purchased securities and to strengthen the effect of the reduction of the NBP interest rates, i.e., to strengthen the monetary transmission mechanism (NBP, 2021d, p. 13).

Asset purchase combined with the reduction of interest rates (to be mentioned later in this article) also leads to a significant decrease in bond profitability, which reached historically low levels (the government paid approx. 0% for a two-year debt). Thus, the state could incur debts at low costs. Owing to the NBP operations in 2020, the state budget's savings on the cost of public debt servicing were estimated at PLN 7.2 billion (NBP, 2021d, p. 6).

Moreover, the changes in the profitability of Treasury securities were quite abrupt while their scale was many times greater than the historically observed volatility. This was partly caused by the lower market liquidity. Lower liquidity of the market of Treasury bonds was reflected – among others –in the growing spread between the yield of Polish bonds on the secondary market, especially for the less liquid floating coupon Treasury bonds and in the increase in the spread of the so called asset swaps (reflecting the total impact of the difference in credit risk valuation and of the liquidity of bond market and IRS) (NBP, 2020b, p. 20).

Let us now look at the NBP operations which involved purchasing Treasury securities and debt securities guaranteed by the State Treasury on the secondary market, which started in 2020. It should be emphasized that the NBP decided to purchase securities only on the secondary market, which is legally admissible. In the current legislative context, it is no longer legally possible to purchase securities on the primary market.

Pursuant to art. 48 of the National Bank of Poland Act, the NBP may sell and buy debt securities in open market operations while current laws do not allow the NBP to purchase securities issued by any public entity in the primary market. Also, the NBP may not directly purchase securities issued by the Polish Development Fund (PFR). It is worth noting that the range of financial instruments purchased by the NBP is much smaller as compared to other central banks (e.g., FED declared to purchase unlimited numbers of Treasury and corporate bonds; FED also buys credit card debts or car loans from the market).

The first non-standard operations on the Polish market were carried out already in the first days of the second half of March 2020, i.e., the first repo operation was made on 16 March 2020 (totalling PLN 7.3 billion), while on 19 March 2020, the NBP offered to repurchase Treasury bonds on the secondary market under structural open market operations for the price of PLN 10 billion (practically, it repurchased them for the price of PLN 2.7 billion). By the end of April 2020, the NBP carried out 5 bills sale auctions worth PLN 62.6 billion, of which PLN 30.7 billion was raised during the fourth bills sale auction. By end of May 2020, the NBP completed 7 asset purchase operations, buying securities worth over PLN 90 billion.

Moreover, sale of bonds by the Bank Gospodarstwa Krajowego (BGK) on 17 June 2020 was for the first time held in the form of bills sale auction organized by the NBP. In July 2020, the limit of PLN 100 billion was broken, on 8 July 2020, the National Bank of Poland repurchased 7 bond series for PLN 5.2 billion, including Treasury securities worth PLN 765 million, and BGK bonds totalling PLN 4.2 billion as well as PFR's bonds – for the price of PLN 150 million. This was the tenth NBP's bills sale auction.

In total, the NBP purchased securities from the market for PLN 101.3 billion, where government bonds accounted for PLN 51.6 billion while the PFR and BGK bonds guaranteed by the State Treasury accounted for PLN 49.8 billion. The last bills sale auction carried out in July was not significant as compared to the values of securities purchased so far (NBP repurchased securities for less than PLN 1.6 billion). It is worth mentioning that on 22 July 2020, for the first time since 29 April, the NBP did not purchase the PFR securities.

The bills sale auctions held in August and in September were even lower than that of 22 July 2020, the NBP repurchased securities for PLN 357 million (19 August) and PLN 685 million (16 September), respectively. By October 2020, the NBP repurchased the bonds of total nominal value of approx. PLN 103.9 billion (approx. PLN 109 billion at purchase price), including government bonds worth PLN 52.7 billion and bonds guaranteed by the State Treasury worth PLN 51.3 billion, where the PFR securities accounted for PLN 18.9 billion and the BGK securities – for PLN 32.4 billion.

Thus, the scale of quantitative easing carried out by the NBP noticeably slowed down in QIII 2020. At the fourteenth bills sale auction held in October, i.e., the first bills sale auction in QIV 2020, the NBP repurchased bonds for the price of PLN 1.32 billion, where the BGK securities accounted for PLN 1.15 billion. In total, by the end of October, the NBP repurchased bonds of total nominal value reaching PLN 105.3 billion (PLN 110.9 billion at purchase price), and by the end of 2020 – of total nominal value of PLN 107.1 billion (NBP, 2021d, p. 6) (i.e., totalling almost PLN 113 billion at purchase price) (Obserwator Finansowy, 2021).

During the first wave of the COVID-19 pandemic, the scale of quantitative easing in Poland was outstanding as compared to the other non-euro zone EU countries. The value of securities repurchased under quantitative easing – in relative terms – was approx. 4.5% of Poland's GDP (similar ratio was recorded in Croatia) (Kozińska, 2021, pp. 118-119). In 2021, the scale of securities repurchase by the NBP was lower than in the previous year.

Moreover, it is worth noting that until 16 April 2020, the NBP was purchasing only Treasury securities, recording on that date a total value of PLN 49.5 billion. From mid-April, at bills sale auctions, the NBP was repurchasing mostly the BGK and PFR bonds. It should also be noted that financing by means of Treasury bonds is –

from the government's point of view – less expensive than BGK or PFR bonds financing. The latter, however, allowed us to postpone the expenditure associated with counteracting the impact of the COVID-19 pandemic outside the public finance sector (Zaleska, 2021, pp. 40-43).

3. Bill Discount Credit

Bill discount credit was first offered to the banks operating in Poland in reaction to the 2007+ financial crisis (it was an instrument of the NBP monetary policy in 2010). Thus, in 2020 it was not a new instrument, although to some extent a non-standard one as it was offered to the banks primarily at the time of crisis. It is therefore by definition a temporary instrument.

The idea of the bill discount credit is that the NBP accepts discount bills of exchange issued by enterprises as a result of PLN working capital loans received by them from commercial banks. This credit is essentially short-term (up to one year), while its – generally low – interest rate is determined by the Monetary Policy Council (RPP), one of the three NBP bodies (Table 1).

Table 1. *The process of granting the bill discount credit*

A framework bill discount credit agreement is signed between NBP and the commercial bank.
The bank signs a credit agreement with an enterprise, this credit is collateralized, among others, by a promissory note; the bank may also be provided with a third-party guarantee of loan repayment by the enterprise.
The bills of exchange are accepted for discount by the appropriate branch of NBP.
The case is examined by the Bill of Exchange Committee in terms of formal inspection.
The bill discount credit tranche is disbursed in the requested amount minus the discount interest.
The bank repays the bill discount credit tranche.
The bill of exchange is returned to the bank.

Source: www.nbp.pl.

From 10 April 2020, the NBP offered access the bill discount credit again, this time in response to the Covid crisis. In order to maintain liquidity, enterprises have access to it in the form of working capital loan through commercial banks, regardless of their legal form and scope of economic activity. This credit may be offered by commercial banks which hold current accounts at the NBP and have good financial standing, i.e., meet the minimum capital adequacy and liquidity requirements (but not being subject to a recovery plan regime). With regard to banks, there are no significant differences between the 2020+ offer as compared to the 2010 instrument.

The main difference lies in the requirements or lack of requirements which the enterprises interested in the bill discount credit must fulfil. In publicly available sources, there is no information about any specific requirements with regard to the financial situation and creditworthiness of enterprises. The 2010 programme included such requirements and the borrower had to prove its creditworthiness. The 2020+ solution, on the other hand, means that the central bank accepts a greater credit risk. While granting such credits, banks mostly transfer this risk.

It should be stressed that there was no practical reaction to the 2010 offer of bill discount credit, also due to the uncertainty of that time and quite strict requirements for this credit to be granted. During the Covid crisis, the instrument was not very popular either (it should be the banks' initiative to sign an agreement). By the end of 2020, the NBP granted bill discount credits of a total value reaching only PLN 52.9 million (NBP, 2021d, p. 14). This may be due to the fact that considerable financing was supplied under the anti-crisis shields which helped enterprises to carry out their day-to-day operations.

Another reason could be the reluctance to invest and incur expenses in the precarious times of crisis. Additionally, due to its over-liquidity at the time of Covid crisis, the banking sector was capable of creating credit activity. The level of reserve held by the banking sector, exceeding the level of the obligatory reserve, in December 2020 totalled on average PLN 183.8 billion and was by PLN 97.4 billion higher than that in the corresponding period in 2019. Moreover, in 2020, it was not necessary to support banks with refinancing credit (NBP, 2021d, pp. 7, 14).

To sum up, the NBP's activity resulted in considerable flexibility in using the bill discount credit, which was a positive move in the context of precarious and uncertain conditions since it was not stated for how long the bill discount credit would be available and at what global scale it would be offered (limits are set for each bank individually).

At the same time, when comparing the solutions applied in the euro-zone with the bill discount credit offered by the NBP, it should be noted that the latter does not involve any incentives to intensify credit activity and is granted at a higher rate than the reference rate. This has generated quite a lively – as for the Polish central banking standards – debate on the possibility and the need for the NBP to carry out the TLTRO (targeted longer-term refinancing operations).

Individual debate participants, including members of the Monetary Policy Council, lawyers, economists and analysts have different views on application of the TLTRO in Poland. Most of them agree, however, that the NBP Act in its current form does not allow for TLTRO to be carried out in Poland. In accordance with art. 42, section 1 of the Act, the NBP may grant refinancing credits in PLN in order to replenish their financial resources, which means putting some limits on the refinancing target. This does not mean that the provisions of the NBP Act cannot be changed. However, the previous attempts to amend the Act turned out to be a difficult process, also due to the political context (Zaleska, 2021, pp. 44-46).

4. Interest Rates

In response to the outburst of the COVID-19 pandemic, the obligatory reserve rate was decreased once from 3.5% to 0.5%, which allowed us to release approx. PLN 40 billion at the end of April 2020. This increased banks' capacity to grant loans and purchase Treasury securities.

Moreover, the Monetary Policy Council three times decreased the NBP interest rates, by 1.4 pp in total, to the record lowest level in the contemporary Polish banking. It should be noted that – especially yet another – third decrease of interest rates, announced by the RPP on 28 May 2020, was not expected by the market analysts.

The third RPP's decision to decrease the interest rates could have been aimed at slowing down the sudden strengthening of the zloty (from mid-May the Polish currency was getting significantly stronger, to achieve the rate of PLN 4.52 to the euro on 25 May 2020). The purpose of this decision could also be to lower the credit interest rate and make it more attractive, thus creating a greater credit demand. There still remains a question whether the demand barrier at the beginning of the Covid crisis was actually the price of loans or perhaps – to a greater extent – the uncertainty and stricter loan requirements (when assessing creditworthiness, more attention was paid to credit history, debt to revenue/income ratio, business area and loan collateral).

Thus, banks started to assess creditworthiness in a more individual way than before. It should be noted that limiting credit action did not result only from the stricter criteria of creditworthiness assessment but also from the decrease in credit demand caused by „flooding the market" with financial resources offered by the PFR (Zaleska, 2021, pp. 46-47) (Table 2).

Table 2. *NPB interest rate changes during the first two years of the COVID-19 pandemic in Poland*

Interest rate as from:	Lombard rate	Discount rate	Rediscount rate	Reference rate*	Deposit rate
05.03.2015	2.50	-	1.75	1.50	0.50
18.03.2020	1.50	1.10	1.05	1.00	0.50
09.04.2020	1.00	0.60	0.55	0.50	0.00
29.05.2020	0.50	0.12	0.11	0.10	0.00
07.10.2021	1.00	0.52	0.51	0.50	0.00
04.11.2021	1.75	1.35	1.30	1.25	0.75
09.12.2021	2.25	1.85	1.80	1.75	1.25
22.01.2022	2.75	2.35	2.30	2.25	1.75
09.02.2022	3.25	2.85	2.80	2.75	2.25

Note: ** yield on 7-day NBP money market bills.*
Source: *www.nbp.pl.*

In October 2021, a cycle of NBP interest rate increase commenced in response to the increase of inflation rate triggered, among others, by the government interventions aimed at lessening the impact of the COVID-19 pandemic. Inflation rate increase was also due to the political decisions taken by some countries rich in traditional sources of energy and to the climate policies pursued first and foremost by the countries relying strongly on renewable energy sources (Table 3).

Table 3*. Inflation rate in Poland during the first two years of the COVID-19 pandemic in Poland*

Date (month, year)	Consumer Price Index, CPI (%)	Excluding food and energy prices (%)
02.2020	4.7	3.6
03.2020	4.6	3.6
04.2020	3.4	3.6
05.2020	2.9	3.8
06.2020	3.3	4.1
07.2020	3.0	4.3
08.2020	2.9	4.0
09.2020	3.2	4.3
10.2020	3.1	4.2
11.2020	3.0	4.3
12.2020	2.4	3.7
01.2021	2.6	3.9
02.2021	2.4	3.7
03.2021	3.2	3.9
04.2021	4.3	3.9
05.2021	4.7	4.0
06.2021	4.4	3.5
07.2021	5.0	3.7
08.2021	5.5	3.9
09.2021	5.9	4.2
10.2021	6.8	4.5
11.2021	7.8	4.7
12.2021	8.6	5.3

Source: *www.nbp.pl*.

In the 21st century in Poland, interest rates higher than those binding from 9 February 2022, continued until June 2013. The last decade (i.e., 2012-2021) saw a gradual decrease in the NBP interest rate values. At the same time, the recent cycle of increasing interest rates has been unprecedented: the interest rates were raised at each of the five consecutive RPP meetings, starting from October 2021. Such systematic decisions to increase interest rates, taken five times, at every consecutive RPP sitting, had never been seen before in the 21st century. Nonetheless, despite such a systematic increase of nominal interest rates, the level of real interest rates – considering the inflation rate – remained „deeply” negative.

It should be noted that the obligatory reserve rate was increased from 2% to 3.5% at the RPP meeting in February 2022 r. (the 2% rate was in force from 30 November 2021). The higher obligatory reserve rate (3.5%) has been in force since 31 March 2022. The aim of the increase of the obligatory reserve rate is, among others, to lower the over-liquidity scale in the Polish banking sector.

5. The Implications of Lower Interest Rates

Apart from its macroeconomic implications, lowering of the NBP interest rates affects banks (especially their financial results and valuations) and their clients.

In 2020, the valuation of shares of the banks operating in Poland in one- and three-year perspective saw a much greater decline than the valuation of shares of other companies. The WIG Banki index in the above mentioned periods recorded much bigger decrease than other indexes quoted at the Stock Exchange. Additionally, the reductions were greater than those of the main foreign indices, including the foreign banking sector indices (UKNF, 2021, p. 5).

Bank stock exchange listings lead – among others – to a decrease in the net asset value of pension funds, whose portfolios primarily include equity instruments of banks and companies in the fuel and energy sector. From December 2019 till end of March 2020, in Poland, the above mentioned net assets declined in value by as much as 33.2% (NBP, 2020b, p. 68). This entails a negative impact on the level of pensions received by the Poles in the future.

According to the NBP, a reduction of the reference rate (by 1.4 pp.) results in a decrease in the banking sector net interest margin by an average of 15-30% (NBP, 2020b, p. 51). Simultaneously, from the banks' perspective, further reduction of interest rates led to a further decrease in the revenues, which was worse than in the case of previous interest rates cuts due to the fact that it was no longer possible to further lower the interest on banking products and services.

This poses a considerable challenge to cooperative banks, which now tend to consolidate, among others due to a lower operating profitability. According to the financial data of the banks, the impact of lower interest rates became fully evident only from QIII 2020. Interest income in the first three quarters of 2020 were by 12% lower than a year before. Interest expense was reduced by more than three times in the above mentioned period, i.e. by 36%, which resulted from a significant reduction of deposit interest rates. According to the NBP data, in October 2020, banks paid to the households deposit interest rates totalling PLN 1,372.3 million as compared to PLN 2,105.5 million paid out in October 2019. In the corresponding periods, enterprises received interest rates amounting to PLN 63.2 million as compared to PLN 193.8 million.

According to the data published by the Polish Financial Supervision Authority (UKNF), in 2020, due to the changes in the financial markets caused by the COVID-19 pandemic, banks systematically lowered rates of interest on fixed-term deposits both for the households (from the average market level of 1.19% in January to 0.25% in December), and for the enterprises (from the average market level of 0.95% in January to 0.01% in December). Over-12 month fixed-term deposits offered to private individuals bore the highest interest rate (0.38%), while deposits of up to one month – the lowest (0.10%). Also, the number of different deposits offered to clients declined. In the case of deposits offered to enterprises, three banks completely withdrew their offer (UKNF, 2021, pp. 5, 41).

Banks have always tried to compensate the falling interest result with an increase of the commission result. Low interest rates thus lead to a notable increase of charges and commissions levied by the banks. During the Covid crisis, free of charge bank services practically ceased to exist. This way, during the first three months of the pandemic, the price bank services in Poland rose by nearly 40%.

However, a decrease in interest income and in bank profitability in the context of low interest rates is not surprising. It was repeatedly confirmed both in practice and by scientific studies. High interest rates increase general bank profitability. (Borio, Gambacorta, Hofmann, 2015, p. 18), while low interest rates – decrease it.

According to the NBP data, the net profit generated in the banking sector between January and September 2020 totalled PLN 5.92 billion, which means a drop by 49.3% year-on-year (y/y). On the other hand, the net profit in the banking sector between January and October 2020 totalled PLN 6.68 billion, i.e. it dropped by 49.2% y/y. The net profit in the sector for the eleven months of 2020 reached PLN 7.87 billion, which constitutes a decrease by 45.5% y/y. The profit generated by the banking sector in 2021 (by the end of August), however, was much higher than in the previous year (it rose by 60%), mainly owing to lower provisions for credit risk. Financial results and profitability ratios of the banking sector still did not return then to the previous levels, prior to the COVID-19 pandemic (NBP, 2021c, pp. 34-35).

According to the UKNF data, the financial result of the Polish banking sector realized in 2020 totalled PLN 931.5 million and was lower than that in 2019 by 93.3%, i.e. by PLN 12 874.7 million. The profitability of the sector, expressed in ROE ratio, decreased by 6.4 pp. as compared to the end of 2019, to the level of 0.30% as of end of December 2020. The greatest decrease of profitability ratios was experienced by the commercial banks, for which ROE decreased by an average of 6.79 pp. y/y, while in the sub-sector of cooperative banks it fell by 0.95 pp. y/y. A similar relationship was recorded for ROA (respectively -0.75 pp. and -0.09 pp.) (UKNF, 2021, pp. 4, 12).

According to the UKNF data, as of end of December 2020, 25 banks (8 commercial banks and 17 cooperative banks) incurred a total loss of PLN 1.5 billion. These banks had an approx. 8.5% share in the assets of the banking sector. After eight, and also after nine and ten months of 2020, 20 banks operating in Poland showed a negative net result (9 commercial banks and 11 cooperative banks). They incurred a net loss of over PLN 1.1 billion in this period. As of end of July 2020, 17 banks (9 commercial banks and 8 cooperative banks) showed a total loss of PLN 1.0 billion. These banks had an approx. 10% share in the assets of the banking sector.

The previous UKNF reports showed, however, that the total loss in the first half of 2020 reached nearly PLN 470 million, which means that the loss of the unprofitable part of the banking sector doubled within one month only. The UKNF explained at the same time that the data for July 2020 also include new reporting information, which referred to the periods before July. Moreover, the June results were adjusted. Also, the differences between the biggest and the most profitable banks and the other small and unprofitable banks increased. The five largest banks' share in the profit of the entire banking sector for seven months in 2020 rose nearly to 85% (at the end of 2019 it reached 76%).

However, the banking sector profitability decreases not only due to low interest rates but also due to a considerable rise of Treasury bonds in their portfolios (at the expense of credit activity). The share of Treasury securities in banks assets at the end of the first half of 2020 rose to 19.4% from 15.2% in December 2019 (at the end of February 2020 it reached 18% - excluding BGK (NBP, 2020b, p. 38)). Their value was twice higher than the value of own funds held by the banks. This made the banks more exposed to the changes in the prices on the Treasury bonds market. However, on the other hand, the quantitative easing policy carried out by the central bank levelled off price volatility (NBP, 2020a, pp. 55, 57). At the same time, credit activity carried out by the banks in Poland rose by 2%.

Moreover, profitability of the Polish banking sector is negatively affected primarily by the provisions for credit and legal risk (connected with the so called Swiss franc mortgage loans).

In the first half of 2020, the share of Swiss franc mortgage loans threatened by lawsuits rose form 7% to 10% of the total value of the their portfolio. After the decision of the European Court of Justice (ECJ), a change in the structure and type of loan agreements threatened by lawsuits was observed, i.e., the share of denominated loans was higher as compared to the inflation-indexed loans.

Continuation of this trend was viewed negatively as an additional adverse impact on the banks which granted a lot of denominated loans (NBP, 2020a, p. 32). It was also estimated that the Swiss franc mortgage loan reserve reduced the net profit generated in the banking sector in the first 9 months of 2020 r. by approx. PLN 2 billion. At the end of the first half of 2020, the value of reserves and provisions for legal risk associated with foreign currency loans reached approx. PLN 2.9 billion (NBP, 2020a, p. 36).

A higher increase of reserve in relation to the Swiss franc mortgage loan portfolio occurred however in the second half of 2020, while at the end of the first half of 2021, the reserve total value was over PLN 15 billion, out of which 95% was destined for the Swiss franc mortgage loans shown in the balance sheet. The level of reserves for Swiss franc mortgage loans created by individual banks depends at the same time on the models individually developed by these banks using the framework outlined in the International Financial Reporting Standards (IFRS). The reserve to Swiss franc mortgage loan portfolio ratio is therefore notably different for different banks.

According to estimates at the end of June 2021, it had an average value of 19%, however, in some banks it reached 30-45%, while in some other it was lower than 10% (NBP, 2021c, pp. 30-32).

The method of creating provisions for credit risk is also important. The provisions created so far by the cooperative banks – different to those applied by commercial banks using the IFRS – were lower due to the rules used to create them. Cooperative banks draw up their financial statements according to the Polish Accounting Standards (PSR), which do not have the concept of the loss expected in the future but mostly uses reserves for the incurred losses (NBP, 2020a, pp. 22-23).

From the point of view of the banks' clients, reduction of interest rates affects both the borrowers and the depositors.

Low interest rates should result in lower interest burden on the borrowers. According to the NBP, lower interest rates reduce the interest burden on households and companies by PLN 6-7 billion annually.

Low interest rates, and hence inexpensive loans make it easier for not very effective enterprises to survive on the market. This phenomenon is called 'zombification' of the economy. In the literature, a 'zombi' company is a firm which is not able to cover the cost of debt service from its current profit for a longer period (Banerjee and Hofmann, 2018, p. 1). A longer period is defined as consecutive three years, however, it refers to the companies operating on the market for at least 10 years (Obserwator Finansowy, 2018).

The number of zombi-firms is growing steadily while economic crises foster 'zombification'. Apart from low interest rates, in times of crisis, economies and enterprises are heavily supported by different aid programmes. This way, institutional initiatives launched in order to lessen the impact of the COVID-19 pandemic may lead to increasing the number of zombie-firms, which would not be able to operate without aid programmes in the context of higher interest rates.

A considerable reduction of the NBP interest rates also presents a challenge to the depositors whose interest is lower than before. At this point, we should mention the scale of the challenge posed to Poland as compared to other countries. At the end of 2019, the deposits accounted for 72% of the financial assets of the Polish households while the European average was 37%. The scale of this challenge is shown by the NBP data which indicate that in September 2020, Polish banks paid interest on households' deposits in the amount of PLN 1,462.8 million as opposed to PLN 2,124.5 million in September 2019. Low interest rates on deposits moves part of the savings towards more risky investment funds, the stock exchange as well as the property market.

Nonetheless, despite the reduction of interest rates in the first half of 2020, deposits in the banks operating in Poland increased by PLN 210 billion, up to PLN 1.69 trillion, which meant an increase by 14% (by 18% year-on-year). In the second half of 2020, the value of deposits in the banks broke the limit of PLN 2 trillion. Thus, in the first periods of the pandemic, passive credit risk did not materialize. In turn, in the corresponding period, loans increased – as mentioned above – only by PLN 30 billion up to PLN 1.44 trillion, i.e. by 2%. In result of these changes, the loan-to-deposit ratio dropped to 85.5%, strengthening the already high over-liquidity of the Polish banking sector. That is also why the banks do not seek clients' deposits and keep interest on deposits on a very low level, in reality offering negative interest rates.

The optimum level of interest rates has been discussed in specialist literature for years now. Recently, the discussion has become even more animated with regard to the problem of some banks using negative interest rates, even in the nominal aspect. For instance, low, negative interest rates increase speculative, price bubbles (in Sweden, negative interest rates generated greater interest in mortgage loans, which artificially boosted the situation on this market).

Moreover, the studies show that the greatest positive impact on risk and loan taking occurred when interest rates decreased from 1% to 0%. Hence, 0% interest rates have the strongest impact on individual decisions and are more effective than negative interest rates in terms of propensity to borrow money and to take risk (David-Pur, Galil, and Rosenboim, 2020, p. 1).

6. The Implications of Higher NBP Interest Rates

An increase in interest rates is aimed at counteracting the phenomenon of growing inflation rate. The level of interest rates affects not only the price of money on the market and macroeconomic figures but also the conditions of banks' operations and the finances of banks' clients. An increase in interest rates has a positive impact on banks' financial results, also due to a rise in interest margin. The effect of higher interest rates has already been evident in the financial results achieved by the banks in 2022 and was visible in the last months of 2021. The ROE ratio in the Polish banking sector at the end of September 2021 totalled 1.54%, while at the end of December 2021 it rose to 4.34%, which means at the same time an increase by 4.43

pp. as compared to end of 2020. The net financial result for 2021 amounted to PLN 8.8 billion. Despite this last positive net financial result of the entire Polish financial sector, some banks recorded losses at the end of 2021. As of end of December 2021, 25 banks (9 commercial banks and 16 cooperative banks) showed a total loss of approx. PLN 4 billion. These banks held an approx. 16% share in the assets of the entire banking sector. The other banks showed therefore a total profit of approx. PLN 13.5 billion (UKNF, 2022, pp. 4, 7-8).

Interest rates on loans usually increase faster and to a greater extent than deposit interest rates, especially in the context of over-liquidity of the banking sector. An increase of interest rates results not only in higher costs of loan servicing but also lowers the borrowers' creditworthiness. Thus, credit becomes less available for some clients of the banks.

On the other hand, rising interest rates should be a positive sign for depositors. Nonetheless, the banks operating in Poland are very reluctant to rise deposit interest rates in response to the rise of the NBP interest rates. This is due – among others – to the over-liquidity of the Polish banking sector and to a constantly growing volume of deposits held in banks. The value of deposits in the non-financial sector in December 2021 rose to PLN 1553.1 billion, i.e. by 8% as compared to end of 2020. As of the end of 2021, deposits accounted for 72.7%, while loans – for 56.5% of the banks' balance sheet total (UKNF, 2022, pp. 9, 26).

7. Cash Operations vs. Money Digitalisation – A Polish Perspective

In the context of pandemic and low deposit interest rates we have seen a greater demand for cash, especially 100 zloty notes, which are most frequent in circulation. According to the NBP, in QI 2020, the value of banknotes in circulation increased by over PLN 30 billion (from the beginning of the year to mid-May, the value of cash rose by 23% (NBP, 2020b, p. 48)) – mostly in March, i.e., the initial period of the pandemic. In April and May 2020, the volume of cash in circulation still increased. Throughout the entire 2020, the value of cash in circulation increased by 35% reaching the value of PLN 321 billion at the end of 2020 (Obserwator Finansowy, 2021). In 2021, the value of cash (including the bank counters) exceeded the level PLN 350 billion (NBP, 2021a).

The Poles kept cash at home mainly because of uncertainty. At the same time, they were recommended to make cashless payments due to sanitary restrictions. Even the central bank stressed the role of cash in circulation and for payments, in the communication of 10 April 2020 the NBP called for the general cash acceptance.

The NBP reiterated that pursuant to art. 32 of the National Bank of Poland Act, the banknotes and coins issued by the NBP are the legal tender in the territory of the Republic of Poland and in principle should be widely accepted by entrepreneurs as a form of effecting transactions. Any departure from this rule should be possible only if specific legal requirements are met and also in such situations as e.g. online business activity or business activity which does not involve on-site customer service. These forms, due to their character, are exclusively based on accepting cashless payments.

In November 2020, the Governor announced that the NBP – as the project leader – would start working on the 'national cash security strategy.' According to the NBP stance, all payment instruments should be equally supported, while consumers and citizens have the exclusive right to choose payment instruments. Moreover, the central bank stressed that the present legal regulations do not fully allow the NBP to exercise control over the processes connected with cash servicing on the market. According to the NBP, the main areas of the national cash security strategy include in particular:

- broadly understood security of cash transactions,
- counteracting intentional activity aimed at eliminating cash from business transactions,
- drafting a proposal of legislative changes concerning security of cash transactions.

This is a broader issue associated not only with the impact of the COVID-19 pandemic. For years, some stakeholders, including banks, have been trying to considerably diminish the role of cash in payments. Meanwhile, there certainly is a need for harmony between cash and cashless payments, and hence, we should not seek to eliminate cash from circulation.

It should be added that Poland has passed the Act of 17 September 2021 amending the Act on Payment Services. The amendment sets out an obligation to accept cash payments and excludes full limitation of cash payments. At the same time, the Act envisages that additional charges may not be levied on cash payments. The obligation to accept cash payments does not apply:

- if the acceptor conducts online business,
- if there is no staff present at the place of business,
- at mass events, if the acceptor includes relevant information in the event regulations,
- to one-off transaction, regardless of the number of payments made in this transactions, whose value equals the value of average remuneration the enterprise sector, without bonuses paid from profit in QIII of the previous year, or is greater.

It should be noted that some central banks, e.g., the ECB, started to work on digital currency, claiming at the same time that it should be only „additional" to cash. As yet, the NBP has not presented any plans of implementation of the e-zloty and stressed that it is not working on the development of digital currency, only analysing the pros and cons of the central bank digital currency. The Polish central bank reiterates among others that the consequences for commercial banks as well as legal risk and cybersecurity implications resulting from the implementation of the central bank digital currency will be far-reaching (NBP, 2021b, pp. 37-51).

8. Conclusions

Among the Polish financial safety net institutions, the central bank's reaction to the impact of the COVID-19 pandemic was most thorough and complete. In response to the Covid crisis, the NBP took immediate and unprecedented steps, both in terms of standard and non-standard instruments of monetary policy. Among the non-standard steps, we should mention the launch of quantitative easing policy in March 2020. Without this policy, the government would not have been able to offer aid, in particular to enterprises, in the form of the anti-crisis shields.

Thus, in response to the outburst of the pandemic, the direct inflation targeting strategy receded into the background while the strategy of rescuing and supporting the economy turned into the primary aim. Moreover, there appeared the sovereign-bank nexus as the national banking sector became an owner of the volume of national bonds issued by the State Treasury that was even greater than before the COVID-19 pandemic.

At this point, we should emphasize that at the time of COVID-19 pandemic, the NBP significantly supplied the state budget with the generated profit. The NBP profit for 2019 amounted to PLN 7.8 billion and mainly derived from currency reserve: PLN 7.6 billion. On 1 June 2020, the NBP transferred PLN 7.4 billion to the state budget. This supply with the amount of over PLN 7 billion affected – alongside with quantitative easing policy – the potential to finance the government activity, also the activity connected with the impact of the COVID-19 pandemic. The NBP net profit for 2021, as announced by the NBP Governor, was higher than for the previous year and exceeded PLN 10 billion.

It should be noted that interventionism in market economy, apart from its benefits, also generates systemic risk (Koleśnik, 2019, p. 21) as well as side effects. Such a side effect, strengthened among others by geopolitics, is the increase of inflation rate and the return to the debate on the importance of meeting the inflation target.

To summarise, it is important to keep well in mind the lessons from the Covid crisis and the conclusions from the economic and monetary policy of that period. Nonetheless, the experience learnt in previous crises show that societies and governments quickly forget such lessons (Zaleska, 2019, p. 84). It should be remembered that the domain of science and scientific research follows different rules than the world of politics, and it is first and foremost politicians who decide about the future of this world.

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