



NARODOWY
BANK POLSKI

Report on Cash Circulation in Poland in 2022



Report on Cash Circulation in Poland in 2022

Warsaw 2023

Drafted by the team led by:
Barbara Jaroszek, Director, Cash and Issue Department
Joanna Kołodziej, Deputy Director, Cash and Issue Department

Authors:
Mirosława Braja-Brzykcy
Juliusz Dobrołęcki
Izabela Fijałek
Małgorzata Kapelińska
Anna Kondraciuk
Joanna Kołodziej
Monika Kowalewska
Grzegorz Kozioł
Grzegorz Materniak
Anna Wójcicka

Published by:
Narodowy Bank Polski
00-919 Warszawa
ul. Świętokrzyska 11/21 tel.: +48 22 185 10 00
nbp.pl

© Copyright Narodowy Bank Polski, 2023

Table of Contents

1. Summary	5
2. Banknotes and coins in circulation	11
2.1. Value and number of banknotes and coins in circulation	14
2.2. Frequency rate of return of banknotes and coins	17
3. Cash and cashless means of payment	21
3.1. Trends observed in Poland	22
3.2. Trends in selected countries	27
Box A. Verification of the authenticity of banknotes	34
4. Cash circulation market characteristics	37
4.1. The cash circulation cycle and its participants	38
4.2. Legislation governing cash circulation	40
4.2.1. Seizure of banknotes and coins suspected in terms of their authenticity	41
4.2.2. Protection of banknotes and coins	42
4.2.3. Replacement of banknotes and coins	42
4.3. Reporting in the scope of cash circulation	43
4.3.1. Legal conditions	43
4.3.2. Statistical data	44
4.4. Cash Circulation Council	47
4.4.1. National Strategy for Cash Circulation Security	48
Box B. Cash availability in Poland – results of the 2022 survey	52
Box C. Cash back or shop withdrawal	54
5. Cooperation with banks in the scope of Polish currency supply	57
5.1. The supply process in 2022	58
5.2. Withdrawing Polish currency	62
5.2.1. Banknotes	62
5.2.2. Coins	64
5.3. Lodging Polish currency in NBP by banks	65
5.3.1. Banknotes	66
5.3.2. Coins	69
Box D. Tendencies in supplying Polish currency to banks in 2018–2022	71
6. Glossary of terms	75

Chapter 1

Summary

Summary

Narodowy Bank Polski (hereinafter NBP) is the central bank of the State and, as an institution, plays a major role in the monetary system. The scope of NBP's operations is regulated, in particular, by the Constitution of the Republic of Poland, the Act on Narodowy Bank Polski and the Banking Law. The key tasks of NBP include its exclusive right to issue banknotes and coins and organise the management of banknotes and coins of the Republic of Poland. Within these activities, the central bank ensures the adequate quality of banknotes and coins in circulation and liquidity of cash settlements, putting banknotes and coins in the full denomination structure in circulation.

Pursuant to Article 32 of the Act on Narodowy Bank Polski, banknotes and coins issued by NBP have the status of legal tender on the territory of the Republic of Poland. NBP's activity in the scope of cash cycle comprises the following: orders for the production of banknotes and coins placed at manufacturers, the verification of the authenticity and fitness of banknotes and coins as well as storage and supplying banks with banknotes and coins. The area which NBP influences directly by means of regulations concerning the withdrawal and lodging of the Polish currency comprises mainly banks.¹ However, it should be indicated that besides the central bank and banks, domestic cash circulation participants also include manufacturers of banknotes and coins, CIT companies processing cash on behalf of banks, ATM deployers, retailers and consumers.

In the regulatory area of the cash circulation market in 2022, NBP was involved in a number of activities resulting in legislative changes. The most significant include issuing the opinion on the Regulation of the Minister of Justice of 7 April 2022 on banknotes and coins of suspicious authenticity and counterfeit banknotes and coins, involvement in the introduction of provisions allowing for a periodic doubling of the limits on banknotes and coins that could be transported to banks and ATMs (after the outbreak of the war in Ukraine) and the creation of the storage possibilities for coins denominated in Polish currency or foreign currency in rooms other than vaults in facilities subject to mandatory protection, as well as the amendments introduced by NBP to the Regulation on detailed rules and procedures for the replacement of coins and banknotes which, due to wear and tear or damage, cease to operate as legal tender in the territory of the Republic of Poland.

In the area of cash circulation, Narodowy Bank Polski not only plays a regulatory role, but is also a catalyst for change. In fulfilling this function, NBP cooperates with participants of the cash circulation market and regulators in the framework of the Cash Circulation Council (hereinafter also referred to as the Council), a consultative and advisory body to the Management Board of Narodowy Bank Polski. The Council provided an important platform for information exchange both during the COVID-19 pandemic, continuing in 2022, and during Russia's armed aggression on Ukrainian territory.

Immediately after the outbreak of the war in Ukraine, Narodowy Bank Polski, in cooperation with the National Bank of Ukraine, launched a programme to exchange Ukrainian hryvnia to Polish zloty. This was the first initiative of its kind in Europe and became a model for

¹ For the needs of this Report, the term "banks" also comprises entities other than banks with statutory authority to withdraw and lodge Polish currency from/in NBP.

launching similar programmes in other countries. Under the programme, more than 100,000 Ukrainian citizens exchanged hryvnias with the value of 728 million hryvnia to Polish zloty. The actions taken by Narodowy Bank Polski and the National Bank of Ukraine have been recognised internationally and both banks were awarded the title of winner of the most prestigious award in the world of central banking: Central Banking Awards – Currency Manager Award. This is an award confirming the effectiveness of the care for the value of the Polish currency and currency management by Narodowy Bank Polski.

In 2022, Narodowy Bank Polski launched the implementation of the measures defined jointly with market participants in the National Strategy for Cash Circulation Security (hereinafter the Strategy) adopted by the Council and subsequently, in November 2021 by the NBP Management Board. As part of the implementation of the Strategy, a number of analytical, monitoring, legislative, self-regulatory and recommendation activities were undertaken, grouped under four pillars: universal acceptance and availability of cash, smooth supply of Polish currency to the market, physical security of banknotes and coins and cyber-security of IT systems used in cash transactions. In terms of cash accessibility, it is particularly noteworthy that this accessibility in Poland remains high, since approximately 90% of the population has access to cash within a distance of 5 km from their place of residence and 99.5% within a distance of 10 km. This meets the cash availability criterion adopted in the Strategy.

In the changing reality, driven by technological progress, with cashless payments playing an increasingly important role, cash still remains an important part of the payment landscape in many countries, including Poland, and is gaining more and more importance as a means of precautionary store of value. Although the share of cash in transactions is gradually decreasing, it is still important for society in many countries. In the public opinion survey of 2022 conducted in Poland, approx. 33% of respondents indicated that they use only cash or use cash more often than non-cash payments. At the same time, one in two respondents stressed that it was important to them that they could always pay with cash when shopping, even if they did not use this instrument on a daily basis. In the euro area, cash was the most important means of payment in retail outlets for 59% of people.²

Cash plays a stabilising role in crisis situations. The response of the Polish public in terms of increased cash withdrawals, mainly through ATMs, observed immediately after the outbreak of the war in Ukraine, clearly indicates that in times of uncertainty, citizens, especially those who do not use cash on a daily basis, tend to reach for it. Only in the first eight operational days of Russia's armed aggression against Ukraine, banks withdrew PLN 42 billion from NBP to meet the unprecedented demand of Poles for cash, which was equivalent to the withdrawals in the entire first quarter of 2021. On the day of record withdrawals, i.e. 28 February 2022, banks withdrew the amount of PLN 12.5 billion from NBP, twice as much as on the day of the record withdrawal amount after the outbreak of the COVID-19 pandemic and 17 times the average daily withdrawal amount in 2021. As a result of the increased demand for cash during these eight operational days, the value of circulation increased by 11.3%. Despite the surge in the demand for cash, during this period, Narodowy Bank Polski fulfilled the banks' orders for cash continuously and in the full denomination structure. Meeting this challenge was possible owing to the adoption of the National Strategy for Cash Circulation Security

² Study on the payment attitudes of consumers in the euro area (SPACE 2022), December 2022, European Central Bank.

by the NBP Management Board in November 2021 and NBP's active cooperation with cash market participants, including through the Cash Circulation Council.

At the end of 2022, despite the increased cash withdrawals from NBP during the initial period of Russia's armed aggression on Ukrainian territory, the value of cash circulation amounted to PLN 368.3 billion and increased by 3.7%, or PLN 13.0 billion compared with the previous year, which was mainly due to the successive return of cash to NBP occurring at the end of the first half of the year and then observed until the end of the year. Throughout 2022, the value of Polish currency withdrawn from NBP amounted to PLN 203.1 billion, i.e. 9.3% more than in the previous year, while Polish currency worth PLN 190.0 billion was lodged in NBP, i.e. 24.9% more than in 2021.

The increase in the value of lodgements in NBP indicates a return to the central bank of cash previously accumulated by market participants for hoarding and precautionary purposes. It is worth indicating that in 2022, withdrawals of banknotes with the face value of 100 zł accounted for 41.9% of the value of withdrawals, while 42.1% of withdrawals were performed in the 200 zł denomination. Significantly more withdrawals were performed with 500 zł banknotes, i.e. 6.7%, which additionally demonstrates the need to collect cash for hoarding purposes. It should be noted that in 2022, as in previous years, banknotes of all denominations accounted for 98.4% of the circulation value. Although the value of circulation in 2022 increased by 3.7%, the total number of banknotes of all denominations in circulation fell by 0.1%. This was related to the observed phenomenon of cash return to NBP. In particular, a decrease in the number of 100 zł (by 7.0%) and 50 zł (by 2.2%) banknotes was noticeable. The value of circulation in 2022 increased though the use of the highest denominations, i.e. 500 zł and 200 zł, which increased by 26.9% and 12.4%, respectively compared to 2021.

The occurrence of the phenomenon of banknotes returning to NBP is also confirmed by the change in the turnover ratio. In the years preceding 2022, a systematic decrease was observed in the frequency of banknotes returning to NBP, which was reflected in a fall in the frequency rate of return expressed in cycles or an increase in this rate expressed in days. In 2022, the rate of return of a statistical banknote to the NBP sorting room expressed in cycles increased from 0.54 to 0.61. This corresponds to a reduction in return time from 681 days to 602 days.

It should be emphasised that the phenomenon of cash return to NBP in 2022 did not apply to coins, as the number of coins in circulation for each denomination increased, while the total rise in the number of all coins was 4.1%. In the case of coins, the trend of longer returns to NBP continued in 2022. In 2022, this time increased from 72 to 77 years. The longer time of return of coins to NBP concerns to the greatest extent coins with the lowest face value of 1 to 5 gr, but this phenomenon is also increasing year-on-year for 10 gr and 20 gr coins. The reason for this situation is the upward trend in the number of coins withdrawn from NBP (a 4.9% rise in withdrawals in 2022) and the downward trend in the number of coins lodged in NBP (a 3.7% decline in lodgements in 2022). As a consequence, the number of coins withdrawn from NBP was 5 times higher than the number of coins lodged in NBP in 2022. The onset of the COVID-19 pandemic in 2020 provided an additional impetus to reinforce the downward trend in the number of coins lodged in NBP. This phenomenon may have resulted from the limited shopping and service opportunities in the outlet network during this period.

Parallel to the decrease in the number of coins lodged by banks in NBP, the acquisition of coins from citizens through the self-service coin-exchange devices, made available in January 2021

at all NBP regional branches, is gaining importance. In 2022, in more than 157,000 transactions, customers exchanged 214.5 million coins worth PLN 132.5 million via the devices. The coin-exchange service received the prestigious Excellence in Currency award from the International Association of Currency Affairs.

The developments in the value of cash in circulation resulting from fundamental factors (e.g. exchange rate, GDP, inflation, interest rates) or seasonal factors (i.e. public holidays, holidays, the beginning of the school year, etc.) identified so far, were also present in 2022. The macroeconomic indicators show that:

- in 2022, the value of circulation in relation to GDP, amounting to 12%, was lower than in 2021 (13.5%); nevertheless, the level of this ratio was still higher than in 2016–2019, when it stood at approx. 10%; a higher level of this ratio has been recorded since 2020, while its growth was related to the scale of the increase in the value of cash in circulation in 2020 (34.8%),
- in 2022, the value of M1 amounted to PLN 1.6 trillion and, compared to 2021, decreased by PLN 139.9 billion, i.e. by 8.1%,
- the share of cash³ in M1 in 2022 amounted to 22.3% and was higher than the share in 2021 (19.7%).

This Report concerns cash circulation related to banknotes and coins of the Polish currency with the transaction (circulation) function and store of value as their major economic function. The data regarding the cash circulation value presented in the Report do not include so-called collector coins and banknotes, which play a payment function and have the status of a legal tender, but are not treated as a universal means of exchange in transactions.

The key statistical data regarding the cash circulation market in 2021 and 2022 are presented in Table 1, while the key terms included in this Report are explained in the Glossary.

For analytical purposes, the data presented in the Report have been rounded.⁴

³ Excluding cash at cash desks of Monetary Financial Institutions (MFIs).

⁴ As a result of rounding, the data may not add up. Calculations of changes and shares have been made on the basis of full figures (unrounded).

Table 1. Key data for 2021 and 2022

	2021	2022	Change (2022/2021)
Value of circulation	PLN 355.2 bn	PLN 368.3 bn	increase of PLN 13.0 bn (+3.7%)
Number of banknotes in circulation	3.0 bn pcs	3.0 bn pcs	decrease of 0.004 bn pcs (-0.1%)
Number of coins in circulation	21.1 bn pcs	21.9 bn pcs	increase of 0.9 bn pcs (+4.1%)
Value of Polish currency withdrawals from NBP	PLN 185.9 bn	PLN 203.1 bn	increase of PLN 17.2 bn (+9.3%)
Number of banknotes withdrawn from NBP	1.7 bn pcs	1.9 bn pcs	increase of 0.1 bn pcs (+7.6%)
Number of coins withdrawn from NBP	1.28 bn pcs	1.35 bn pcs	increase of 0.06 bn pcs (+4.9%)
Value of Polish currency lodgements in NBP	PLN 152.1 bn	PLN 190.0 bn	increase of PLN 37.9 bn (+24.9%)
Number of banknotes lodged in NBP	1.6 bn pcs	1.9 bn pcs	increase of 0.3 bn pcs (+19.3%)
Number of coins lodged in NBP	0.3 bn pcs	0.3 bn pcs	decrease of 0.01 bn pcs (-3.7%)
Banknotes – frequency rate of return	in cycles: 0.54 in days: 681	in cycles: 0.61 in days: 602	increase in cycles: 0.07 decrease in days: 79
Coins – frequency rate of return	in cycles: 0.014 in days: 26,107	in cycles: 0.013 in days: 28,244	decrease in cycles: 0.001 increase in days: 2,137
GDP ⁵	PLN 2,631.3 bn	PLN 3,078.3 bn	increase of PLN 447.0 bn (+17.0%) ⁶
Value of circulation / GDP	13.5%	12.0%	decrease of 1.5 percentage points
Value of M1 aggregate	PLN 1,724.8 bn	PLN 1,584.9 bn	decrease of PLN 139.9 bn (-8.1%)
Value of circulation/ M1 aggregate ⁷	19.7%	22.3%	increase of 2.6 percentage points

⁵ Nominal gross domestic product (current prices) according to Statistics Poland (GUS) data for 2021 and 2022 (“Statistical Bulletin” no. 04/2023, publication date: 25 May 2023).

⁶ GDP growth in nominal terms; according to GUS data of 25 May 2023, in 2022, GDP increased by 5.1% in real terms and in 2021 – by 6.9%.

⁷ The value of circulation less cash at cash desks of Monetary Financial Institutions (MFIs) was applied in the calculations, since cash at cash desks of the MFIs is not included in the M1 aggregate.

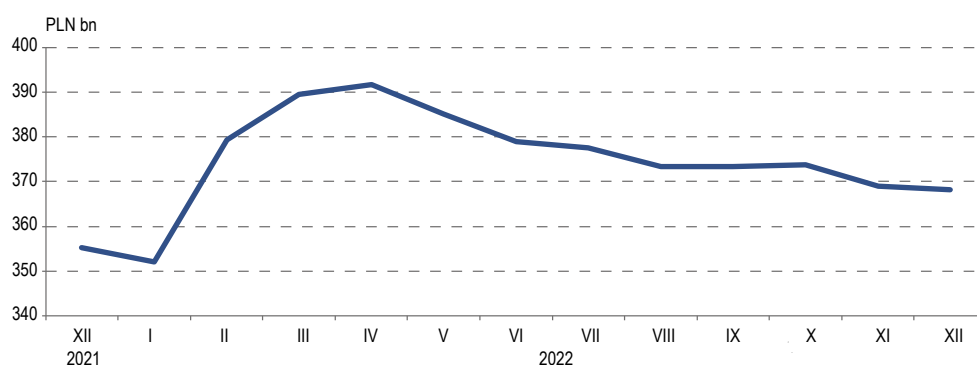
Chapter 2

Banknotes and coins in circulation

Banknotes and coins in circulation

The value of cash in circulation as at 31 December 2022 amounted to PLN 368.3 billion. An increase in the value of cash in circulation of 3.7%, i.e. PLN 13.0 billion, was recorded as compared to 31 December 2021. Due to the increased demand for cash in the period following the onset of Russia's armed aggression on the territory of Ukraine, the value of circulation on 14 March 2022 reached a record high of PLN 395.4 billion⁸, an increase of 11.3% (PLN 40.1 billion) in relation to the end of the previous year. From that moment until the end of 2022, a successive decline in the value of circulation was observed – by a total of 6.8% (PLN 27.1 billion) until the end of the year (Figure 1).

Figure 1. Value of cash in circulation from December 2021 to December 2022



Source: study of the NBP Cash and Issue Department.

In Poland, in the years 1997–2022⁹, both an increase in the value of the M1 aggregate and a rise in the value of cash in circulation it contains was observed.¹⁰ For both values, an upward trend has been recorded over the long term. In the shorter term, i.e. since May 2022 onwards, a downward trend has occurred in both cases (Figure 2).

At the same time, it should be noted that the share of cash in the M1 aggregate was gradually decreasing over the period of 1997–2022 – from the level of approx. 36–38% (January–April 1997) to a level of around 20% (since February 2011) (Figure 3).

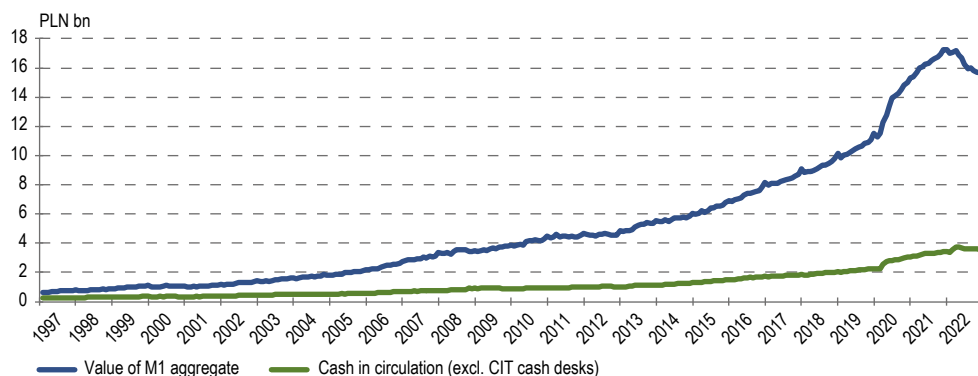
Under emergency conditions, the share of cash in the M1 aggregate was increasing. This was the case with the onset of the COVID-19 pandemic in March 2020, when the share of cash in the M1 aggregate increased from 19.4% (December 2019) to 21.4% (April 2020). On the other hand, as a consequence of Russia's armed aggression on the territory of Ukraine, the share of cash in the M1 aggregate increased from approx. 20% in December 2021 to 22% in the following months, starting from March 2022 (Figure 4).

⁸ In monthly terms, the highest value amounted to PLN 391.6 billion at the end of April 2022.

⁹ From January 1997 to December 2022.

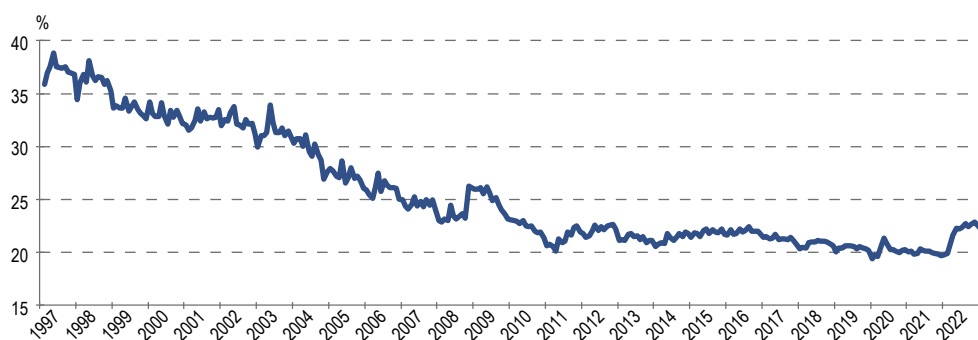
¹⁰ The value of the M1 monetary aggregate includes the value of cash in circulation (excluding MFI cash desks). Cash in cash desks of MFIs accounts, on average, for 4% of the total value of circulation. Source: <http://www.nbp.pl/en/statistic-and-financial-reporting/monetary-and-financial-statistics/m3-and-counterparts/>.

Figure 2. Value of M1 aggregate and value of cash in circulation (excluding cash desks in MFIs) in monthly terms in 1997–2022



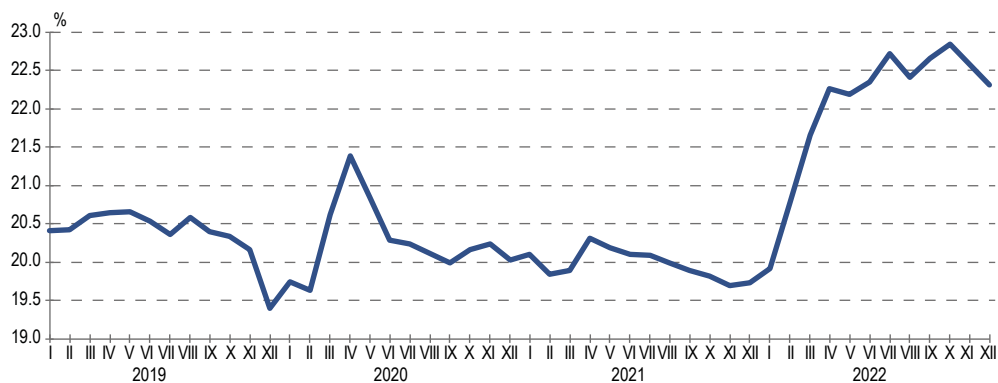
Source: study of the NBP Cash and Issue Department.

Figure 3. Share of cash in circulation (excluding cash desks in MFIs) in the value of the M1 aggregate in monthly terms in 1997–2022



Source: study of the NBP Cash and Issue Department.

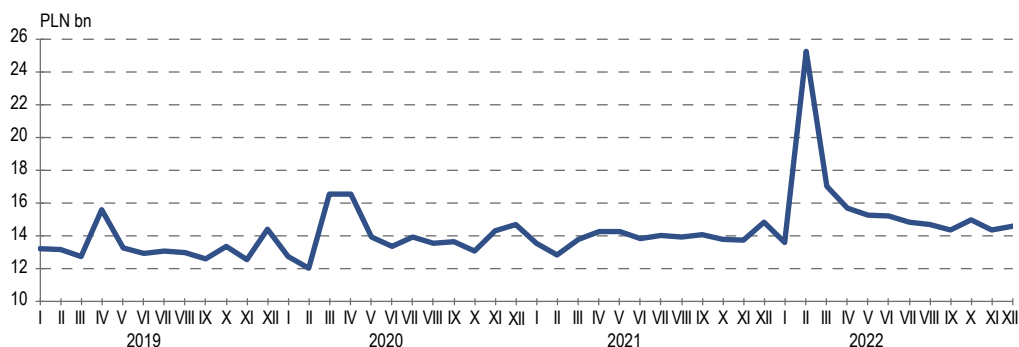
Figure 4. Share of cash in circulation (excluding cash desks in MFIs) in the value of the M1 aggregate in the period January 2019 – December 2022



Source: study of the NBP Cash and Issue Department.

The analysis of the change in the level of cash in cash desks of MFIs (monetary financial institutions) shows that in emergency situations, the monetary financial institutions, including banks, take precautionary measures, i.e. they accumulate reserves of Polish currency. This was clearly noticeable in February and March 2022 (Figure 5).

Figure 5. Value of cash in cash desks of MFIs in the period January 2019 – December 2022



Source: study of the NBP Cash and Issue Department.

2.1. Value and number of banknotes and coins in circulation¹¹

At the end of 2022, similar to the end of 2021, the value of banknotes represented 98.4% of the value of cash circulation. Throughout 2022, the value of banknotes in circulation increased by over PLN 12.7 billion, i.e. by 3.6%. Compared to the state as at the end of 2021, an increase in the value of banknotes in circulation was noted in the case of banknotes with the following denominations: 500 zł, 200 zł, 20 zł and 10 zł (respectively, by 26.9%, 12.4%, 7.6% and 3.3%), whereas a decline was recorded in the case of the banknotes with the face value of 100 zł and 50 zł (respectively, by 7.0% and 2.2%) (Table 2).

Table 2. Value of banknotes in circulation by denomination (in PLN)

Status as at end of quarter	500 zł	200 zł	100 zł	50 zł	20 zł	10 zł	Total
1	2	3	4	5	6	7	8
2021 Q4	26 690 637 000	138 746 402 400	168 946 795 000	10 346 443 550	2 758 242 640	1 974 324 080	349 462 844 670
2022 Q1	32 976 799 000	154 733 967 400	179 535 721 300	11 454 847 700	2 916 430 440	1 978 277 370	383 596 043 210
2022 Q2	33 159 489 000	154 909 162 600	169 435 837 900	10 620 530 750	3 001 975 680	1 985 808 960	373 112 804 890
2022 Q3	33 831 851 500	155 518 238 200	162 682 930 900	10 302 200 500	2 976 374 600	2 001 393 920	367 312 989 620
2022 Q4	33 878 460 000	156 013 555 400	157 194 036 400	10 120 313 250	2 967 077 880	2 039 148 250	362 212 591 180

Source: study of the NBP Cash and Issue Department.

¹¹The value and number of banknotes and coins in circulation were presented as at the end of individual quarters.

In the structure of banknotes by value, the share of 500 zł and 200 zł denominations increased throughout the year by 1.8 percentage points and 3.4 percentage points, respectively. On the other hand, the share of banknotes with the face value of 100 zł and 50 zł decreased by 4.9 percentage points and 0.2 percentage points, respectively. In the case of banknotes with the face value of 20 zł and 10 zł, there was no change in the share of circulation, despite an increase in the value of these banknotes in circulation. In terms of the value structure of circulation, the role of the 200 zł denomination increased (from 39.7% to 43.1%). The share of this denomination was almost equal to that of the 100 zł denomination (a decline from 48.3% to 43.4%), indicating that it is taking over the previous role of the 100 zł banknote in circulation.

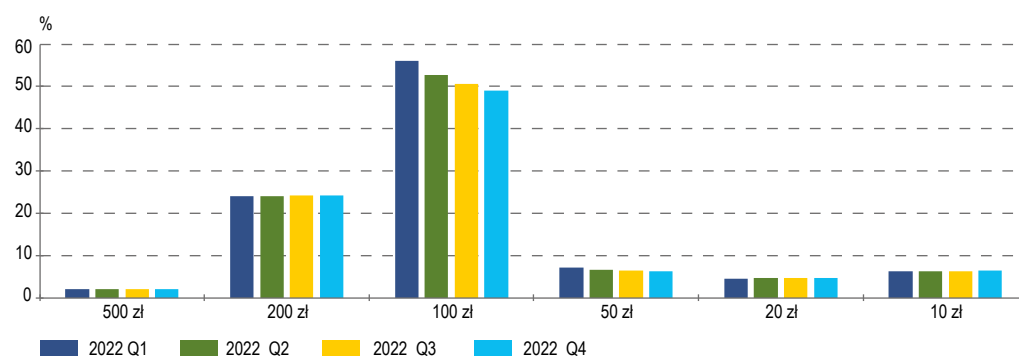
Table 3. Volume of banknotes in circulation by denomination (in pcs)

Status as at end of quarter	500 zł	200 zł	100 zł	50 zł	20 zł	10 zł	Total
1	2	3	4	5	6	7	8
2021 Q4	53 381 274	693 732 012	1 689 467 950	206 928 871	137 912 132	197 432 408	2 978 854 647
2022 Q1	65 953 598	773 669 837	1 795 357 213	229 096 954	145 821 522	197 827 737	3 207 726 861
2022 Q2	66 318 978	774 545 813	1 694 358 379	212 410 615	150 098 784	198 580 896	3 096 313 465
2022 Q3	67 663 703	777 591 191	1 626 829 309	206 044 010	148 818 730	200 139 392	3 027 086 335
2022 Q4	67 756 920	780 067 777	1 571 940 364	202 406 265	148 353 894	203 914 825	2 974 440 045

Source: study of the NBP Cash and Issue Department.

Throughout 2022, the number of banknotes in circulation decreased by 4.4 million pcs, i.e. by 0.1%. In the structure of banknotes by volume, an increase in share was recorded in the case of the highest value denominations, i.e. 500 zł (by 0.5 percentage points) and 200 zł (by 2.9 percentage points) as well as in the lowest denominations of banknotes: 20 zł (by 0.4 percentage points) and 10 zł (by 0.3 percentage points). This growth was accompanied by a decline in the share of the following denominations: 100 zł (by 3.9 percentage points) and 50 zł (by 0.1 percentage points). The marginal share of coins in the circulation value structure and the decline in the number of banknotes in circulation allows to conclude that the growth in the value of circulation was achieved as a result of the increase in the number of 500 zł and 200 zł banknotes in circulation (Table 3).

Figure 6. Volume structure of banknotes in circulation by denomination



Source: study of the NBP Cash and Issue Department.

At the end of 2022, banknotes with the face value of 100 zł had the highest share in circulation (52.8%). The second denomination in this respect was the 200 zł denomination (26.2%), while 50 zł banknotes accounted for 6.8% of the circulation. The increasing share of 500 zł banknotes is gradually growing, from 1.8% in 2021 to 2.3% at the end of 2022 (Figure 6).

Throughout 2022, the value of coins in circulation increased by PLN 295.0 million, i.e. by 5.1%. An increase in value for each of the denominations was recorded. The highest increase in value occurred in the case of 50 gr coins (by 6.8%) and the 5 zł coins (by 5.9%). 2 gr coins saw the lowest growth (by 2.5%). The change in the value of individual denominations of coins in circulation did not affect the change in its denomination structure (Table 4).

Table 4. Value of coins in circulation by denomination (in PLN)

Status as at end of quarter	5 zł	2 zł	1 zł	50 gr	20 gr	10 gr	5 gr	2 gr	1 gr	Total
1	2	3	4	5	6	7	8	9	10	11
2021 Q4	2 193 747 495	1 608 522 550	723 141 290	388 726 705	314 814 204	271 735 796	131 865 851	69 814 827	78 872 535	5 781 241 253
2022 Q1	2 213 414 330	1 613 803 134	722 905 310	392 366 146	317 563 329	274 323 784	132 664 059	70 170 885	79 448 942	5 816 659 919
2022 Q2	2 258 336 615	1 633 867 916	731 654 607	399 340 538	321 959 186	278 132 068	133 983 837	70 649 308	80 291 598	5 908 215 673
2022 Q3	2 291 067 890	1 662 019 902	747 689 404	407 925 102	326 787 226	282 628 309	135 180 788	71 114 326	81 133 368	6 005 546 315
2022 Q4	2 323 012 740	1 674 497 426	755 454 871	415 083 559	331 488 065	286 990 420	136 148 831	71 529 601	82 045 271	6 076 250 784

Source: study of the NBP Cash and Issue Department.

At the end of 2022, the number of coins in circulation increased by 868.5 million pieces, i.e. by 4.1%. An increase was recorded in the number of each denomination, as in the case of the increase in their value. Consequently, the denomination structure remained stable. The so-called coins of low denominations, i.e. from 1 gr to 5 gr, had the highest share in the circulation reaching 66.1% collectively. These coins have the lowest frequency rates of return expressed in cycles (Table 5).

Table 5. Volume of coins in circulation by denomination (in pcs)

Status as at end of quarter	5 zł	2 zł	1 zł	50 gr	20 gr	10 gr	5 gr	2 gr	1 gr	Total
1	2	3	4	5	6	7	8	9	10	11
2021 Q4	438 749 499	804 261 275	723 141 290	777 453 409	1 574 071 021	2 717 357 962	2 637 317 023	3 490 741 348	7 887 253 511	21 050 346 338
2022 Q1	442 682 866	806 901 567	722 905 310	784 732 292	1 587 816 644	2 743 237 835	2 653 281 173	3 508 544 243	7 944 894 178	21 194 996 108
2022 Q2	451 667 323	816 933 958	731 654 607	798 681 076	1 609 795 930	2 781 320 682	2 679 676 747	3 532 465 407	8 029 159 804	21 431 355 534
2022 Q3	458 213 578	831 009 951	747 689 404	815 850 204	1 633 936 128	2 826 283 090	2 703 615 754	3 555 716 316	8 113 336 849	21 685 651 274
2022 Q4	464 602 548	837 248 713	755 454 871	830 167 117	1 657 440 324	2 869 904 195	2 722 976 627	3 576 480 054	8 204 527 112	21 918 801 561

Source: study of the NBP Cash and Issue Department.

2.2. Frequency rate of return of banknotes and coins

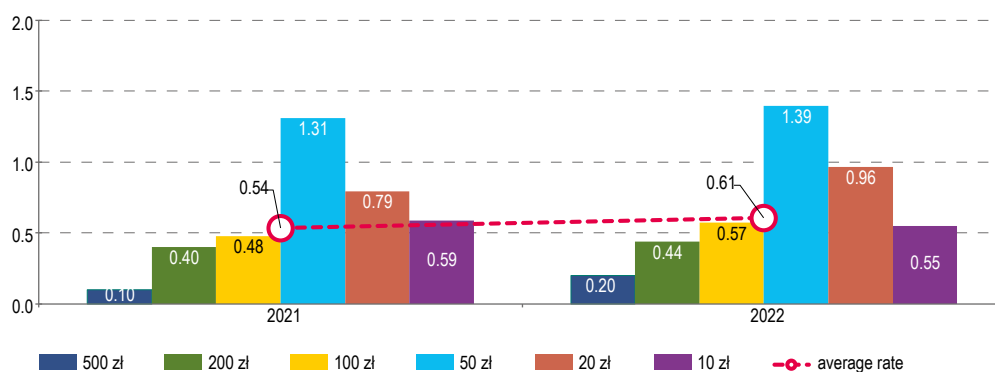
The frequency rate of return of banknotes and coins from the market to NBP is expressed by means of recirculation rates in days and in cycles.

The frequency rate of return in cycles is the quotient of the volume of banknotes and coins lodged in NBP by banks in the adopted period and the average volume of banknotes and coins in circulation in the same period. On the other hand, the frequency rate of return in days is the quotient of the average volume of banknotes and coins in circulation in the adopted period and the volume of banknotes and coins lodged in NBP by banks in the same period, multiplied by the number of days (365).

The developments in banknote (Figure 7) and coin (Figure 8) recirculation rates by denomination are illustrated below.

In 2022, an increase in the frequency rate of return in cycles (a decrease in the frequency rate of return in days) was observed for banknotes, which was related to the return of cash to NBP between May and December 2022. The frequency rate of return in cycles for all banknote denominations was 0.61 at the end of 2022, an increase of 0.07 compared to 2021 (in 2021, this rate was 0.54). This means a reversal of the downward trend in the frequency rate of return in cycles observed in previous years. On average, as at the end of 2022, a banknote was recirculated to the sorting room of the NBP regional branch after 602 days calculated from the moment of its withdrawal from NBP by a bank (in 2021, the frequency rate of return of banknotes amounted to 681 days). As at the end of 2022, the frequency rate of return for individual banknote denominations varied. The banknotes most frequently returned to NBP were the 50 zł and 20 zł denomination banknotes (262 days and 378 days, respectively), while the 500 zł denomination banknote was recorded least frequently – every 5 years (in 2021 – every 10 years). In 2022, the frequency rate of return in cycles increased compared to 2022 in the case of the following banknote denominations: 500 zł – by 0.10; 200 zł – by 0.04; 100 zł – by approx. 0.10; 50 zł – by approx. 0.09; 20 zł – by 0.17. Only in the case of the 10 zł denomination did the rate expressed in cycles decrease by 0.04 (Figure 7).

Figure 7. Frequency rate of return of banknotes in cycles

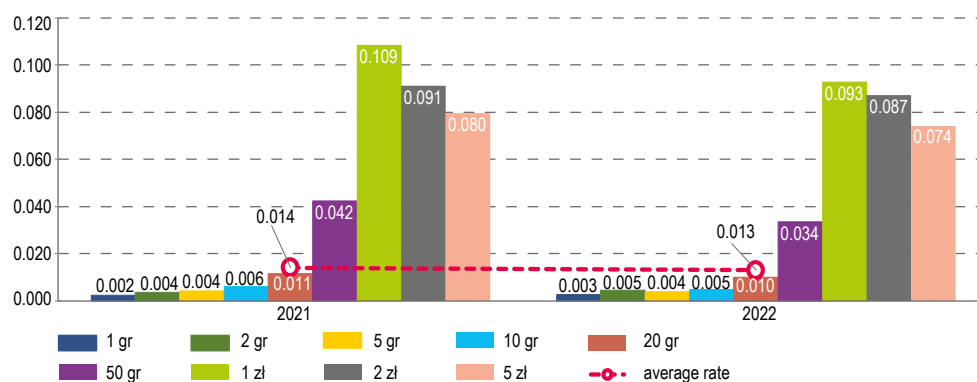


Source: study of the NBP Cash and Issue Department.

In the case of coins, the estimated statistical time of return to NBP as at the end of 2022 amounted to 28,244 days, i.e. approx. 77 years and it extended by 2,137 days, i.e. by almost 6 years compared to 2021.

The coin frequency rate of return in cycles has demonstrated a downward trend for many years. At the end of 2016, it amounted to 0.036 (i.e. on average coins returned to NBP almost every 28 years), while at the end of 2022, the frequency rate of return for all coin denominations amounted to 0.013 (Figure 8). Similar to banknotes, the frequency rate of return for individual coin denominations varied. As at the end of 2022, coins most frequently recirculated to NBP included coins with the denomination of 1 zł (the ratio reached almost 0.1, which means that a coin was recirculated to NBP more or less every 11 years) as well as 5 zł and 2 zł coins (the rate of almost 0.1 which means the coin returned to NBP more or less every 11 years), while denominations least frequently recirculated to NBP included: 1 gr, 2 gr and 5 gr, which in practice rarely returned to NBP (according to the calculations, approximately every 396, 220 and 251 years, respectively). It should be noted that in the case of coins with the face value of 10 gr and 20 gr, the value of the frequency rate of return is more similar to the rate for coins from the group of low denominations, i.e. 5 gr than to the frequency rate of return of coins with a higher denomination, i.e. 50 gr. The analysis of the above frequency rates of return shows that coins are recirculated to NBP less and less frequently year by year. Restrictions on the ability to make cash payments in the retail outlet network during the COVID-19 pandemic had an additional impact on the change in the levels of coin frequency rates of return (Figure 8).

Figure 8. Frequency rate of return of coins in cycles



Source: study of the NBP Cash and Issue Department.

Banknotes and coins processed by the commercial sector are also subject to analysis conducted based on quarterly reports submitted by banks to NBP. Details concerning this issue are presented in more detail in subsection “4.3. Reporting in the scope of cash circulation”. The data were used to calculate the frequency rate of return of banknotes in the market¹² in 2022, reflecting the frequency of their return to the sorting rooms of banks and CIT companies.

¹²The calculation was performed as in the case of the frequency of banknotes returning to NBP, replacing the volume of banknotes lodged in NBP by the volume of banknotes processed by banks and CIT companies in that period.

Table 6. Frequency rate of return of banknotes in cycles and in days in 2022

Denomination	NBP		Market	
	Rate of return (cycles)	Rate of return (days)	Rate of return (cycles)	Rate of return (days)
1	2	3	4	5
500 zł	0,20	1 823	1,13	324
200 zł	0,44	827	2,18	167
100 zł	0,57	636	3,11	117
50 zł	1,39	262	5,43	67
20 zł	0,96	378	2,63	139
10 zł	0,55	667	2,23	164
Total	0,61	602	2,92	125

Source: study of the NBP Cash and Issue Department.

The frequency rate of return of banknotes in cycles in the case of NBP is almost 5 times lower than in the commercial sector. The denomination most frequently processed on the market was the 50 zł banknote which appeared in commercial sorting rooms more than 5 times during the year every 67 days). The 50 zł banknotes also returned most frequently (every 262 days) to the sorting facilities of the NBP regional branches (over four times less frequently than in the case of the commercial sector). Another most frequent denomination returned to the sorting rooms of banks and CIT companies was the 100 zł banknote (it returned every 117 days), while for NBP the second most frequent was the 20 zł denomination (every 378 days) (Table 6).

Chapter 3

Cash and cashless means of payment

Cash and cashless means of payment

3.1. Trends observed in Poland

Consumers' payment habits are evolving. In addition to individual preferences, the choice of a payment method is also affected by external factors such as technological advances, the availability and acceptance of a particular payment instrument or the payment methods used by people in the immediate environment (family, friends). However, the experience of recent years shows an acceleration of the pace of change and affects the perception and importance of payment instruments. In recent years, in addition to its function of storing value and legal tender, cash has also been a measure of public mood. As with the onset of the COVID-19 pandemic in 2020, the first days of Russia's armed aggression on Ukrainian territory in February/March 2022 redefined the role of cash in the face of threats and uncertainty. The results of an opinion survey commissioned by NBP showed that about half of the respondents who preferred non-cash forms of payment on a daily basis had withdrawn banknotes after the outbreak of the war (51.5%)¹³, while more than a quarter of respondents had withdrawn more cash than usual in 2022 (27.9%). Almost one in two of the withdrawals declared (44.5%) were of a precautionary nature, i.e. "just in case" (37.8%) or out of fear of losing the funds held in the bank (6.7%).¹⁴ However, the increased demand for cash was not due to the transactional nature of this demand.

In the 2022 public opinion survey, half of the respondents (50.9%) indicated that they were more likely to carry out cashless than cash transactions. Among those using only one of the indicated forms of payment, the proportion of persons paying exclusively in cash (11.7%) was higher compared to the proportion of those paying exclusively in a cashless form (7.5%). One of 6 respondents uses both forms equally (Figure 9). Despite the decline in the share of cash in payment transactions, around 50% of respondents indicated that it was important or very important to have a possibility to pay in cash when doing shopping, even if they do not use this instrument on a daily basis.¹⁵

Both supporters of cash payments and those who prefer to pay cashless are driven by comfort and convenience when making transactions. Among the advantages of electronic payments, the respondents indicate time savings, security and ease of transactions. Cash users, on the other hand, appreciate the fact that they always hold cash and that it fosters the control and monitoring of expenditure. One of the common reasons for reaching for cash is also the lack of availability of other payment methods when making transactions.¹⁶ During the pandemic period, however, a trend in retail outlets to favour cashless payments was observed. Messages encouraging people to abandon paying in cash had an impact on the decisions concerning the payment settlement method of one third of respondents (30.9%).¹⁷ Due to this trend and

¹³ Report of the "Public opinion survey on cash in circulation", BST Sp. z o.o. Group – IPC Sp. z o.o. Research Institute – Polska Agencja Ewaluacji Sektora Publicznego S.A. (Polish Agency for Public Sector Evaluation), 2022, p. 13.

¹⁴ Ibidem, p. 56.

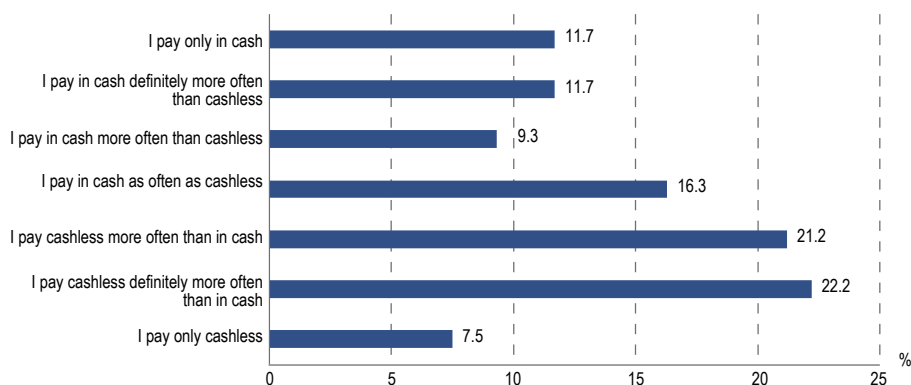
¹⁵ Ibidem, p. 15.

¹⁶ Report "Attitudes towards forms of payment", eService Sp. z o.o., May 2022, p.17.

¹⁷ Report of the "Public opinion survey on cash in circulation", op. cit., p. 28.

the increasing number of refusals to accept banknotes and coins, the universal acceptance of cash was regulated by law.¹⁸

Figure 9. Consumers' payment habits in 2022



Source: Report of the “Public opinion survey on cash in circulation”, BST Sp. z o.o. Group – IPC Sp. z o.o. Research Institute – Polska Agencja Ewaluacji Sektora Publicznego S.A. (Polish Agency for Public Sector Evaluation), 2022, p. 11.

Pursuant to the amendment of the Act on Payment Services of 17 September 2021, which entered into force on 5 November 2021, a merchant may not refuse to accept payment from a consumer with banknotes and coins issued by NBP (with the exceptions set out in the Act).¹⁹ Narodowy Bank Polski, as the sole issuer of the Polish currency, monitors the issue of cash acceptance. In June 2022, a survey was conducted among companies showing that two quarters after the law came into force, 99.0% of respondents conducting retail sales of products or services generally accepted cash payments. Among entities accepting cash, 89.8% indicated that they accepted cash payments each time (9.9 percentage points more than during the COVID-19 pandemic), one out of ten entities refused to accept cash occasionally (9.7%) and a small percentage refused frequently (0.5%). The most commonly cited reasons for refusal included the inability to give change or the amount of the transaction being too high.²⁰ On the other hand, a public opinion survey concerning banknotes and coins in circulation showed that prior to the amendment of the regulations, in the period from March 2020 to November 2021, 64.7% of respondents were not refused cash acceptance in physical retail outlets. Since the entry into force of the amended Act on Payment Services (after 5 November 2021), this figure has risen to 72.5%.²¹ Both surveys indicate the effectiveness of the regulations and the improvement in the widespread acceptance of cash in Poland.

The results of the surveys show that the choice of payment method sometimes depends on the amount of the transaction. Four out of ten payments not exceeding the equivalent of the lowest denomination banknote in circulation in Poland are made in cash only. As the amount of transactions increases, the share of non-cash payments rises (Figure 10).²²

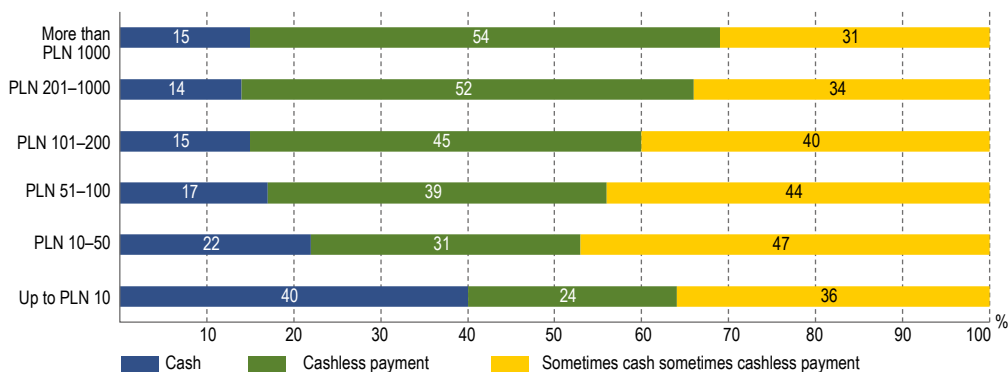
¹⁸ For more on the introduction of a statutory obligation for universal cash acceptance, see: Report on the Cash Circulation in Poland in 2021, p. 33.

¹⁹ Act of 17 September 2021 amending the Act on Payment Services (Journal of Laws of 2021 item 1814).

²⁰ Assessment of the Polish payment system functioning in the second half of 2022, NBP Payment System Department, 2023, p. 88.

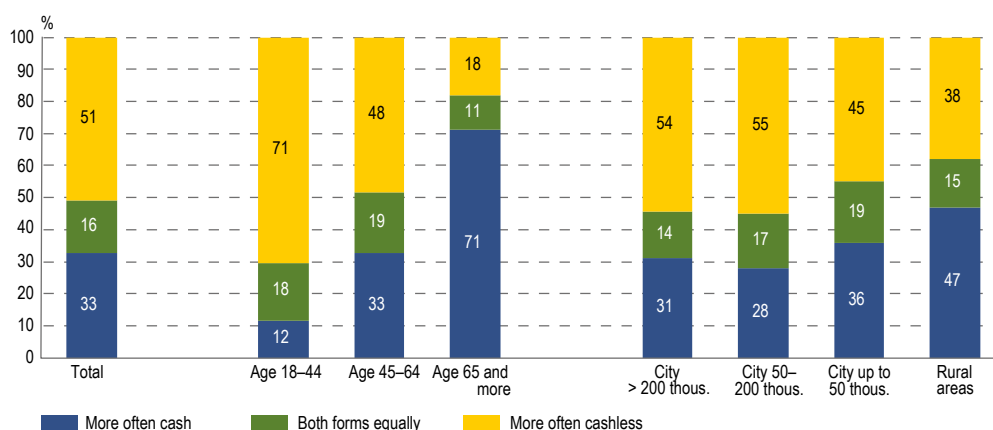
²¹ Report of the “Public opinion survey on cash in circulation”, op. cit., p. 29–32.

²² Report “Attitudes towards forms of payment”, op.cit., p. 26.

Figure 10. Choice of payment method depending on transaction amount

Source: Survey “Attitudes towards forms of payment”, eService Sp. z o.o., May 2022.

The surveys also confirm the relationship between socio-demographic characteristics and the payment habits of Poles (Figure 11). Consumers under the age of 44 generally prefer cashless payments (70.5%), while those over 65 are more likely to use cash (71.2%). The popularity of cash is also correlated with education. Among persons with tertiary education, the vast majority (63.4%) use cashless solutions, while for those with primary education, the percentage in favour of such payments is three times lower (22.5%). Another factor that significantly differentiates the choice of payment method in Poland is the place of residence. In large and medium-sized cities, more than half of respondents are more likely to make card transactions (54.4% and 55.1%, respectively), while cash payments dominate in rural areas (46.8%). The diversification in payment preferences according to place of residence may be affected by the availability of cash (see Box B).

Figure 11. Preferred payment methods taking into account socio-demographic characteristics

Source: Report of the “Public opinion survey on cash in circulation”, op. cit., p. 12.

At the end of 2022, 21,300 ATMs were in operation, 86 less than in the previous year, marking the downward trend in the number of devices on the Polish market initiated in 2016.²³ Despite the decrease in the overall number of devices, the number of recyclers with a deposit and withdrawal function is increasing. At the end of 2022, 48.0% of all devices allowed for cash depositing (876 more than in 2021). The recent decade has also seen a clear upward trend in the overall value of ATM transactions with a successive decline in their number. The outbreak of the COVID-19 pandemic in 2020 has significantly accelerated these changes. The average value of withdrawal from an ATM in 2022 was PLN 767, which means an increase of 39.3% compared to the 2019 average. According to 78.8% of respondents, the quality of the cash withdrawn from ATMs is good or very good, with the quality rating increasing as the face value of the note increases. One of two respondents indicate that they refuse to accept a banknote or coin of inappropriate quality in the change issued (57.2%), while the remaining persons use it in subsequent transactions (21.2%), or return it to the bank (21.1%).²⁴

Changes in payment habits are also linked to increasing levels of the use of banking services. According to the latest World Bank data²⁵, 96.7% of adult Poles have a bank account and 83.9% have a debit card. This means that over the past decade, the number of account holders has increased by 26 percentage points, while the number of card holders has increased by 43 percentage points. World Bank data also shows that 75.2% of account holders in Poland, use mobile apps or online banking when making payments or sending or receiving money.

NBP data confirms that the number of payment cards in Poland is increasing year on year. At the end of 2022, the number of cards issued reached 44.5 million, almost half a million more than in 2021.²⁶ More than 84% were debit cards. 93.5% of all payment cards in the market had the contactless functionality (including credit and prepaid cards). Throughout the year, card users executed a total of 9.1 billion card transactions, the total amount of which exceeded one trillion zloty.

The number of cashless transactions is affected by the continuing upward trend in the number of retail outlets accepting electronic forms of payment. At the end of December 2022, more than 886,500 outlets equipped with POS terminals operated in Poland (an increase of 8.4% compared to 2021). The total number of payment terminals at the end of last year exceeded 1.2 million (an increase of 8.7% compared to 2021). Over the past six years, both the number of points where card payments can be made as well as the number of devices enabling card transactions have doubled.²⁷ More than a third of outlets equipped with POS terminals offer a cash back service (see Box C).

It should be noted that card payments are performed both at physical retail outlets and in online stores. The report “Poles’ finance in the post-pandemic period” of June 2022 indicates that the majority of Poles aged 18 to 65 shop online (92%)²⁸, with one third of consumers (34%) using payment cards online during the period studied (down 4 percentage points compared

²³ NBP data, ATMs (data by ATM operator): Number of ATMs and number and value of transactions carried out in ATMs, source: <https://nbp.pl/system-platniczy/dane-i-analizy/karty-platnicze/> [accessed: 1 June 2023].

²⁴ Report of the “Public opinion survey on cash in circulation”, op. cit., p. 47.

²⁵ World Bank Global Database Findex 2021, source: <https://www.worldbank.org/en/publication/globalindex/Data> [accessed: 1 June 2023].

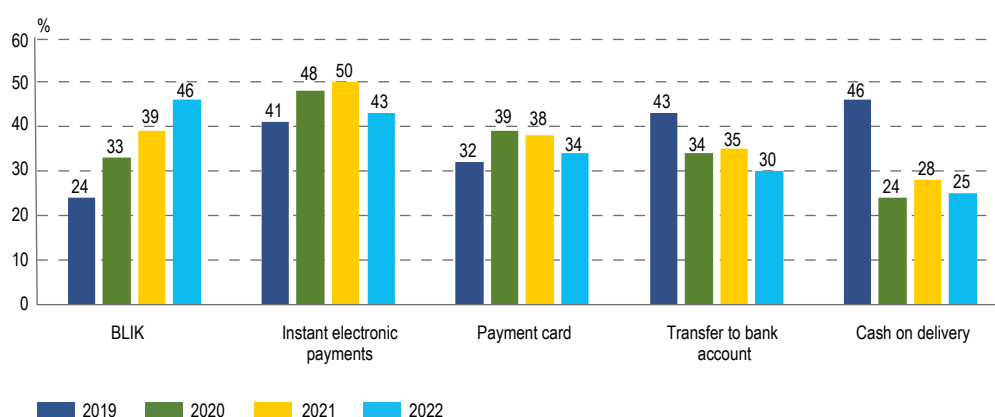
²⁶ NBP data, Payment cards, source: <https://nbp.pl/system-platniczy/dane-i-analizy/karty-platnicze/> [accessed: 1 June 2023].

²⁷ Ibidem.

²⁸ Survey “Poles’ finance in the post-pandemic period”, Blue Media Research, June 2022, p. 7.

to 2021) (Figure 12).²⁹ A marked decline in the share of cash-on-delivery payments has been recorded in recent years (down 21 percentage points compared to 2019). BLIK payments are growing in popularity year on year, becoming the most used form of electronic transaction for online purchases in 2022, which may be linked to the overall increase in the number of users of mobile banking apps.

Figure 12. Percentage of consumers using a particular payment method when shopping online



Source: Report “Poles’ finance in the post-pandemic period”, Bluemedia 2022, op. cit., p. 10.

A report of the Polish Bank Association indicates that the number of people using mobile apps increased by 16.7% in 2022 compared to 2021, reaching 19.3 million active users. As many as 70.7% declare using the application exclusively, without logging into traditional online banking on the bank’s website (11.3 percentage points more than in 2021).³⁰

The COVID-19 pandemic and Russia’s armed aggression on Ukrainian territory have accelerated the attractiveness of cashless payment methods. However, the increasing amount of currency in circulation driven by demand indicates that public demand for cash is still high. Due to its properties, cash provides a sense of security and has a stabilising function for the financial system. Ensuring the uninterrupted availability of banknotes and coins to the general public helps to stabilise the economy, especially in the periods of crisis. Among other things, the supply of the full denomination structure of banknotes and coins to banks by NBP is important in providing citizens with cash. Moreover, the market infrastructure, the efficiency of the entire chain of institutions and all cash market participants involved in cash distribution is also important, achieved, among others, through cooperation at the Cash Circulation Council established at the NBP Management Board. Maintaining free access to cash and its widespread acceptance also limits the phenomenon of exclusion among persons making payments exclusively in this form and leaves Poles free to choose their settlement method.

²⁹ Ibidem, p. 10.

³⁰ Report “NetB@nk – Q4 2022”, Polish Bank Association, source: <https://www.zbp.pl/getmedia/3b3dc044-9681-4bf7-a4c4-d6035369460b/netbank422>, pp. 11–13 [accessed: 1 June 2023].

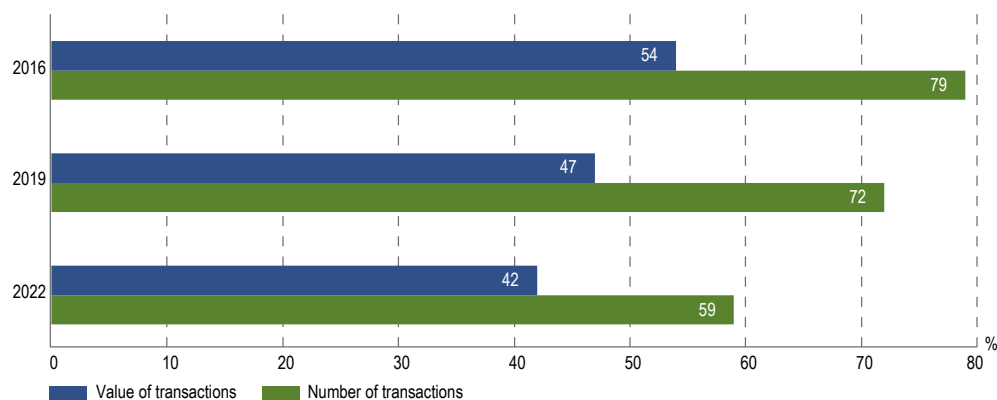
3.2. Trends in selected countries

The new technological solutions implemented globally, which also have an impact on consumer payment habits, are becoming a symbol of recent years. The increase in cashless payments observed since the beginning of the COVID-19 pandemic outbreak continued also in 2022, with a simultaneous increase in demand for cash, which served the public primarily as a means of storing value.

The euro area had 29.5 billion euro banknotes in circulation at the end of 2022, with the total value of EUR 1.57 trillion. Compared to the previous year, this means an increase of 4.5% in terms of numbers, but 1.8% in terms of value.³¹ The circulation of euro banknotes was affected by two events: the armed aggression of Russia on Ukrainian territory, which caused an increase in demand for euro banknotes in February and March 2022 and the increase in base interest rates by the ECB, which started in July 2022.³²

For 59% of people living in the euro area, cash was the most important means of payment at POS³³, while card payments were used in 34% of POS transactions. The above data illustrates the main trends observed in the *Study on the payment attitudes of consumers in the euro area* (SPACE 2022), conducted from October 2021 to June 2022 in euro area countries by the European Central Bank.

Figure 13. Share of cash payments in the euro area at points of sales (POS) in the number and value of transactions



Source: Study of the NBP Cash and Issue Department based on ECB publications: Henk Esselink, Lola Hernández, *The use of cash by households in the euro area*, “Occasional Paper Series” (SUCH 2016), November 2017, *Study on the payment attitudes of consumers in the euro area* (SPACE 2019), December 2020, and *Study on the payment attitudes of consumers in the euro area* (SPACE 2022), December 2022.

According to the SPACE 2022 study, cash was most commonly used by the euro area residents for small payments. On the other hand, for payments over EUR 50, payment cards were the most commonly used payment method. Cash predominated among direct payments between individuals (P2P). However, compared to the 2019 survey, the share of cash payments in the

³¹ Source https://www.ecb.europa.eu/stats/policy_and_exchange_rates/banknotes+coins/circulation/html/index.pl.html [accessed: 1 June 2023].

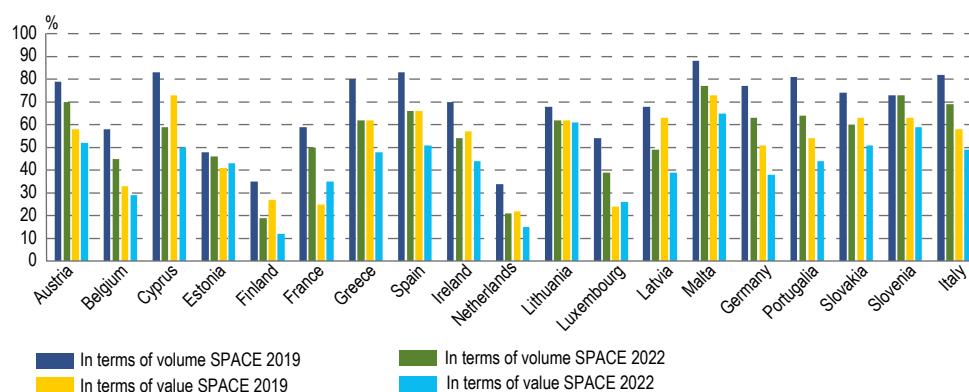
³² Annual report 2022, European Central Bank.

³³ POS (point of sales) – commercial and service point.

total number of P2P payments fell from 86% (2019) to 73% (2022), and from 65% to 59% in value terms. Cash was accepted in 95% of locations in the euro area. More than 60% of the euro area residents indicated that the option of payment in cash is very important to them. Among the advantages of cash payments, such aspects as raising awareness of own spending, privacy and the immediacy of the transaction were indicated. In terms of advantages of card payments, the following aspects were highlighted: no need to carry higher amounts of cash, speed and ease of transaction.

The above survey shows the attachment of Europeans to cash; however, payment habits vary from country to country. Cash in transactions is most often preferred in the following countries: Malta (77%), Slovenia (73%), Austria (70%), Italy (69%), Spain (66%). On the other hand, card payments are preferred in Finland (70%), the Netherlands (67%), Luxembourg (52%) where, respectively: 19%, 21% and 39% of transactions were carried out in cash. The highest decline in the share of cash payments compared to the 2019 survey was recorded in Cyprus, down by 23 percentage points. On the other hand, an increase in the value of the share of cash transactions was recorded in France (by 10 percentage points).

Figure 14. Share of cash payments in transactions by number and value (per cent)



Source: Study of NBP Cash and Issue Department based on: *Study on the payment attitudes of consumers in the euro area (SPACE 2019)*, December 2020, European Central Bank and *Study on the payment attitudes of consumers in the euro area (SPACE 2022)*, December 2022, European Central Bank.

The group of countries where citizens are attached to cash includes Spain, where 99% of people declare that they hold cash and 64% say that they use it daily.³⁴ Cash is used to a greater extent in daily transactions by men, people over 45 and those with primary education. The use of cash in daily transactions increases with age. Among 18–24 year olds, it amounts to 43%, while among those over 54 it is over 71%. Moreover, 50% of Spaniards declare that they use cash and do not use payment cards in their daily POS transactions, the reverse being true for 18% of Spaniards.³⁵ In Spain, cash is used more frequently for low value payments, with the average cash payment amount of EUR 25.9 in 2022 (compared to an average daily card payment of EUR 52.4). It should be pointed out that 8 out of 10 individuals acquire cash

³⁴ *Estudio sobre hábitos en el uso del efectivo 2022*, IPSOS, October 2022.

³⁵ *Ibidem*.

from ATMs and only 1 out of 4 persons declare their willingness to use the cash back service, which is due to the low level of awareness of this service.

One of the countries where cash payments also prevail is Austria, where the share of cash payments reached 70% in 2022. At the beginning of 2023, the central bank of Austria issued recommendations for citizens to keep cash worth approximately twice their weekly grocery budget (or up to EUR 100 per household member) at home in case of emergency situations.³⁶ According to the recommendation, the above amount should be kept in lower denominations of banknotes. Other central banks and crisis agencies in other countries have also decided to take a similar step, including:

- in Finland, the Director of the Payment System Department advised households to increase their cash holdings in the event of a disruption,
- in Sweden, the Swedish Civil Contingencies Agency (MSB) recommended holding cash in case of payment system failure due to extreme weather conditions, internet outages or armed conflict,
- among others, the Canadian government recommends carrying cash and travellers' cheques in basic emergency kits,
- The German Federal Office for Civil Protection and Aid recommends holding sufficient cash reserves at home in the event of disasters (pointing out the then possible inability to withdraw from ATMs in the event of a power outage),
- The US Department of Homeland Security recommends keeping cash or travellers' cheques as part of emergency kits.³⁷

It should be noted, however, that the central bank of Austria is the only one to specify the amount to be kept and to provide citizens with safe envelopes in which cash for emergencies may be kept.

Also in France, cash is one of the most common means of payment for transactions. In accordance with the SPACE 2022 study, the share of cash payments was 50% (down 7 percentage points compared to the previous SPACE 2019 study). Cashless payments are preferred by 64% of the French, compared to 55% of the population in the euro area. The results of the SPACE 2022 study, compared to the SPACE 2019 study, show an increase of 5 percentage points in the preference to choose cash for POS transactions in France (cash was the preferred means of payment at POS by 14% of the French in 2022), while the euro area saw a decrease of 5 percentage points.³⁸ It should be noted that the cash preference rate among the French remains below the euro area average, where it stood at 22%.³⁹ In terms of holding cash in their wallets, the average for the French is EUR 61, while the average for the euro area as a whole is EUR 83 (ranging from EUR 46 in the Kingdom of the Netherlands to EUR 121 in Austria).⁴⁰ ATMs are the most popular source of acquiring cash for the French, which was indicated by three

³⁶ Austria: *Central Bank Advises to Store Cash at Home*, source: <https://cashessentials.org/austria-central-bank-advises-to-store-cash-at-home/> [accessed: 22 May 2023].

³⁷ *Ibidem*.

³⁸ *Trois ans après le début de la crise sanitaire, les espèces résistent face aux autres moyens de paiement en France*, *Bulletin de la Banque de France* 245/5 – March–April 2023.

³⁹ *Study on the payment attitudes of consumers in the euro area* (SPACE 2022), December 2022, European Central Bank.

⁴⁰ *Trois ans après le début de la crise sanitaire, les espèces résistent face aux autres moyens de paiement en France*, *Bulletin de la Banque de France* 245/5 – March–April 2023, *op. cit.*

quarters of respondents.⁴¹ According to the survey, 92% of French people are satisfied with their cash access network (the result for the euro area is 89%).

Among Swiss residents, cash and payment cards are the most commonly used payment instruments. According to the results of a survey conducted among the Swiss in autumn 2022, 96% of respondents declare they keep cash in their wallet or at home to cover daily expenses, 93% have a debit card and 76% have a credit card.⁴² On average, the Swiss hold CHF 132 in their wallet (in the 2020 survey, it was CHF 138). The share of transactions settled in cash was 36%, making it one of the most commonly used methods in daily payments in Switzerland (in 2020 it was 43%).⁴³ In terms of the value of daily payment transactions, debit cards remain the most important payment instrument, with a share of 33% (in comparison, the value share of cash in transactions was 20%).⁴⁴ The survey shows that cash is not only a payment method, but also plays a hoarding function. 38% of respondents indicate that the most likely reason for others to hold cash for hoarding purposes is the security provided by money in physical form in times of crisis.⁴⁵

A society that prefers cashless payments includes the Danes, who make 12% of their POS payments by using cash.⁴⁶ At the end of 2022, the value of banknotes and coins in circulation in Denmark was 75.1 billion kroner (i.e. 3.2% less than the year before).⁴⁷ The value of banknotes in circulation amounted to 68.9 billion kroner. The value of coins in circulation increased to 6.3 billion kroner (up 0.5% against 2021).⁴⁸ As indicated in the Annual Report of Danmarks Nationalbank, the decline in the value of banknotes in circulation may have been influenced by interest rate hikes in the second half of 2022, which reduced demand.

The Kingdom of the Netherlands is also perceived as a largely cashless country. In 2022, the Dutch used their mobile phones or other devices enabling contactless payments (e.g. smartwatches) in POS transactions almost as often as cash.⁴⁹ The share of cash payments in 2022 was 20%.⁵⁰ At the same time, it should be noted that 91% of the Dutch believe that the ability to pay with cash is important.⁵¹ In about one-quarter of cases, 12–18 year olds and persons over 65 pay in cash.⁵² More than three quarters of the Dutch expect that they will continue to make payments in cash in five years' time, but 42% think they will do that less often than they currently do.⁵³ Respondents who expect to pay less often in cash or abandon cash altogether believe that electronic payments will gradually become easier.⁵⁴

⁴¹ Ibidem.

⁴² *Payment Methods Survey of Private Individuals in Switzerland*, 2022, Swiss National Bank.

⁴³ Ibidem.

⁴⁴ Ibidem.

⁴⁵ Ibidem.

⁴⁶ *The use of cash in society*, Danmarks Nationalbank, 3 March 2022, [https://www.nationalbanken.dk/en/publications/Documents/2022/03/ANALYSIS_no3_The use of cash in society.pdf#search=use of cash](https://www.nationalbanken.dk/en/publications/Documents/2022/03/ANALYSIS_no3_The%20use%20of%20cash%20in%20society.pdf#search=use%20of%20cash) [accessed: 1 June 2023].

⁴⁷ *Annual Report 2022*, Danmarks Nationalbank.

⁴⁸ Ibidem.

⁴⁹ *Paying with mobile as popular as cash at checkout*, <https://www.dnb.nl/en/general-news/dnbulletin-2023/paying-with-mobile-as-popular-as-cash-at-checkout/> [accessed: 1 June 2023].

⁵⁰ *Study on the payment attitudes of consumers in the euro area* (SPACE 2022), December 2022, EBC, op.cit.

⁵¹ <https://www.dnb.nl/media/vs2lop1c/infographic-dnb-2023-eng.pdf> [accessed: 1 June 2023].

⁵² *Paying with mobile as popular as cash at checkout*, <https://www.dnb.nl/en/general-news/dnbulletin-2023/paying-with-mobile-as-popular-as-cash-at-checkout/> [accessed: 1 June 2023].

⁵³ *Confidence in cash remains high, even with decreasing use*, <https://www.dnb.nl/en/general-news/dnbulletins-2021/confidence-in-cash-remains-high-even-with-decreasing-use/> [accessed: 1 June 2023].

⁵⁴ Ibidem.

Swedish society is also described as cashless. A study conducted in 2022 on the payment habits of Swedes shows that the percentage of the population paying in cash for recent purchases is 8%.⁵⁵ At the same time, 34% of Swedes indicate that they have used cash for payments in the last 30 days (debit cards were indicated by 90%, Swish⁵⁶ – by 82%)⁵⁷. In the survey, the respondents were also asked about the frequency of cash withdrawals from ATMs. More than a half (53%) of Swedes said they withdraw cash from an ATM less than once a month, and a third indicated that they do not do so at all.⁵⁸ At the same time, 50% of people over 65 have a negative attitude to the decline in cash use.⁵⁹

Norwegian society is also largely cashless. The central bank of Norway conducted a survey among households on the use of cash. According to its results, cash accounted for 3% of total payments and POS payments, and 4% in transactions between individuals.⁶⁰ In 2019, the share of cash in payments was 9%, but it declined during the COVID-19 pandemic.⁶¹

When planning travel to countries recognised as cashless, it should be taken into account that in these countries access to and acceptance of cash may be limited.⁶²

The United Kingdom has seen a shift towards a cashless society over the recent years. The share of cash payments in transactions shows a downward trend. In 2019, 23% of payments were executed using cash, compared to approximately 60% indicated by a survey conducted 10 years ago.⁶³ In 2021, cash was used in 15% of payments in the United Kingdom. However, it should be noted that 73% of consumers said that they used cash for payments in January 2022 (this represents a significant increase from approx. 50% of consumers paying this way in mid-2020).⁶⁴ In addition, cash remains an important form of payment for older people and those with lower incomes. In July 2022, cash as a payment method of first preference was most popular among people aged 65+ and its share of payments was 27%, compared to 20% in July 2021.⁶⁵ It is also worth noting that people who do not use cash on a daily basis recognise it as a valid payment method. In the United Kingdom, despite the high share of cashless payments, the value of banknotes in circulation increased by GBP 12.3 billion between the end of March 2020 and the end of June 2022 (i.e. by 17%). On the other hand, the increase in the value of banknote circulation in June 2022 compared to June 2021 was close to zero, which means that the strong increase occurred in the period until June 2021.⁶⁶ The increase in the value of banknotes in circulation may seem contrary to the decline in

⁵⁵ *The payment behaviour of the Swedish population*, <https://www.riksbank.se/en-gb/statistics/statistics-on-payments-banknotes-and-coins/payment-patterns/>, [accessed: 1 June 2023].

⁵⁶ Swish – the payment method based on the application developed in 2012 by 6 banks in partnership with the central bank.

⁵⁷ *The payment behaviour of the Swedish population*, <https://www.riksbank.se/en-gb/statistics/statistics-on-payments-banknotes-and-coins/payment-patterns/> [accessed: 1 June 2023], op. cit.

⁵⁸ *Ibidem*.

⁵⁹ *Ibidem*.

⁶⁰ *Retail payment services 2022*, Norges Bank papers 1/2023.

⁶¹ *Ibidem*.

⁶² Central bank announcements: <https://www.norges-bank.no/en/news-events/news-publications/News-items/2023/2023-06-08-exchange-nok/>, <https://www.riksbank.se/sv/press-och-publicerat/nyheter-och-presmeddelanden/nyheter/2023/vaxling-av-svenska-sedlar-utomlands/>, <https://www.nationalbanken.dk/en/frequently-asked-questions/exchange-of-danish-cash> [accessed: 23 June 2023].

⁶³ *Knocked down during lockdown: the return of cash*, *Quarterly Bulletin 2022 Q3*, Bank of England.

⁶⁴ *Ibidem*.

⁶⁵ *Ibidem*.

⁶⁶ *Ibidem*.

the use of transactional cash. However, this trend suggests that cash is increasingly used as a means of storing value, which is the primary role of money.

In 2022, cash remained the third most popular payment method in the USA and accounted for 18% of all payments in that year (credit cards accounted for 31% of payments, debit cards for 29%).⁶⁷ It should be noted that for people preferring credit and debit card payments, cash was still the second most commonly used payment instrument and accounted for approximately 20% of POS purchases. Cash remains an important substitute payment instrument in cases where a card cannot be used or where cash payment is more convenient due to the low amount of the transaction. Significantly, older consumers are more likely to use cash than younger people, who use debit cards more often (the share of cash payments made at POS in the 55+ age group is 23%).⁶⁸ As of October 2022, the value of money in circulation exceeded USD 2.23 trillion, which means an increase of 28 per cent compared to February 2020. It should be noted, however, that the growth in cash in circulation has been slower since 2021.⁶⁹ Diary surveys performed indicate that from 2020 onwards, household savings, whether held on one's person, i.e. in a wallet, purse or pocket, or as a store of value, i.e. cash held at home, in a car or elsewhere⁷⁰, are an important factor driving the increase in cash demand. Both indicators remained elevated compared to pre-pandemic levels, which means that demand for cash tends to increase in times of uncertainty.

With the increasing role of cashless forms of payment, particular attention should be paid to ensuring the security of transactions, as well as allowing societies the freedom to choose their payment method.

In this context, information communicated by the European Central Bank is also worth mentioning, indicating the low level of counterfeit banknotes disclosed in cash circulation in 2022. 376,000 counterfeit euro banknotes were detected, which means that the PPM (pieces per million) ratio, i.e. the number of counterfeits per million banknotes in cash circulation, was 13.⁷¹ A year earlier, the European Central Bank reported 12 PPM, in 2020 – 17 PPM, in 2019 – 23 PPM, whereas in 2015 the ratio was as high as 48 counterfeits per million banknotes in circulation. In the case of Polish cash circulation, the PPM ratio for banknotes amounted to 1.38 (compared to 2.03 in 2021) (Figure 15). In 2022, this indicator reached a record low. The insignificant number of counterfeiting cases continuing over the recent years is a consequence of the good quality of the security features of banknotes and coins and the high level of public awareness on this issue, resulting, among others, from the education and training activities undertaken by Narodowy Bank Polski.

⁶⁷ *2023 Findings from the Diary of Consumer Payment Choice*, Emily Cubides, Shaun O'Brien, The Federal Reserve Financial Services, <https://www.frbsf.org/cash/publications/fed-notes/2023/may/2023-findings-from-the-diary-of-consumer-payment-choice/> [accessed: 1 June 2023].

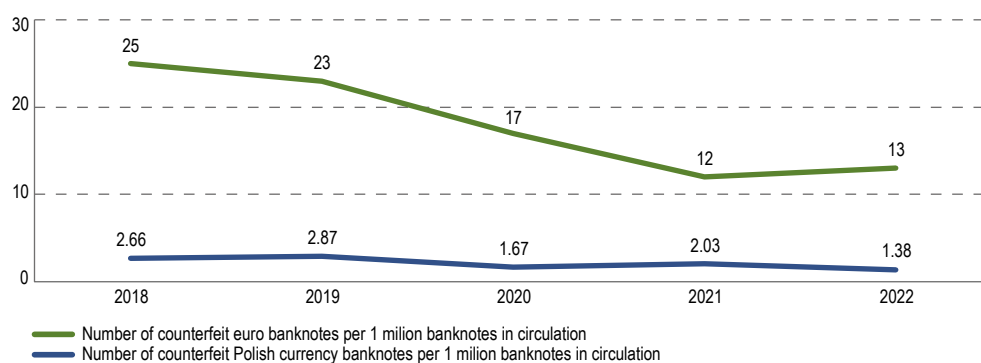
⁶⁸ *Ibidem*.

⁶⁹ *Ibidem*.

⁷⁰ *Ibidem*.

⁷¹ The European Central Bank statistics, <https://www.ecb.europa.eu/press/pr/date/2023/html/ecb.pr230130~98bc45a802.pl.html> [accessed: 1 June 2023].

Figure 15. Value of PPM in the years 2018–2022 for euro banknotes and Polish banknotes of general circulation



Source: study of the NBP Cash and Issue Department and the European Central Bank statistics.

These above facts demonstrate the legitimacy of NBP's continued efforts in the area of raising public awareness in the scope of banknote authenticity. Appreciating the importance of this issue, this Report provides basic information on the verification of banknote authenticity (see Box A).

Box A. Verification of the authenticity of banknotes

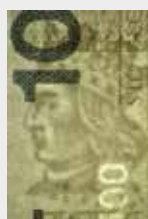
Narodowy Bank Polski, as the issuer of the Polish currency, conducts activities in the scope of counteracting counterfeiting of banknotes and coins, starting from designing, commissioning the production and putting into circulation of banknotes and coins with advanced security features hindering the circulation of counterfeits, through striving to raise public awareness within the framework of its training and educational activities, to playing the role of a specialist institution issuing an opinion on the authenticity of a banknote or coin seized by law enforcement authorities and consequently storing counterfeit banknotes and coins until it receives a copy of a final decision resolving the problem of such banknotes and coins.

The 4-step method (FLTC) is used to verify the authenticity of banknotes and coins:

FEEL – easy to feel steel engraved elements of the graphic layout, such as the value numerals, the portrait of the sovereign, the emblem of the Republic of Poland, the signatures of the Governor of NBP and NBP Chief Treasurer, the marking for the visually impaired.

LOOK – security features visible when the banknote is held against the light, such as the watermark, the security thread, the recto-verso (a see-through register – when viewed in transmitted light, the design elements complement each other and form a complete image).

Drawing A1.
Security
watermark



Drawing A2.
Security thread



Drawing A3.
Recto-verso

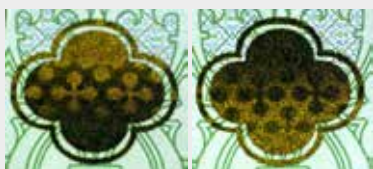


TILT – security features visible when tilting the banknote, such as the latent image (angle effect) (except for the upgraded 200 zł banknote), optically variable ink (50 zł, 100 zł, 200 zł, 500 zł banknotes), iridescent ink (the upgraded 10 zł, 20 zł, 200 zł banknotes and 500 zł banknotes), metallised ink (the pre-modernised banknotes), window thread (upgraded 200 zł and 500 zł banknote), a hologram (pre-modernised 200 zł banknote only), gold ink (upgraded 200 zł banknote only), gold metallic foil (pre-modernised 100 zł banknote only).

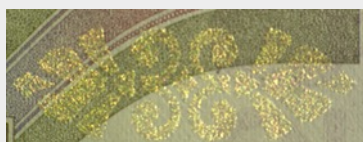
Drawing A4. Angle effect



Drawing A5.
Optically variable ink



Drawing A6.
Iridescent ink



Drawing A7.
Window thread



Drawing A8.
Hologram



Drawing A9.
Gold ink



Drawing A10.
Gold metallic foil



CHECK – security features requiring additional equipment, e.g. a magnifying glass or a UV lamp, to be detected, such as microlettering and features visible during exposure to UV lighting.

Drawing A11.
Microlettering



Drawing A12.
Latent security features



Pursuant to the Regulation of the Minister of Justice of 7 April 2022 on banknotes and coins of suspicious authenticity and counterfeit banknotes and coins, the Police or other authorised authority shall forward the seized banknote or coin together with a decision to allow expert evidence and a copy of the seizure protocol to Narodowy Bank Polski for expert examination and issuing an opinion on the authenticity of the seized banknote or coin.

Counterfeit banknotes or coins are stored at NBP until receiving a copy of the final ruling on the banknote or coin. Pursuant to Article 35(1) of the Act of 29 August 1997 on Narodowy Bank Polski (Journal of Laws of 2022, item 2025), counterfeit banknotes and coins are subject to seizure, without the right of reimbursement of their equivalent. Authentic banknotes or coins are returned to the Police organisational unit or to another authorised body which handed them over for expert examination. In accordance with the Penal Code, putting counterfeit banknotes and coins into circulation is subject to a fine, restriction of freedom or imprisonment of up to one year.

Chapter 4

Cash circulation market characteristics

Cash circulation market characteristics

4.1. The cash circulation cycle and its participants

The role of NBP in cash transactions in Poland is defined in the Constitution of the Republic of Poland, the Act on Narodowy Bank Polski and the Banking Law.

Pursuant to Article 227 of the Constitution, NBP is the central bank of the state and it has the exclusive right to issue banknotes and coins. NBP puts into circulation banknotes and coins which are means of payment on the territory of the Republic of Poland and is responsible for the value of Polish money, its appropriate number and quality in circulation, as well as the liquidity of cash settlements.

On the basis of the Banking Act and the Act on Narodowy Bank Polski, the Governor of NBP issues legal acts regulating cash circulation, addressed to banks.

The activity of NBP in the scope of cash circulation covers, in particular:

- putting banknotes or coins into circulation, which is performed on the basis of the regulations of the Governor of Narodowy Bank Polski, announced in Monitor Polski, which set the date of putting into circulation, the volume of issue as well as the design and the face value of banknotes or coins, and in the case of coins, also the alloy, the purity and the weight;
- withdrawal of banknotes or coins from circulation; this is performed on the basis of the regulation of the Governor of Narodowy Bank Polski announced in Monitor Polski, which specifies the coin or the banknote, the date of its withdrawal from circulation and the banks which carry out the exchange;
- orders for the production of banknotes and coins with manufacturers;
- verification of the authenticity and fitness for circulation of coins and banknotes;
- replacement of coins and banknotes which, due to wear and tear or damage, cease to operate as legal tender in the territory of the Republic of Poland;
- storage of banknotes and coins;
- distribution of banknotes and coins;
- destroying banknotes and coins unfit for circulation.

The participants of cash circulation in Poland include banks, producers of banknotes and coins, CIT companies processing cash on behalf of banks, operators of ATM networks, retail chains and consumers.

Banks and CIT companies are responsible for verification of the authenticity and quality of recirculated banknotes and coins. On the other hand, banks or CIT companies carrying out these activities on behalf of banks are responsible for the storage and distribution of Polish currency.

The supply of Polish currency to banks by NBP stems from Article 68 (2) of the Act of 29 August 1997 – Banking Law and it implements Article 37 of the Act of 29 August 1997 on Narodowy Bank Polski. In accordance with Article 37 of the Act of 29 August 1997 on Narodowy Bank Polski, NBP organises the management of banknotes and coins of the Republic of Poland.

Pursuant to § 4 of Regulation No. 19/2016 of the Governor of Narodowy Bank Polski of 17 August 2016 on the method and procedure to be used in counting, sorting, packaging and labelling packages of banknotes and coins, and in conducting activities related to the supply of banknotes and coins to the banks (Official Journal of NBP of 2020 item 28), NBP concludes with banks and implements agreements defining the terms and conditions of withdrawal and lodging the Polish currency.

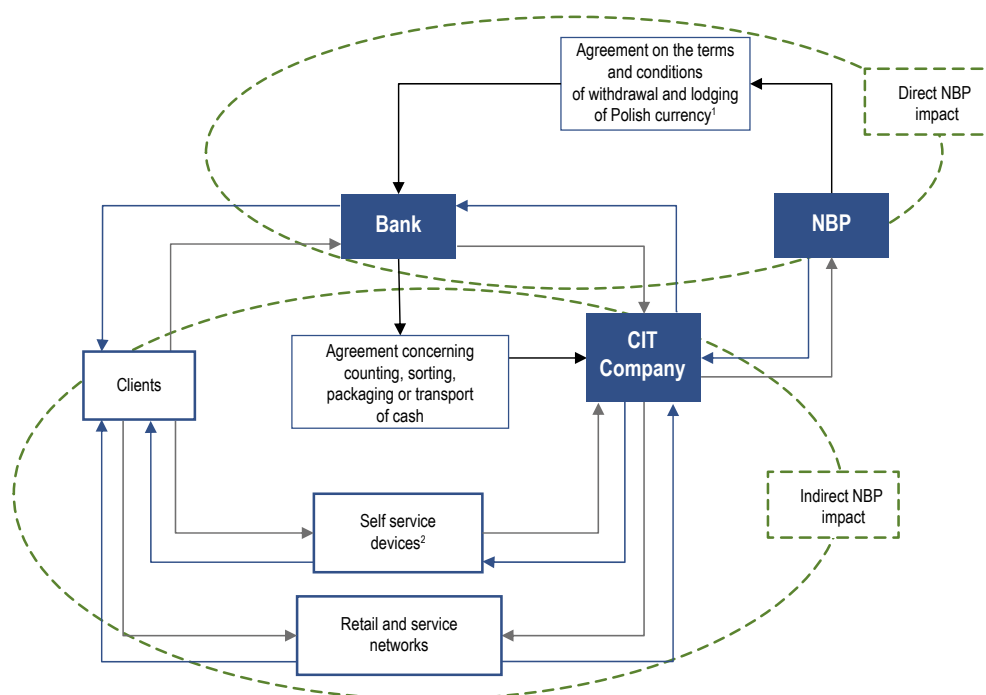
The cash cycle illustrated in Diagram 1 shows the route covered by banknotes and coins of Polish currency from NBP to consumers and the return route. Banknotes and coins withdrawn from NBP by banks or CIT companies operating on behalf of banks are transferred to cash centres of banks or CIT companies and subsequently to customers via bank branches, ATM networks and retail chains. Banknotes and coins cover the opposite route when returning to the central bank. Cash reaches consumers, banks' cash centres or CIT companies dealing with cash processing on behalf of banks via large retailers and customer-operated machines. Banknotes and coins fit for circulation may be recirculated in accordance with the needs reported by banks and their customers. A surplus of banknotes and coins fit for circulation and banknotes and coins unfit for circulation is lodged in NBP.

Sixteen regional branches supplying Polish currency to banks operate within the organisational structure of NBP, supplying banks with Polish currency under the agreements. Four of them act as supply centres for other regional branches of the central bank.

As at 31 December 2022, 18 agreements were concluded, regulating the cooperation of the NBP regional branches with 282 organisational units of banks operating under the basic system⁷² and 38 organisational units operating under the depository system.⁷³

⁷² Withdrawal and lodging of the Polish currency by banks under the concluded agreement on the terms and conditions of withdrawal and lodging of the Polish currency.

⁷³ Polish currency lodged as an NBP deposit is the property of NBP and is stored in vault rooms of the bank's organisational unit, subject to the condition that the NBP deposit is adequately secured and separated from banknotes and coins owned by this bank. Some banks use the deposit system. Limits of amounts related to the storage of NBP deposits are agreed with banks on a case by case basis in the agreements.

Diagram 1. Cash cycle in Poland

¹ Basic and deposit system.

² Devices for withdrawal and depositing of cash.

Source: study of the NBP Cash and Issue Department.

4.2. Legislation governing cash circulation

The security of coins and banknotes in circulation and, consequently, of all market participants is one of the priorities of the proper functioning of cash circulation. This is regulated by the relevant legislation.

The acts that came into force in 2022 are listed below, in the scope of:

- seizure of banknotes and coins suspected in terms of their authenticity,
- protection of banknotes and coins,
- coin and banknote replacement.

Narodowy Bank Polski has been actively involved in these amendments by issuing opinions, submitting an initiative or issuing acts of law directly.

4.2.1. Seizure of banknotes and coins suspected in terms of their authenticity

The provisions of the Regulation of the Minister of Justice of 7 April 2022 on banknotes and coins of suspicious authenticity and counterfeit banknotes and coins (Journal of Laws item 776) which is effective as of 6 April 2022⁷⁴, set out the procedure to be followed when a banknote or coin suspected in terms of authenticity is identified in circulation, including but not limited to:

- the obligation to seize a banknote or coin of suspicious authenticity by the seizing entity;
- the obligation of the detaining entity to immediately hand over one copy of the seizure report of a banknote or coin of suspicious authenticity along with the seized banknote or coin to the Police department with jurisdiction over the place of seizure;
- the model report on the seizure of a banknote or coin or coin of suspicious authenticity which is essential for the detection process in cases of counterfeiting and the putting into circulation counterfeit banknotes and coins;
- measures in the event of seizure of a banknote or coin of suspicious authenticity by a cash-accepting or cash-issuing device with a function of verification of the authenticity of banknotes and coins, ensuring the identification of the depositors;
- the number of copies of the seizure report of a banknote or coin of suspicious authenticity depending on the manner of seizure;
- handing over the seized banknote or coin by the police to NBP, together with the decision on admitting expert evidence and a copy of the seizure report of a banknote or coin of suspicious authenticity for the purpose of conducting the expert examination and issuing the opinion on the authenticity of the seized banknote or coin;
- sending the opinion by NBP on the authenticity of the seized banknote or coin to the Police as the opinion of the specialised institution;
- storage by NBP of the counterfeit banknote or coin until receiving a copy of the final ruling on the banknote or coin;
- destroying the counterfeit banknote or coin by the commission appointed by the director of the competent NBP organisational unit;
- return by NBP of the authentic banknote or coin including the opinion to the Police organisational unit or to another authorised body which has handed it over for expert examination.

⁷⁴ The regulation of the Governor of Narodowy Bank Polski of 31 August 1989 on the seizure of counterfeit banknotes and coins was repealed.

4.2.2. Protection of banknotes and coins

In 2022, the Regulation of the Minister of Interior and Administration of 7 September 2010 concerning the requirements to be met by the protection of monetary values stored and transported by entrepreneurs and other organisational entities was amended three times (Journal of Laws of 2016, item 793, as amended).

To facilitate the access of the population to cash in connection with increased ATM withdrawals as part of the public response to Russia's armed aggression on Ukrainian territory, episodic provisions were introduced twice (§ 14a⁷⁵), which allowed to double the limits of banknotes and coins that could be transported to banks and ATMs from 2 to 15 March 2022⁷⁶ as well as from 15 to 31 March 2022⁷⁷, which was intended to streamline cash transports.

In order to optimise storage solutions for Polish currency and foreign currency coins and transports of banknotes and coins, on 21 September 2022⁷⁸, the storage of coins in Polish currency or foreign currency coins in facilities subject to mandatory security in premises other than vaults was admitted. The provision also allows for banknote and coin transports performed by Narodowy Bank Polski to be carried out by a vehicle other than a special bank vehicle, subject to the support of the Police.

4.2.3. Replacement of banknotes and coins

In order to facilitate the exchange of worn-out or damaged banknotes and coins, Regulation No. 31/2013 of the Governor of Narodowy Bank Polski of 17 December 2013 concerning detailed rules and procedures for the replacement of coins and notes which cease to operate as a legal tender on the territory of the Republic of Poland (Official Journal of NBP of 2022, item 23) was amended accordingly and the amendments came into force on 1 November 2022. These amendments facilitate the implementation of solutions for professional cash handlers, pursuant to the Regulation of the Minister of the Interior and Administration of 15 September 2021 amending the Regulation concerning the requirements to be met by the protection of monetary values stored and transported by entrepreneurs and other organisational entities (Journal of Laws of 2021 item 1739 and Journal of Laws of 2023 item 1947).⁷⁹ In particular, facilitations have been introduced for professional cash handlers to reduce the path for replacement of damaged banknotes in the case of banknotes damaged

⁷⁵ Regulation of the Minister of Interior and Administration of 7 September 2010 concerning the requirements to be met by the protection of monetary values stored and transported by entrepreneurs and other organisational entities (Journal of Laws of 2016, item 793, as amended).

⁷⁶ Regulation of the Minister of Interior and Administration of 1 March 2022 concerning the requirements to be met by the protection of monetary values stored and transported by entrepreneurs and other organisational entities (Journal of Laws item 495).

⁷⁷ Regulation of the Minister of Interior and Administration of 15 March 2022 concerning the requirements to be met by the protection of monetary values stored and transported by entrepreneurs and other organisational entities (Journal of Laws item 607).

⁷⁸ Regulation of the Minister of Interior and Administration of 16 September 2022 concerning the requirements to be met by the protection of monetary values stored and transported by entrepreneurs and other organisational entities (Journal of Laws item 1970).

⁷⁹ Amendments introduced under Regulation No. 21/2022 of the Governor of Narodowy Bank Polski of 15 September 2022 amending the regulation on detailed rules and procedures for the replacement of coins and banknotes which, due to wear and tear or damage, cease to operate as legal tender in the territory of the Republic of Poland (Official Journal of NBP, item 17).

as a result of a failure of the system for automatic and irreversible damaging of banknotes that is not the fault of the professional cash handler. In this case, the entity shall submit a declaration to this effect and the banknotes are not referred to the Police, allowing for faster disbursement of the replacement amount to the entity affected. At the same time, the charge for the replacement of such banknotes and coins has been waived.

The path for dealing with damaged or worn banknotes and coins in lodgements to NBP regional branches has also been shortened, allowing branches to hand over directly to the NBP Head Office such banknotes and coins for replacement, instead of sending them back to the banks. Thanks to that, banks do not have to transfer such damaged or worn banknotes and coins themselves to the NBP Head Office together with the application for their exchange.

Moreover, communication in the process of replacing worn or damaged banknotes and coins has been improved by introducing the transmission by the NBP Head Office of information on the outcome of the replacement directly to the person or entity submitting the banknotes and coins for replacement, instead of only to the bank that accepted the banknotes or coins for replacement. The amendments also stipulate that banknotes and coins not replaced by the NBP Head Office, if their return is not requested, are subject to destruction after six months from the date on which the information on the result of the replacement of worn-out or damaged banknotes is issued.

4.3. Reporting in the scope of cash circulation

Since 1 July 2018, banks with which NBP had concluded an agreement specifying the terms and conditions for the withdrawal and lodgement of Polish currency pursuant to Regulation No 19/2016 have been obliged to submit quarterly reports to NBP containing information on the counting and sorting of banknotes and coins and their subsequent recirculation, the number of devices operated by customers (e.g. cash deposit machines, recyclers) and devices operated by the bank's staff or by the staff of the entrepreneur to whom the bank has entrusted the processing of banknotes and coins (e.g. sorters).

4.3.1. Legal conditions

As part of the guidelines defining the rules for the accurate filing of reports, the "Guidelines concerning quarterly reporting related to the number of devices, counting and sorting of banknotes and coins and their recirculation" are available on the NBP website.

In accordance with the aforementioned guidelines, banks:

- since 1 July 2018, have been obliged to include in their reports information on banknotes and coins:
 - put into circulation,
 - processed by devices, in the bank's sorting rooms, in sorting rooms of the undertakings commissioned by the bank for processing of banknotes or coins,
 - held on the last day of a given quarter: in the bank's cash desks, in the vaults of the bank and undertakings (including those received from another bank or from NBP)

commissioned by the bank for processing of banknotes or coins as well as in the bank's devices and equipment of independent operators;

- since 1 January 2020, in addition to the above information, banks have been obliged to include in the reports data on banknotes and coins processed at the bank's cash desks and subsequently put into circulation;⁸⁰
- since 1 January 2022, they have been additionally obliged to report the share of manually processed banknotes in the total number of banknotes processed by the bank in a given quarter.

The reports are submitted to NBP on a quarterly basis, by electronic means, via the Reporting Information System (SIS) Internet portal. The first report was submitted by the banks for 2018 Q3.

Narodowy Bank Polski uses the quarterly reporting, among others, to monitor market trends in the area of putting banknotes and coins into circulation by banks without the participation of NBP. The interpretation of data received within the reporting framework allows, among others, to assess the scale of recirculation of banknotes and coins, i.e. putting them back into circulation by banks without the participation of NBP. The trends in the scope of processing of banknotes and coins by market participants and the use of specialised equipment for this purpose is also analysed.

4.3.2. Statistical data

Analysis of the data reported by banks in 2022⁸¹ indicates a rise in the number of banknotes and coins processed and recirculated.

Table 7. Volume of banknotes processed and recirculated in 2021 and 2022 in quarterly terms

Denomination	2021				2022			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	2	3	4	5	6	7	8	9
500 zł	8 280 642	9 739 922	10 927 686	11 811 061	17 850 477	17 609 683	19 099 878	19 376 548
200 zł	255 655 044	297 115 940	330 705 558	348 633 983	360 003 357	414 758 769	446 448 586	456 600 568
100 zł	1 073 542 682	1 245 521 491	1 317 314 790	1 322 725 703	1 255 811 432	1 337 307 077	1 337 941 371	1 296 069 471
50 zł	279 241 740	316 719 133	316 054 595	312 892 718	288 924 475	300 610 956	289 879 190	276 331 619
20 zł	73 079 009	80 798 524	116 730 031	87 007 759	90 221 434	100 380 714	104 414 952	92 891 008
10 zł	116 658 731	128 824 426	132 680 137	125 183 757	110 796 687	114 017 750	111 599 395	109 285 951
Total	1 806 457 848	2 078 719 436	2 224 412 797	2 208 254 981	2 123 607 862	2 284 684 949	2 309 383 372	2 250 555 165
	8 317 845 062				8 968 231 348			

Source: study of the NBP Cash and Issue Department.

⁸⁰The exceptions include the operations of the records of denomination of suspicious banknotes in terms of authenticity, exchanges and replacements carried out at partner establishments; data on operations carried out at banks' partner establishments are reported in value terms, according to a separate procedure.

⁸¹The Bank may at any time adjust its report for the selected quarter.

In 2022, the banks counted, sorted and checked for authenticity 9.0 billion banknotes, i.e. 7.8% more than in 2021. In 2022, the banks processed on average 2.2 billion banknotes per quarter (Table 7).

At the same time, an increase in the number of banknotes recirculated by banks was recorded. In 2022, this figure amounted to 6.5 billion pieces and rose by 9% compared to the previous year. The share of banknotes recirculated in the number of banknotes processed by banks in 2022 amounted to 72.2% (Table 8). In annual terms, a slight increase in this share of approx. 0.8 percentage points was noted.

Table 8. Volume and share of banknotes recirculated in 2021 and 2022 based on quarterly data

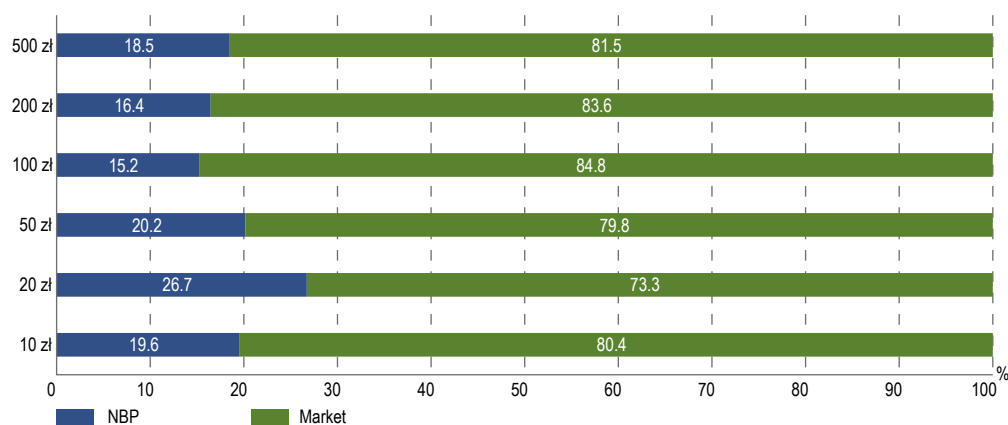
Denomination	2021		2022	
	Number of recirculated banknotes	Ratio of the number of banknotes recirculated to banknotes processed	Number of recirculated banknotes	Ratio of the number of banknotes recirculated to banknotes processed
1	2	3	4	5
500 zł	33 098 672	81,21%	49 987 151	67,61%
200 zł	808 731 131	65,64%	1 194 423 584	71,19%
100 zł	3 853 717 951	77,71%	3 959 822 432	75,76%
50 zł	801 221 857	65,41%	773 271 188	66,91%
20 zł	218 564 365	61,12%	269 994 148	69,60%
10 zł	225 433 945	44,79%	228 032 611	51,16%
Total	5 940 767 921	71,42%	6 475 531 114	72,21%

Source: study of NBP Cash and Issue Department.

In 2022, among all banknote denominations, 100 zł banknotes accounted for the highest volume of processed and recirculated banknotes (respectively: 58.3% and 61.2%). The subsequent most frequently processed and recirculated denominations included the following banknotes: 200 zł (18.7% and 18.4%, respectively) and 50 zł (12.9% and 11.9%, respectively). In the case of 100 zł banknotes, similar results were obtained in 2021. This means that 100 zł, 200 zł and 50 zł banknotes circulate, to a major extent, among market participants and are used for trading purposes. At the same time, 100 zł, 200 zł and 500 zł banknotes fulfil a hoarding function.

Aggregate figures indicate that the processing of banknotes is largely carried out by the commercial sector. In 2022, its share of banknote processing reached 83.1% and was similar to 2021, when it amounted to 84.2%. The level of this share depends on the denomination (Figure 16).

The number of coins processed shows a stable level. In 2022, as in the previous year, banks counted, sorted and checked 2.6 billion coins for authenticity (Table 9).

Figure 16. Processing of banknotes in 2022 by denomination structure broken down into NBP and other market participants

Source: study of the NBP Cash and Issue Department.

Table 9. Volume of coins processed in 2021 and 2022 in quarterly terms

Denomination	2021				2022			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	2	3	4	5	6	7	8	9
5 zł	51 110 866	52 453 719	63 052 500	60 412 749	54 327 475	59 522 791	63 615 151	66 521 829
2 zł	88 036 847	90 813 219	104 275 787	101 871 496	92 826 088	100 888 322	97 897 035	98 680 617
1 zł	106 533 576	114 449 745	123 393 813	118 695 451	107 618 808	118 356 578	114 757 522	114 987 595
50 gr	55 299 658	57 600 122	61 735 235	61 509 408	53 993 392	58 471 383	56 074 720	56 960 670
20 gr	39 981 366	41 302 656	44 963 877	43 425 191	39 457 848	42 276 107	42 158 645	39 694 326
10 gr	59 780 636	62 279 357	66 299 327	65 169 163	60 163 708	63 348 585	58 330 933	56 569 240
5 gr	40 621 282	45 003 577	47 045 733	43 508 021	41 228 090	44 526 126	42 725 070	48 431 563
2 gr	46 865 549	54 921 998	57 629 769	53 978 729	49 161 005	55 757 292	53 467 618	55 793 653
1 gr	95 909 876	115 683 688	119 013 925	112 350 064	116 617 971	121 020 467	115 207 591	91 401 961
Total	584 139 656	634 508 081	687 409 966	660 920 272	615 394 385	664 167 651	644 234 285	629 041 454
	2 566 977 975				2 552 837 775			

Source: study of the NBP Cash and Issue Department.

On the other hand, in the case of recirculated coins, a slight increase in volume can be noted. In 2022, this figure amounted to 1.5 billion pcs. and was 5.8% higher compared to the previous year. The reports submitted show that at the end of 2022, 56.8% of processed coins were recirculated by banks, whereas a year earlier this figure reached 53.4% (Table 10).

Table 10. Volume and share of coins recirculated in 2021 and 2022 based on quarterly data

Denomination	2021		2022	
	Number of recirculated coins	Ratio of the number of coins recirculated to coins processed	Number of recirculated coins	Ratio of the number of coins recirculated to coins processed
1	2	3	4	5
5 zł	124 177 229	54,70%	134 778 563	55,24%
2 zł	208 238 038	54,09%	214 024 888	54,84%
1 zł	263 531 090	56,91%	267 781 593	58,76%
50 gr	129 953 439	55,03%	129 613 042	57,48%
20 gr	91 186 312	53,74%	91 420 187	55,88%
10 gr	154 705 741	61,02%	146 138 770	61,30%
5 gr	90 101 929	51,14%	105 863 096	59,84%
2 gr	91 642 384	42,94%	106 776 199	49,85%
1 gr	217 489 056	49,10%	254 016 119	57,18%
Total	1 371 025 218	53,41%	1 450 412 457	56,82%

Source: study of the NBP Cash and Issue Department.

Out of all coin denominations in 2022, the volume of 1 zł coins processed was the highest (17.9%). The second most frequently processed denomination was 1 gr (17.4%). Similar to 2021, 1 zł (18%) and 1 gr (17.3%) coins had the highest share.

In the case of coins recirculated in 2022, like in the case of coins processed, the 1 zł coins had the highest share (18.5%). The second most frequently recirculated denomination was the 1 gr coin (17.5%). As in the previous year, coin denominations with similar shares most frequently put into circulation included 1 zł and 1 gr (19.2% and 15.9%, respectively).

4.4. Cash Circulation Council

The Cash Circulation Council⁸² is a consultative and advisory body to the Management Board of Narodowy Bank Polski, functioning pursuant to Resolution No. 4/2019 of the Management Board of Narodowy Bank Polski of 21 February 2019 on the appointment of the Cash Circulation Council and determination of the procedure of its operation (as amended).⁸³

The Council was established to take measures with the aim to improve and standardise the functioning of the cash circulation market and to enhance its efficiency and safety by also involving other cash circulation market participants (in addition to banks). Motivating entities operating in the cash circulation market to cooperate in this respect is of key importance for maintaining the security and quality of cash circulation.

Representatives of NBP and stakeholders of the cash circulation market, including banks, Poczta Polska S.A., organisations associating the banking sector and the retail sector, the Polish

⁸² Hereinafter also referred to as the Council.

⁸³ Hereinafter referred to as Resolution No. 4/2019.

Organisation of Cash Handling Companies and CIT companies, have participated in the work of the Council since its establishment.

In connection with the development of the National Strategy for Cash Circulation Security, as a result of the amendment of Resolution No. 4/2019 carried out in February 2021, representatives of the following authorities were included as members of the Council: the Ministry of Finance, the Ministry of the Interior and Administration, the Ministry of Justice, the Police Headquarters, the Office of the Polish Financial Supervision Authority, the National Association of Cooperative Banks and representatives of the market of independent ATM network operators as well as additional NBP representatives.

It is worth pointing out that the Council is the only forum of this kind bringing together representatives of different areas of the cash circulation market, including the institutions regulating its operation and the commercial sector.

The Council's main task in 2022 was to analyse the implementation of the National Strategy for Cash Circulation Security. At the same time, the Council carried out, among others, activities related to analysing cash circulation in Poland and analysing legal regulations in this area, recommending proposals for measures to mitigate systemic risk, enhancing the security of cash circulation and integrating the functioning of the market.

It should be emphasised that the Cash Circulation Council provided an important platform for information exchange, both during the pandemic and during Russia's armed aggression on Ukrainian territory.

4.4.1. National Strategy for Cash Circulation Security

In 2022, the implementation of the National Strategy for Cash Circulation Security was launched, developed as part of the work of the task forces set up at the Cash Circulation Council during 2021 and then approved by the Council at its meeting on 29 October 2021 and recommended to the NBP Management Board, which adopted the Strategy on 22 November 2021. The implementation of the actions defined in the National Strategy for Cash Circulation Security has become one of the priorities of Narodowy Bank Polski for the coming years and has been included in the NBP Activity Plan. The National Strategy for Cash Circulation Security focuses on supporting further sustainable development of the cash circulation market while maintaining a high level of its security.

As part of the implementation of the Strategy, the analytical, legislative, self-regulatory and recommendation measures refer to universal acceptance and availability of cash, smooth supply of Polish currency to the market, physical security of banknotes and coins and cyber-security of IT systems used in cash transactions. They were grouped into 4 pillars:

- Pillar I – availability and acceptance of cash,
- Pillar II – smooth cash supply,
- Pillar III – cyber-security of the IT systems used in cash supply processes,
- Pillar IV – physical security of cash.

The communication activities resulting from the individual pillars have been streamlined with a view to including them in the scope of such activities carried out by NBP using appropriately selected techniques and channels addressed to selected groups of recipients.

Once the organisational framework had been defined, the implementation of the individual actions identified in the pillars of the National Strategy for Cash Circulation Security began in accordance with the agreed timetable.

Under Pillar I, dedicated to cash availability and acceptance, a number of legislative, analytical and monitoring activities were carried out. Their outcome was, among others, the preparation and conduct of a survey among merchants on the impact of the introduction of the cash acceptance obligation on such entities. The study in question confirmed the application of the amendment to the Payment Services Act (which came into force on 5 November 2021) requiring payment card merchants (with exceptions specified in the Act) to accept payment in cash.

Consultations were also carried out on the possibility of market-based changes to ATM fees as part of efforts to self-regulate the introduction of ATM fees or to oblige payment service providers operating payment accounts to ensure adequate access to the main sources of cash. The consultation contributed to a change in the rate of the fee charged on ATM cash withdrawals by one of the card organisations from 1 January 2023.

As part of increasing the availability of cash, the use of Assisted Self Service devices and the MultiCash Branch solution were explored, including increasing the use of so-called mobile ATMs. On the other hand, in 2022 Q4, the cash availability criterion adopted in the Strategy was also verified, which means ensuring that 90% of the population in Poland has access to a bank branch with a cash desk service or an ATM within a distance shorter than 10 km. The results of this study are presented in Box B.

In Pillar I, market monitoring is also carried out on a continuous basis in terms of Cash Tech solutions – modern cash availability solutions and technologies worldwide, regulatory changes in the area of providing payment services, and information activities carried out in Poland in terms of popularising in-store withdrawal services – cash back (information on this service is provided in Box C).

The activities included in Pillar II, concerning the smooth supply of cash to the market, are focused on ensuring a steady, uninterrupted and efficient supply of cash, as well as raising public awareness of the role of cash and confidence in cash as a secure form of payment settlement. In the first of the aforementioned areas, recommendations on key aspects of ensuring business continuity in emergency situations were developed and addressed to cash market participants cooperating with NBP in the scope of cash supply in March 2022. These included, for example, the resumption of IT systems used for cash handling, increased staff absenteeism, access to other cash resources, handling of cash counting, provision of alternative cash transport and communication between participants in the process. In September 2022, a questionnaire was addressed to the same entities to diagnose the market situation in the above-mentioned key areas. The survey will be repeated periodically to monitor the changes taking place.

In addition, analytical work was carried out in 2022 in terms of the feasibility and scope of introducing changes to the supply of Polish currency in the deposit system. The work included

surveys of both Polish cash market participants and European central banks that are involved in maintaining deposits in various organisational formats.

A survey of banks and independent ATM operators on the adaptation of customer-operated machines (cash dispensers, recyclers, ATMs) to handle banknotes in circulation was carried out in order to develop solutions to increase the flexibility of adaptation of machines to handle banknotes in circulation. The information gathered allowed for an analysis of the directions for further work to be undertaken in this area.

A public opinion survey on cash in circulation, prepared at NBP and commissioned for implementation, provided important information for use in other planned activities, including the other Pillars of the Strategy. It covered, among other issues, the availability and acceptance of cash, the use and withdrawal of cash, including during the initial period of Russia's armed aggression on Ukrainian territory, the quality of banknotes and coins and their images and the accumulation of banknotes and coins. The repetition of the survey, scheduled in successive annual editions, will enable tracking changes in cash-related areas. Selected results of the aforementioned survey are presented in subsection "3.1. Trends observed in Poland".

In 2022, as part of Pillar II, significant legislative work was carried out at NBP related to the process of issuing an opinion on the Regulation of the Minister of Justice of 7 April 2022 on banknotes and coins of suspicious authenticity and counterfeit banknotes and coins, issued on the basis of Article 35(3) of the Act on Narodowy Bank Polski, amended at the end of 2021. The Regulation created a new framework for the area analysed, taking into account technical progress (see subsection "4.2.3. Replacement of banknotes and coins").

In order to streamline the process of replacing worn-out or damaged banknotes and coins, in view of the implementation of legal requirements in the cash circulation market for the use of banknote neutralisation systems, in particular in ATMs and cash transport devices, Regulation No. 31/2013 of the Governor of NBP concerning detailed rules and procedures for the replacement of coins and banknotes which cease to operate as legal tender on the territory of the Republic of Poland, was amended.

In 2022, as part of Pillar II, in the area of raising public awareness and confidence in cash, training sessions conducted by NBP employees on recognising the authenticity of banknotes and coins were continued.

In pursuit of Pillar III objectives on the cyber security of IT systems used in cash supply processes, such as identifying these systems and covering them with special protection and improving the exchange of information between cash market participants in the field of cyber security, a proposal for the selection of a set of good practices in the field of ICT security was prepared in 2022 and opportunities and tools for the exchange of cyber security information were identified. Training offers were analysed, based on the need for education consistent with cooperating market players in the scope of improving the professional skills of the employees of entities involved in cash circulation.

Activities under Pillar IV, dedicated to the physical security of cash, focused on the following objectives:

- promoting and implementing new technical and organisational solutions to enhance the physical security of cash,
- harmonising and adapting the legal norms and other regulations to the changing environment,
- creation of a coherent supervision system in the area of physical security of entities responsible for cash processing.

In pursuit of the above objectives, the criterion for inclusion of areas, facilities and equipment subject to mandatory protection by specialised armed security formations or appropriate technical safeguards in the list maintained by the Governor of NBP was amended in 2022. The limits of stored banknotes and coins, beyond which the banking facilities in which they are stored are entered in the list, were increased. At the same time, NBP initiated the legislative work in the scope of amendments to the Regulation of the Minister of Interior and Administration of 7 September 2010 concerning the requirements to be met by the protection of monetary values stored and transported by entrepreneurs and other organisational entities. These changes allowed coins to be stored in facilities subject to mandatory security, in rooms outside the vaults, which created the possibility of more efficient use of vault space in the cash management process and allowed coins to be transported by vehicles other than special bank's vehicles while maintaining the other security requirements.

In order to promote the enhancement of cash security, consultations were held within NBP, as a result of which good practices and procedures related to the cash handling process were identified and their proposal reviewed. The good practice proposal will subsequently be consulted with external stakeholders.

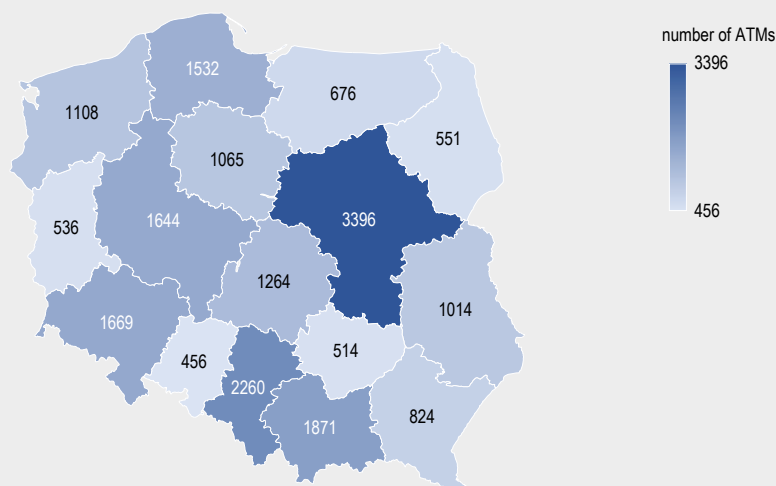
In the area of physical security of cash, Narodowy Bank Polski was also involved in ongoing work on legislative amendments aimed at adding the Chairman of the PFSA to the bodies competent for maintaining a list of facilities subject to mandatory security, which would enable to include entities supervised by him in the list.

Box B. Cash availability in Poland – results of the 2022 survey

The cyclical cash availability survey is the result of the implementation of the activity set out in the National Strategy for Cash Circulation Security under Pillar I – Cash Availability and Acceptance (Objective 2 – Defining the criteria and monitoring cash availability; Priority 4 – Development of criteria for assessing cash availability). The survey aims to confirm that the criterion adopted in the Strategy is met, i.e. that 90% of the population in Poland have access to the nearest bank branch with cash desk services or an ATM within a distance of 10 km from their place of residence.⁸⁴

The aim of the cash availability analysis is to determine the percentage of the Polish population with access to the nearest ATM or bank outlet with cash desk services within 10 km from their place of residence. Data on the location of ATMs in Poland as at 15 December 2022, made available by banks and ATM operators, as well as data from the official postal directory of the Polish Post Office (Poczta Polska S.A.) and data on bank outlets offering cash desk services⁸⁵ were used to conduct the analysis. The analyses also used Statistics Poland (GUS) data from the 2021 Population and Housing Census, in particular the spatial distribution of residents, presented on a kilometre grid.⁸⁶ The survey conducted showed that ATMs remain the basic channel of access to cash in Poland, although their number has been gradually decreasing for several years. According to NBP, at the end of 2022 Q3, 21,207 devices enabling cash withdrawals (ATMs and recyclers) operated in Poland, of which, due to the availability of geo-localisation data, 20,380 devices (hereafter: ATMs) distributed across the country were included in the study.

Drawing B1. Number of ATMs by voivodeship as at 15 December 2022



Source: own study of the NBP Cash and Issue Department.

⁸⁴ National Strategy for Cash Circulation Security, Narodowy Bank Polski, 2021.

⁸⁵ The analysis did not cover points offering the cash back service.

⁸⁶ 2021 census data. Residents in 1km grid – Statistics Poland Geostatistical Portal, <https://geo.stat.gov.pl/app/cat/org/gus/mapa/3ed98504-d55b-4fab-1ca5-b22358e66966?lang=PL> [access: 28 February 2023].

In 2022, the ratio of ATMs per million inhabitants in Poland reached approximately 551. The highest number of ATMs (16.7%) were located in the Mazowieckie Voivodeship. 11.1% and 9.2% of all ATMs in the country were located, respectively in the Śląskie and Małopolskie Voivodeships. The following Voivodeships had the lowest share in the number of ATMs: Opolskie (2.2%), Świętokrzyskie (2.5%) and Lubuskie (2.6%).

The analyses performed show that for more than a half of Polish residents the nearest ATM was located less than one kilometre from their place of residence.⁸⁷ The share of residents who had to cover a distance smaller than 5 km to the nearest ATM was 83.3%. An analysis of cash availability shows that 2.6% of Polish residents had to travel more than 10 km to use an ATM.

The network of cash access points formed by ATMs is supplemented by outlets of the Polish Post Office (Poczta Polska S.A.) and banks (outlets offering a cash desk service). The results of the cash accessibility analysis indicate that, although Poczta Polska S.A. branches and bank outlets offering a cash desk service are not as numerous as ATMs, they are an important addition to the network of cash access points, especially in small towns and rural areas.

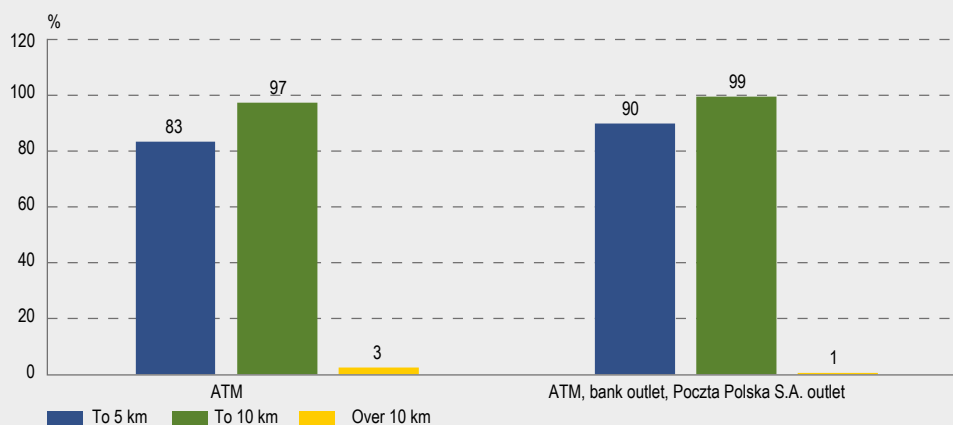
Drawing B2. Cash access points in Poland – distribution



Source: own study by the NBP Cash and Issue Department on the basis of data made available by banks and ATM operators, data from the EWIB 2.0 system and the Directory of Postal Address Numbers.

The results obtained after taking into account all types of cash access points analysed (ATMs, bank outlets with cash desk services and Poczta Polska S.A. outlets) show that more than 59% of residents have a cash access point available within 1 km from their place of residence: an ATM, a bank outlet with cash desk services or a Poczta Polska S.A. outlet. Around 90% of residents have access to a cash access point within a distance of 5 km from their place of residence. On the other hand, nearly 99.5% of residents have access to cash within a distance of 10 km from their place of residence.

⁸⁷ It has been assumed that the “place of residence” in this study means the geometric centre of each inhabited area unit represented on the GUS kilometre grid.

Figure B1. Share of residents in Poland by distance to a cash access point

Source: DES NBP study based on results of the cash availability survey.

The results of the survey indicate that the cash availability criterion adopted in the National Strategy for Cash Circulation Security is fulfilled. Nevertheless, given the changes taking place in the cash circulation market, in particular the decrease in the number of ATMs and the gradual reduction by banks of the number of outlets offering cash desk services, the survey will be repeated periodically, enabling the monitoring of the current situation and a response to potential changes in access to cash as early as possible.

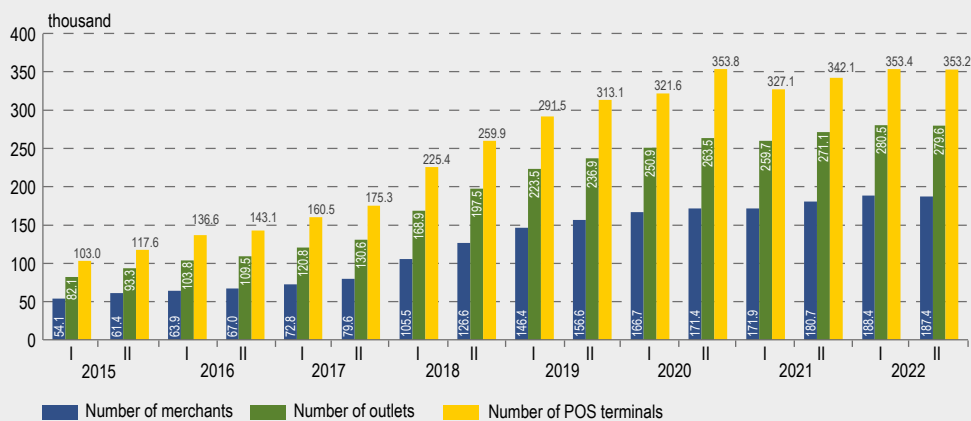
Box C. Cash back or shop withdrawal

The cash back service, also known as shop withdrawal, is a banking service whereby a payment cardholder can withdraw cash when making a card payment at a point of sale. This service can be used in Poland by all holders of Visa and Mastercard payment cards issued by banks that have activated the cash back functionality.

The use of shop withdrawal requires a purchase (for any amount) and payment at the point of sale using a payment card. Before making a payment, the customer informs the retailer of his or her intention to use the cash back service and states the amount of the withdrawal. Then, after placing the card in the POS terminal and displaying on the device screen the amount of the transaction corresponding to the sum of the purchase value and the cash withdrawn, he/she enters the card PIN number. Once the payment is approved, he/she collects the cash from the vendor. The service can be used multiple times a day, at different points of sale, within the cash withdrawal limit set for the customer's account.

The access network for the cash back service is extensive in Poland. As at the end of 2022, this service was offered by 187,400 merchants with nearly 280,000 outlets equipped with a total of 353,200 POS terminals enabling in-store withdrawals (Figure C1). Access to this service is offered by, among others, shops, Poczta Polska S.A., super- and hypermarket chains, petrol stations and service outlets. They usually post the cash back sign on the door, window or at the cash desk. Offering this service expands the cash access network in Poland and can make a difference when an emergency need arises to make a withdrawal in a location where other methods of cash acquisition are not available.

Figure C1. Number of merchants, outlets and POS terminals with a cash back service in Poland in the years 2015–2022



Source: NBP data.

However, when using the cash back service, it is important to bear in mind that a shop withdrawal can only be made in conjunction with a payment card and that the amount withdrawn depends on the cash available at the retailer's cash desk, which may result in a refusal of withdrawal – especially in case of retailers with a low cash turnover. In addition, as with other payment card services, banks may impose fees on this service, which are set out in their table of fees and commissions. So, depending on the bank and the type of account they hold, individual customers may incur a bank fee for using the service. On the other hand, points of sale no longer charge additional fees for cash withdrawals.

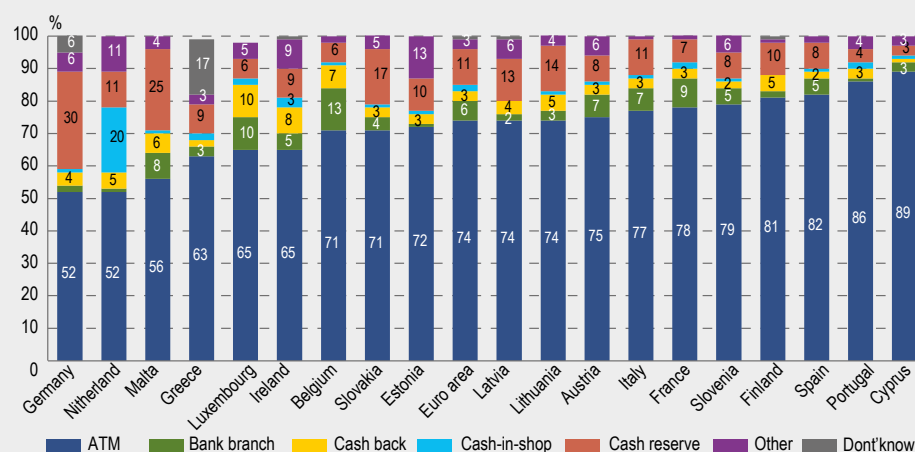
Interest in the cash back service in Poland is gradually increasing (Figure C2). In the second half of 2022, customers made 11 million shop withdrawals with a total value of more than PLN 1.7 billion. Data sourced by NBP shows that consumers decide to withdraw increasingly higher amounts using this method. This translates into an increase in the average value of cash back withdrawals – from PLN 142.7 in H1 2022 to PLN 157.9 in H2 2022 (an increase of approximately 11%).

Until recently, withdrawal limits have been a significant barrier to the development of the cash back service. Until 1 September 2022, cash withdrawals of up to PLN 300 for Visa cards and up to PLN 500 for Mastercard cards were possible under this service. Since 1 September 2022, both card organisations have increased the limit for a single cash back transaction in Poland to PLN 1,000, after having received the relevant approval from the Governor of NBP. The increase in the limit, combined with communication activities, may contribute to the popularisation of this service in Poland.

Figure C2. Number and value of cash back transactions in Poland in 2015–2022

Source: NBP data.

The popularity of the cash back service in other countries varies widely. A study of the payment attitudes of euro area citizens in 2022, published by the European Central Bank, shows that countries where the cash back service is one of the popular cash withdrawal channels include Ireland, Luxembourg and Belgium. The cash-in-shop service appearing in this study is also worth noting, which is particularly popular in the Netherlands. It also involves the withdrawal of cash from the cash desk at a point of sale using a payment card, but it does not require a purchase to be made at the outlet in question. These results show that the cash back service can be an important cash withdrawal channel and has development potential in Poland as well.

Figure C3. Sources of cash access for euro area residents by country (per cent)

Source: study on the payment attitudes of consumers in the euro area (SPACE 2019), December 2022, European Central Bank.

Chapter 5

Cooperation with banks in the scope of Polish currency supply

Cooperation with banks in the scope of Polish currency supply

5.1. The supply process in 2022

Unlike previous years, 2022 was not a typical period in the process of supplying the Polish market with Polish currency. During the period under review, events of an unprecedented nature took place, the immediate cause of which was the armed aggression of Russia on the territory of Ukraine that began on 24 February 2022. Events and phenomena characterising 2022 include:

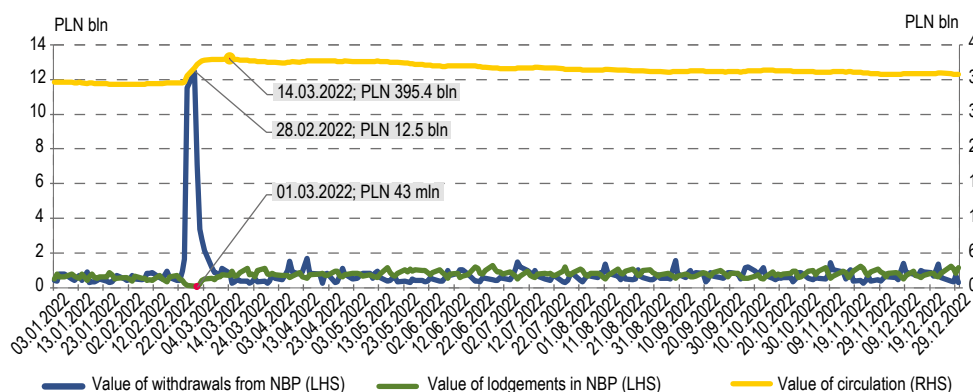
- the increased demand for cash that occurred during the first days of the Russian aggression, i.e. from 28 February to 7 March 2022,
- the occurrence on 28 February 2023 of the record high daily value of cash withdrawn from NBP, i.e. PLN 12.5 billion – amounting to 17 times the daily average for the stable period, i.e. 2021,
- the occurrence on 1 March 2022 of the record low in the daily value of cash lodged in NBP, i.e. PLN 43 million,
- the record high value of circulation noted on 14 March 2023, i.e. PLN 395.4 billion,
- the increased importance in supplying the market with the highest denomination banknotes, i.e. 200 zł and 500 zł and, at the same time, the loss of the dominant role of the 100 zł banknote in NBP withdrawals,
- the occurrence of the record long period of cash return to NBP in the period from May to December 2022; the value of cash lodged in NBP was 20% higher than the value of cash withdrawn from NBP.

During the initial period of Russia's armed aggression on Ukrainian territory, a surge in cash demand was recorded from 28 February to 7 March 2022 (8 operational days). In this period, the stabilising role of cash became important. The highest value of withdrawals from NBP amounted to PLN 12.5 billion on 28 February 2022, while in the stable period, i.e. in 2021, banks withdrew an average of PLN 0.7 billion per day. In the aforementioned period of eight operational days, banks withdrew cash worth PLN 42.1 billion from NBP. This value corresponds to almost 3 months of cash withdrawals in the stable period.

In the stable period, i.e. in 2021, banks lodged PLN 0.6 billion per day on average in NBP. On the other hand, the increase in withdrawals from NBP in February/March 2022 was accompanied by a significant decrease in lodgements. Given the very low level of these lodgements, with a record low of PLN 43 million lodgements recorded on 1 March 2022, it can be concluded that banks practically did not carry out lodgement operations in the period of strong cash demand. The total value of lodgements during the aforementioned eight operational days was only PLN 2.3 billion.

As a result of the high level of demand for cash, the value of circulation reached a historic high of PLN 395.4 billion on 14 March 2022. This means that, compared to the day before Russia's armed aggression on Ukrainian territory (23 February 2022), the value of circulation increased by 11.6%, or PLN 41.1 billion, and in relation to the end of 2021, by 11.3%. This compares with an annual increase in the value of circulation in 2019, i.e. in a stable period before the pandemic, amounting to PLN 19.3 billion, or 8.8%.

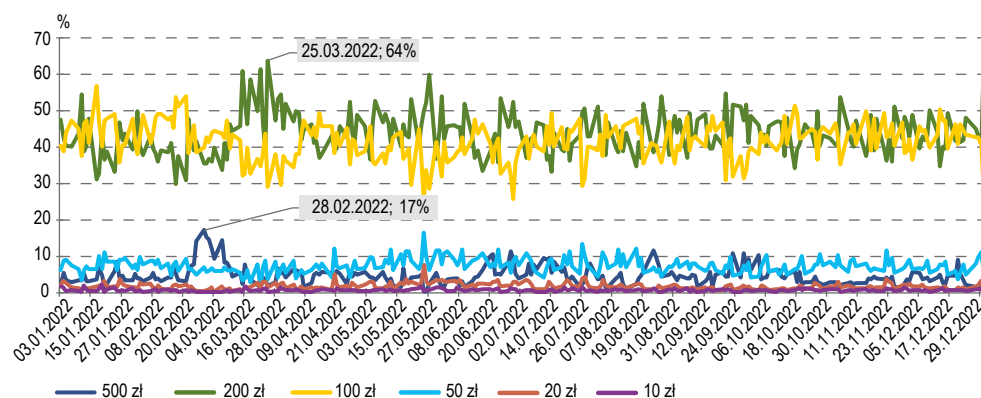
Figure 17. Value of banknotes and coins withdrawn and lodged from/in NBP and value of circulation in 2022



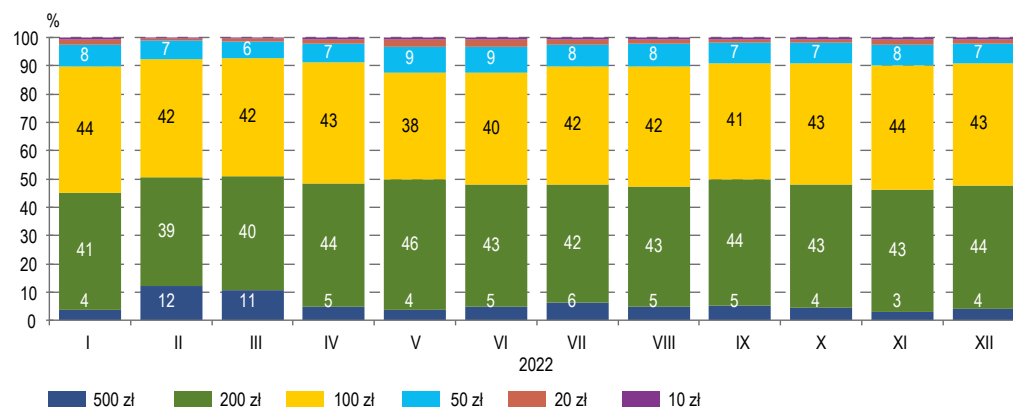
Source: study of the NBP Cash and Issue Department.

The increase in cash demand recorded in February/March 2022 was mainly satisfied with the highest banknote denominations, i.e. 100 zł, 200 zł and 500 zł. On 28 February 2022, the 500 zł banknote recorded the highest share in the denomination structure of banknote value, i.e. 17%. In particular, the 200 zł banknote has gained in importance, reaching a share of 64% already after the period of increased cash demand, i.e. 25 March 2022. The above-described increase in demand for cash has permanently translated into an increase in the importance of the 200 zł denomination. In the monthly statistical data from April 2022 onwards, the 200 zł denomination gained a dominant share in the denomination structure of the value of banknotes withdrawn from NBP, amounting to 43–46%. On the other hand, the share of the 100 zł denomination remained significant at a level of 38–44%.

Figure 18. Denomination structure of the value of banknotes withdrawn from NBP in 2022

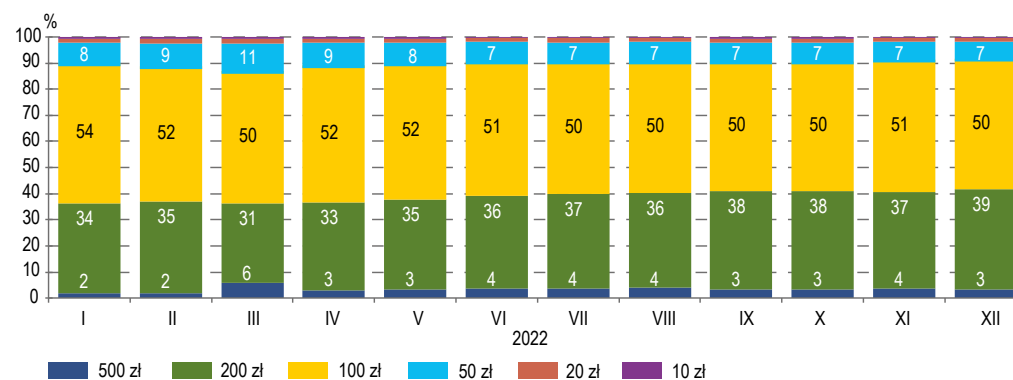


Source: study of the NBP Cash and Issue Department.

Figure 19. Denomination structure of the value of banknotes withdrawn from NBP in 2022

Source: study of the NBP Cash and Issue Department.

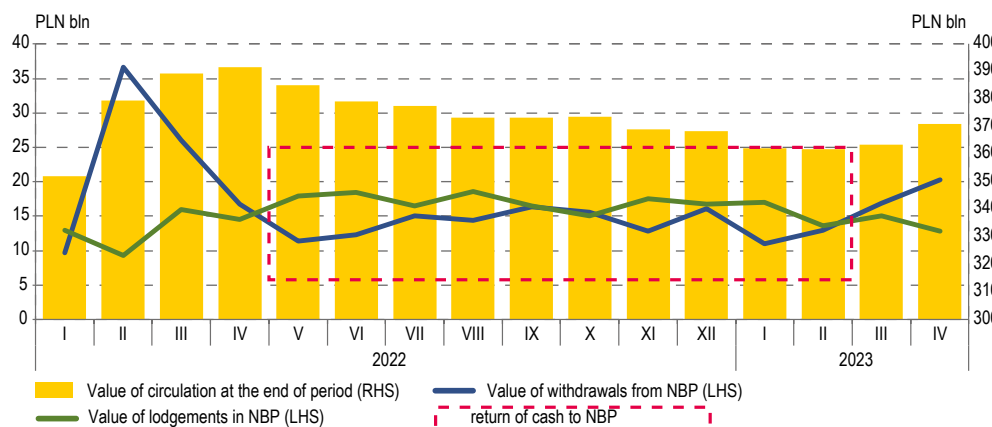
The consequence of the change in the denomination structure of banknotes withdrawn from NBP is the change in the structure of banknotes lodged in NBP. Although the 100 zł denomination continued to hold a dominant share, ranging from 50-52% between March and December 2022, a weak upward trend of the 200 zł denomination is also noticeable during this period, which is steadily approaching the 40% level.

Figure 20. Denomination structure of the value of banknotes lodged in NBP in 2022

Source: study of the NBP Cash and Issue Department.

After a period of increased cash demand in February/March 2022, the situation gradually stabilised in the subsequent weeks. In May 2022, the trend of cash recirculation to NBP became visible. The value of cash lodged in NBP was higher than the value of withdrawals. The upward trend continued until February 2023 and was non-standard due to past experience in this area. In earlier years, the phenomenon of cash recirculation to NBP occurred cyclically in the post-Christmas period, i.e. in January of almost every year.

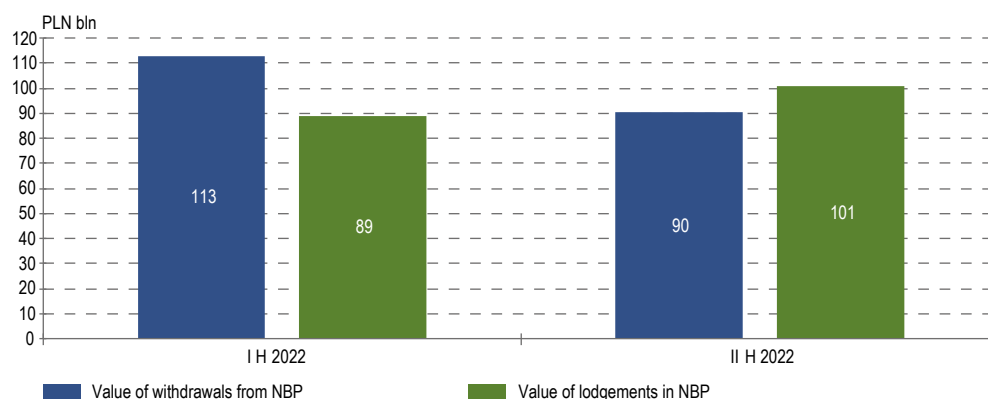
Figure 21. Value of banknotes and coins withdrawn and lodged from/in NBP and value of circulation in January – April 2023



Source: study of the NBP Cash and Issue Department.

As a result of the change in the level of withdrawals and lodgements in semi-annual statistical terms, 2022 can be divided into two distinctive semi-annual periods. The first half of the year was dominated by the value of withdrawals due to the surge in demand in the early days of Russia’s armed aggression on Ukrainian territory, significantly exceeding the value of lodgements. In contrast, the second half of the year saw a higher level of cash lodgements in NBP in relation to cash withdrawn from NBP.

Figure 22. Value of withdrawals and lodgements from/in NBP in H1 and H2 2022



Source: study of the NBP Cash and Issue Department.

In 2022, as a result of NBP’s cooperation with banks, cash processors, CIT companies and other market participants, the supply of Polish currency to the cash market proceeded smoothly and uninterrupted.

5.2. Withdrawing Polish currency

Under the agreements, banks may withdraw Polish currency from NBP. They are supplied with cash in the framework of:

- the basic system,
- the deposit system.

The value of banknotes and coins withdrawn by banks in 2022 was 9.3% higher than in 2021, while the total number of banknotes and coins withdrawn by banks in 2022 was 6.5% higher than a year ago (Table 11).

Table 11. Total value (PLN million) and number (million pieces) of banknotes and coins withdrawn from NBP

Value or number	2021	2022	Change (col. 3 - col.2)	Change in % (col. 3 / col.2 - 100%)
1	2	3	4	5
Value	185 884,0	203 115,5	17 231,5	9,3%
Number	3 011,0	3 205,3	194,3	6,5%

Source: study of the NBP Cash and Issue Department.

Table 12. Total number of banks that have withdrawn at least 80% of the value or volume of banknotes or coins from NBP

Value or number	Banknotes, coins	2021		2022	
		Total share	Number of banks	Total share	Number of banks
1	2	3	4	5	6
Value	banknotes and coins	81,1%	5	87,8%	6
	banknotes	81,3%	5	80,1%	5
	coins	85,3%	5	84,8%	5
Number	banknotes and coins	85,2%	7	86,9%	7
	banknotes	88,5%	6	86,9%	6
	coins	82,0%	5	82,9%	5

Source: study of the NBP Cash and Issue Department.

Among all banks supplied with cash by NBP, a group of so-called key banks can be distinguished, consisting of 5–7 banks (out of 18 banks) generating over 80% of banknote and coin withdrawals in terms of their value and volume (Table 12).

5.2.1. Banknotes

The value of banknotes withdrawn by banks in 2022, compared to 2021, was 9.3% higher, while the number of banknotes withdrawn by banks in 2022 was 7.6% higher than in 2021 (Table 13).

Table 13. Value (PLN million) and volume (million pieces) of banknotes and coins withdrawn from NBP

Value or number	2021	2022	Change (col 3 - col 2)	Change in % (col. 3 / col.2 - 100%)
1	2	3	4	5
Value	185 083,8	202 320,4	17 236,7	9,3%
Number	1 727,8	1 858,6	130,8	7,6%

Source: study of the NBP Cash and Issue Department.

The highest share in banknote withdrawals in 2022, in terms of volume, was recorded in the case of the 100 zł denomination. In 2021, it was also the banknote most frequently withdrawn from NBP. In 2022, in numerical terms, banknotes with the denomination of 500 zł were withdrawn least frequently (1.5%). Nevertheless, due to its high face value, this banknote had a share of 6.7% in the value of banknote withdrawals (Table 14).

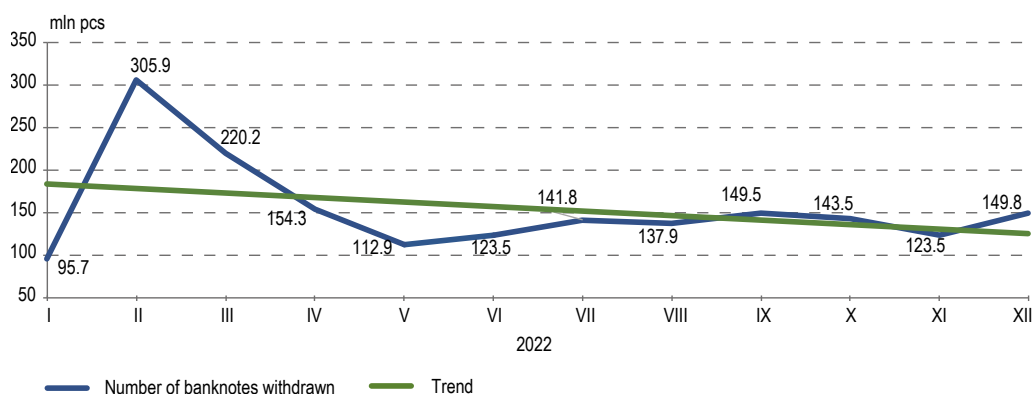
In 2022, as compared to 2021, both the value and the number of withdrawals increased for the following banknote denominations: 500 zł, 200 zł, 100 zł, 20 zł (in the case of value of withdrawals, respectively by: PLN 3,991.5 million, PLN 9,565.0 million, PLN 1,717.0 million, PLN 1,256.5 million, PLN 759.5 million, and in the case of the volume of withdrawals, respectively by: 8.0 million pieces, 47.8 million pieces, 17.2 million pieces, 25.1 million pieces, 38.0 million pieces). On the other hand, the value and number of 10 zł banknotes decreased (by PLN 52.8 million for the value of withdrawals and by 5.3 million pcs for the number of withdrawals).

Table 14. Value (PLN million), volume (million pieces) and structure of banknotes withdrawn by banks from NBP

Denomination	Value		Number		Structure by value		Structure by number	
	2021	2022	2021	2022	2021	2022	2021	2022
1	2	3	4	5	6	7	8	9
500 zł	9 613,0	13 604,5	19,2	27,2	5,2%	6,7%	1,0%	1,5%
200 zł	75 517,0	85 082,0	377,6	425,4	40,8%	42,1%	21,9%	22,9%
100 zł	83 136,0	84 853,0	831,4	848,5	44,9%	41,9%	48,1%	45,7%
50 zł	13 354,8	14 611,3	267,1	292,2	7,2%	7,2%	15,5%	15,7%
20 zł	2 274,9	3 034,4	113,7	151,7	1,2%	1,5%	6,6%	8,2%
10 zł	1 188,1	1 135,3	118,8	113,5	0,6%	0,6%	6,9%	6,1%
Total	185 083,8	202 320,4	1 727,8	1 858,6	100,0%	100,0%	100,0%	100,0%

Source: study of the NBP Cash and Issue Department.

In 2022, banks withdrew the lowest volume of banknotes in January (95.7 million pcs) and the highest volume in February: 305.9 million pcs and in March: 220.2 million pcs (Figure 23). Increased withdrawals during the initial period of Russia's armed aggression on Ukrainian territory were a contributing factor.

Figure 23. Number of banknotes withdrawn from NBP by banks in 2022

Source: study of the NBP Cash and Issue Department.

5.2.2. Coins

The value of coins withdrawn by banks in 2022 was similar to the value of their withdrawals in 2021, amounting to PLN 795.1 million, while the number of coins withdrawn was 4.9% higher and amounted to 1.3 billion pcs (Table 15).

Table 15. Value (PLN million) and number (million pieces) of coins withdrawn from NBP

Value or number	2021	2022	Change (col. 3 - col.2)	Change in % (col. 3 / col.2 - 100 %)
1	2	3	4	5
Value	800,3	795,1	-5,2	-0,6%
Number	1 283,2	1 346,7	63,5	4,9%

Source: study of NBP Cash and Issue Department.

While analysing the denomination structure of coin withdrawals in 2022, it should be indicated that the highest share in terms of number, was recorded in the case of the 1 gr denomination. In terms of volume, both in 2022 and in 2021, coins with the denomination of 5 zł were withdrawn least frequently (Table 16).

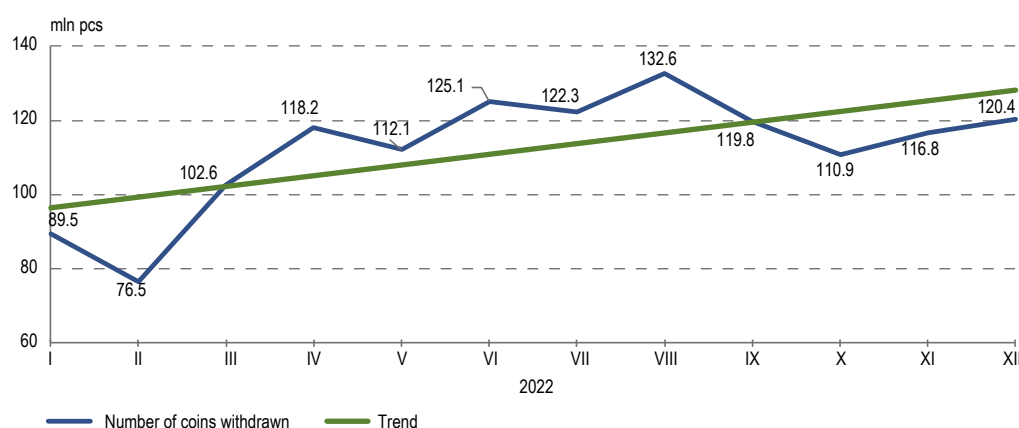
In 2022, compared to 2021, the value of withdrawals decreased for all coins by PLN 5.2 million, while the number of withdrawals of all coins increased by 63.5 million pieces. This is due, among others, to the fact that in 2022 banks withdrew more coins with denominations of 2 zł, 50 gr, 20 gr, 10 gr and 1 gr (respectively, by 3.2 million pcs, 8.6 million pcs, 13.3 million pcs, 31.6 million pcs, 17.4 million pcs).

Table 16. Value (PLN million), volume (million) and structure of coins withdrawn from NBP

Denomination	Value		Number		Structure by value		Structure by number	
	2021	2022	2021	2022	2021	2022	2021	2022
1	2	3	4	5	6	7	8	9
5 zł	353,9	338,3	70,8	67,7	44,2%	42,5%	5,5%	5,0%
2 zł	232,4	238,9	116,2	119,4	29,0%	30,0%	9,1%	8,9%
1 zł	123,1	117,0	123,1	117,0	15,4%	14,7%	9,6%	8,7%
50 gr	41,4	45,7	82,8	91,3	5,2%	5,7%	6,4%	6,8%
20 gr	20,9	23,6	104,5	117,8	2,6%	3,0%	8,1%	8,7%
10 gr	16,0	19,1	159,9	191,5	2,0%	2,4%	12,5%	14,2%
5 gr	6,4	6,1	127,4	121,5	0,8%	0,8%	9,9%	9,0%
2 gr	2,5	2,6	124,3	128,9	0,3%	0,3%	9,7%	9,6%
1 gr	3,7	3,9	374,2	391,6	0,5%	0,5%	29,2%	29,1%
Total	800,3	795,1	1 283,2	1 346,7	100,0%	100,0%	100,0%	100,0%

Source: study of the NBP Cash and Issue Department.

In the consecutive months of 2022, the volume of coins withdrawn from NBP by banks showed an upward trend. Banks withdrew the lowest number of coins in February – 76.5 million pcs, and the highest number in August – 132.6 million pcs (Figure 24). A similar trend and monthly distribution of coin withdrawals were observed in 2021.

Figure 24. Volume of coins withdrawn from NBP by banks in 2022


Source: study of the NBP Cash and Issue Department.

5.3. Lodging Polish currency in NBP by banks

In 2022, the value of banknotes and coins lodged by banks in NBP was 24.9% higher compared to 2021, while the volume of banknotes and coins lodged by banks in NBP was 15.7% higher than in the previous year (Table 17).

Table 17. Value and volume of banknotes and coins lodged in NBP (in million)

Value or number	2021	2022	Change (col. 3 - col.2)	Change in % (col. 3 / col.2 - 100%)
1	2	3	4	5
Value	152 118,1	190 035,8	37 917,8	24,9%
Number	1 852,2	2 143,0	290,8	15,7%

Source: study of the NBP Cash and Issue Department.

In 2022, a group of 5–7 banks lodged over 80% of banknotes and coins in NBP – both in terms of volume and value. The composition of this group did not change during the year (Table 18).

Table 18. Total number of banks that have lodged at least 80% of the value or volume of banknotes or coins in NBP

Value or number	Banknotes, coins	2021		2022	
		Total share	Number of banks	Total share	Number of banks
1	2	3	4	5	6
Value	banknotes and coins	82,9%	5	81,7%	5
	banknotes	83,0%	5	81,7%	5
	coins	83,5%	7	83,3%	7
Number	banknotes and coins	83,1%	6	82,8%	6
	banknotes	82,2%	5	80,0%	5
	coins	81,6%	7	83,2%	7

Source: study of the NBP Cash and Issue Department.

5.3.1. Banknotes

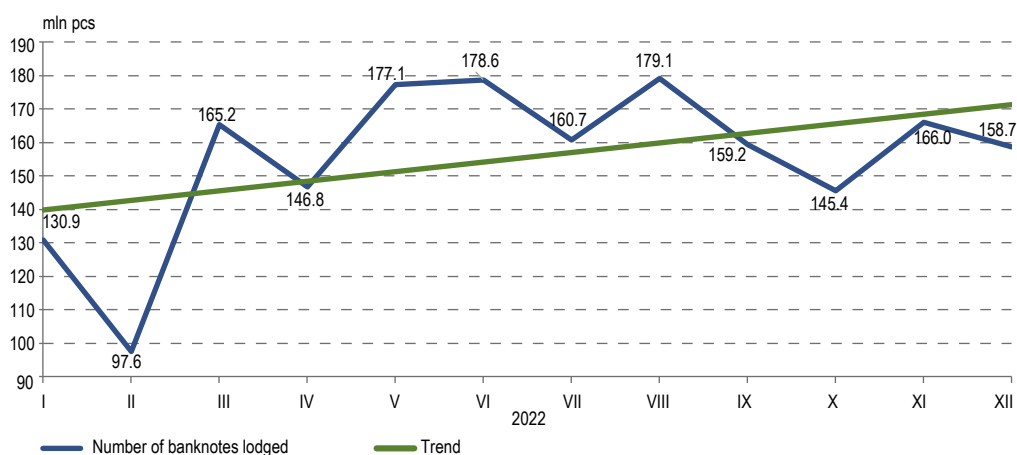
In 2022, banks lodged in NBP banknotes with a total value of PLN 189,637.5 million. In terms of value and number, in 2022 banks lodged more banknotes than in the previous year, respectively, by PLN 37,929.8 million, i.e. 25.0% and 301.4 million pcs, i.e. 19.3% (Table 19).

Table 19. Value and volume of banknotes lodged in NBP (in million)

Value or number	2021	2022	Change (col. 4 - col.3)	Change in % (col. 4 / col.3 - 100%)
1	2	3	4	5
Value	151 707,7	189 637,5	37 929,8	25,0%
Number	1 564,0	1 865,4	301,4	19,3%

Source: study of the NBP Cash and Issue Department

While analysing the number of banknotes lodged in NBP by banks in consecutive months of 2022, an upward tendency was observed. Banks lodged the lowest volume of banknotes in February – 97.6 million pcs and the highest volume in May – 177.1 million pcs, in June – 178.6 million pcs and in August – 179.1 million pcs (Figure 25).

Figure 25. Volume of banknotes lodged in NBP by banks in 2022

Source: study of the NBP Cash and Issue Department.

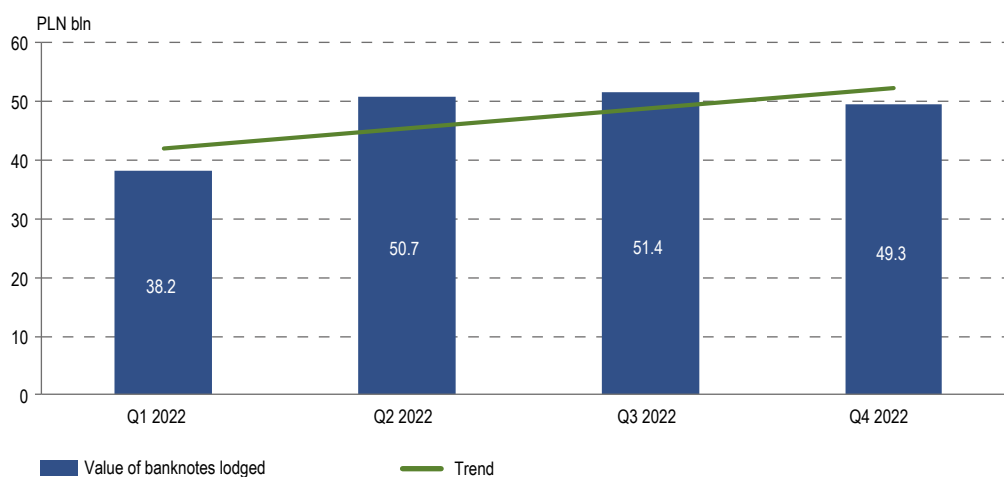
The highest share in banknotes lodged in 2022, both in terms of value and volume, was recorded in the case of the 100 zł denomination (it was also the banknote most frequently lodged in NBP in 2021). In terms of volume, banknotes with the denomination of 200 zł and 50 zł were the most frequently lodged banknotes in 2022, while banknotes with the denomination of 500 zł, 20 zł and 10 zł were lodged least frequently (Table 20).

Table 20. Value and number and structure of banknotes lodged in NBP in 2021 and 2022 – by denomination (in million)

Denomination	Value		Number		Structure by value		Structure by number	
	2021	2022	2021	2022	2021	2022	2021	2022
1	2	3	4	5	6	7	8	9
500 zł	2 315,5	6 560,0	4,6	13,1	1,5%	3,5%	0,3%	0,7%
200 zł	51 661,0	67 785,5	258,3	338,9	34,0%	35,7%	16,5%	18,2%
100 zł	80 678,5	96 523,4	806,8	965,2	53,2%	50,9%	51,6%	51,7%
50 zł	13 847,5	14 831,3	277,0	296,6	9,1%	7,8%	17,7%	15,9%
20 zł	2 064,1	2 845,4	103,2	142,3	1,4%	1,5%	6,6%	7,6%
10 zł	1 141,1	1 091,9	114,1	109,2	0,8%	0,6%	7,3%	5,9%
Total	151 707,7	189 637,5	1 564,0	1 865,4	100,0%	100,0%	100,0%	100,0%

Source: study of the NBP Cash and Issue Department.

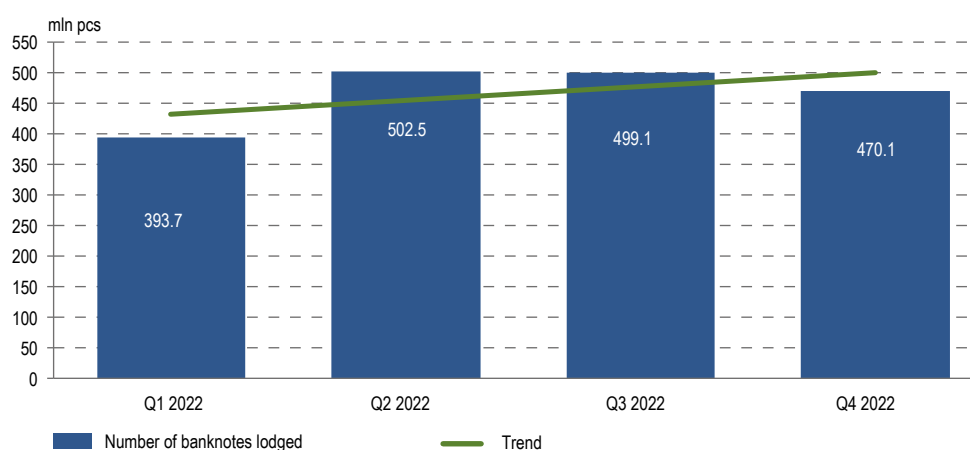
In terms of the value of banknotes lodged in NBP, an upward trend was observed in consecutive quarters. The value of banknotes lodged at the end of 2022 Q4 increased by 29.2% compared to 2022 Q1 (Figure 26).

Figure 26. Value of banknotes lodged in NBP

Source: study of the NBP Cash and Issue Department.

The level of the value of banknotes lodged in NBP between 2022 Q2 and Q4 (approximately PLN 50–51 billion) was higher than in 2022 Q1 (PLN 38 billion), due to the phenomenon of cash returning to NBP after a period of increased cash demand in February/March 2022.

Looking at the number of banknotes lodged, it should be indicated that, as in terms of value, the highest number of banknotes lodged in NBP was recorded in 2022 Q2 and Q3 (Figure 27).

Figure 27. Volume of banknotes lodged in NBP

Source: study of the NBP Cash and Issue Department.

5.3.2. Coins

The value and volume of coins lodged by banks in NBP in 2022 decreased, respectively, by PLN 12.0 million, i.e. 2.9%, and 10.5 million pieces, i.e. 3.6%, compared to 2021 (Table 21).

Table 21. Value (PLN million) and volume (million pieces) of coins lodged in NBP in 2021–2022

Value or number	2021	2022	Change (col. 3 - col.2)	Change in % (col. 3 / col.2 - 100%)
1	2	3	4	5
Value	410,4	398,4	-12,0	-2,9%
Number	288,2	277,7	-10,5	-3,6%

Source: study of the NBP Cash and Issue Department.

As of 2021, the denominations of 5 zł, 2 zł and 1 zł had the largest share in the value structure of the coins lodged (95.2% of all coins lodged).

Table 22. Value (PLN million) and volume (million pieces) and structure of coins lodged in NBP in 2021–2022

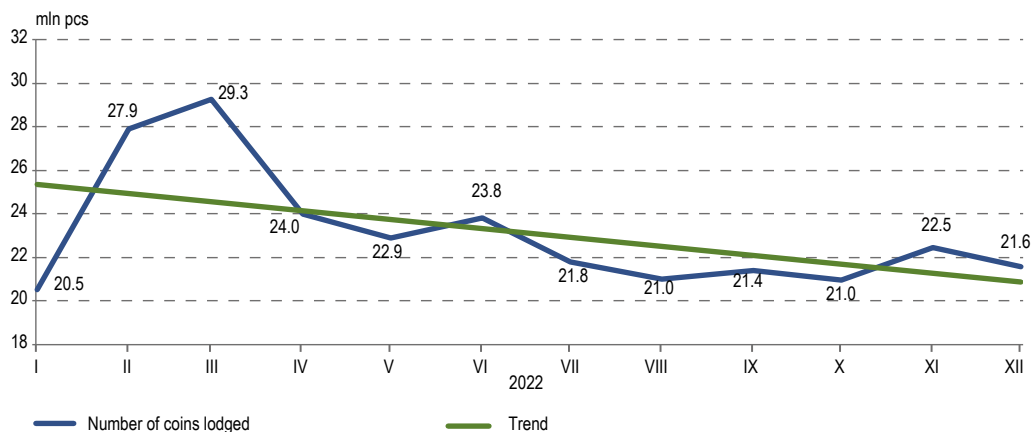
Denomination	Value		Number		Structure by value		Structure by number	
	2021	2022	2021	2022	2021	2022	2021	2022
1	2	3	4	5	6	7	8	9
5 zł	168,3	167,6	33,7	33,5	41,0%	42,1%	11,7%	12,1%
2 zł	143,8	143,2	71,9	71,6	35,0%	35,9%	24,9%	25,8%
1 zł	76,2	68,4	76,1	68,4	18,6%	17,2%	26,4%	24,6%
50 gr	16,0	13,5	32,0	26,9	3,9%	3,4%	11,1%	9,7%
20 gr	3,5	3,3	17,6	16,3	0,9%	0,8%	6,1%	5,9%
10 gr	1,6	1,4	15,8	13,8	0,4%	0,4%	5,5%	5,0%
5 gr	0,5	0,5	11,0	10,7	0,1%	0,1%	3,8%	3,8%
2 gr	0,3	0,3	12,6	16,1	0,1%	0,1%	4,4%	5,8%
1 gr	0,2	0,2	17,5	20,3	0,0%	0,0%	6,1%	7,3%
Total	410,4	398,4	288,2	277,6	100,0%	100,0%	100,0%	100,0%

Source: study of the NBP Cash and Issue Department.

In terms of the volume of coins lodged in NBP, the following denominations prevailed: 5 zł, 2 zł, 1 zł and 50 gr (72.2% of all coins lodged). The lowest volume of coins lodged was recorded for coins with the face value of 20 gr, 10 gr, 5 gr and 2 gr (20.5% in total).

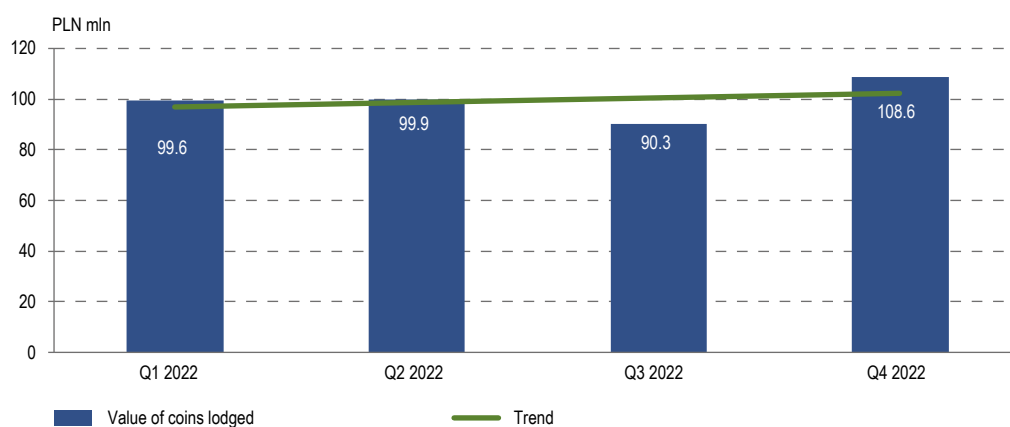
In terms of value, in 2022, the highest number of coins lodged were in the denominations of 5 zł and 2 zł (78% of all coins lodged), while the lowest number of coins lodged was recorded for low denominations, i.e. 5 gr, 2 gr, 1 gr – 0.2% in total (Table 22).

In the case of coins lodged in NBP by banks in individual months of 2022, a downward tendency was observed. Banks lodged the lowest number of coins in January – 20.5 million pcs, and the highest number in February – 27.9 million pcs, and March – 29.3 million pcs (Figure 28).

Figure 28. Volume of coins lodged in NBP by banks in 2022

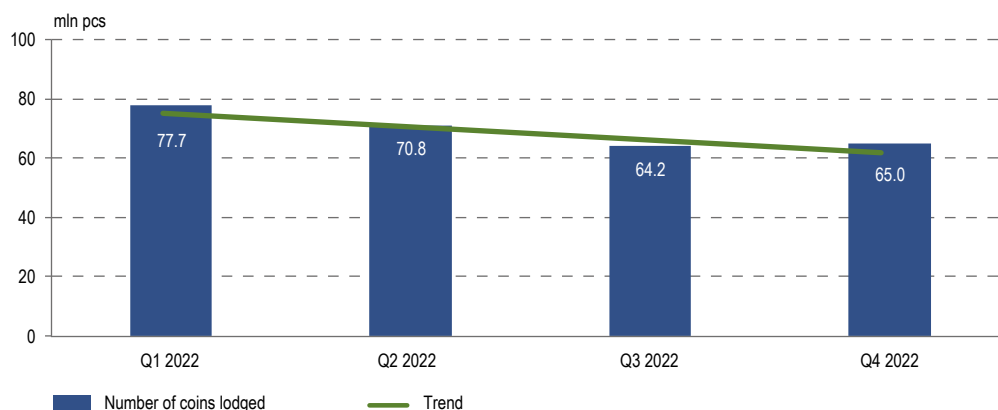
Source: study of NBP Cash and Issue Department.

Analysing the value of coins lodged in NBP in the individual quarters of 2022, an upward trend can be observed, despite the periodic decline recorded in 2022 Q3. The value of coins lodged by banks at the end of 2022 Q4 increased by 9.0% compared to 2022 Q1 (Figure 29).

Figure 29. Value of coins lodged in NBP

Source: study of the NBP Cash and Issue Department.

In the case of the volume of coins lodged in NBP, as in terms of value, the lowest number of coins was lodged by banks in 2022 Q3. The number of coins lodged in 2022 Q4 fell by 16.3% compared to 2022 Q1 (Figure 30).

Figure 30. Volume of coins lodged in NBP

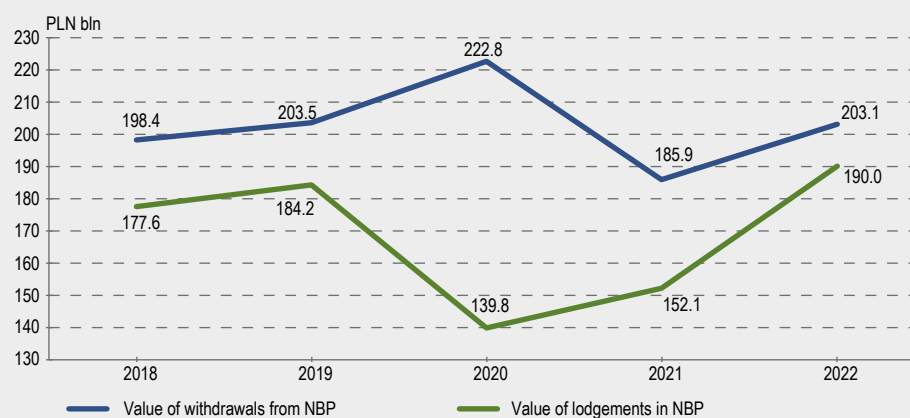
Source: study of the NBP Cash and Issue Department.

Alongside the decrease in the stream of coins lodged by banks in NBP, the acquisition of coins from citizens through the self-service coin-exchange service, made available in January 2021 at all NBP regional branches, is gaining importance. From the day the service was launched until mid-June 2023, customers exchanged almost 521 million coins worth PLN 283.4 million through the devices. In 2022, more than 157,000 transactions were processed in the devices, in which 214.5 million pcs of coins worth PLN 132.5 million were exchanged. Low denomination coins (i.e. 1 gr, 2 gr, 5 gr) accounted for approximately 50% of all coins exchanged through the devices in 2022.

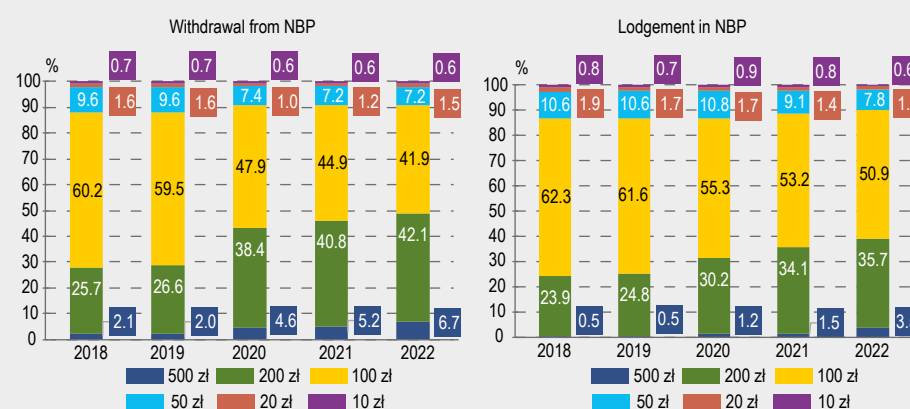
Box D. Tendencies in supplying Polish currency to banks in 2018–2022

Analysing the levels of the value of banknotes and coins withdrawn and lodged from/in NBP over several years (Figure D1), it can be concluded that:

- the level of the value of withdrawals from NBP in 2022 (PLN 203 billion) recovered to the level before the COVID-19 pandemic, i.e. in 2019 (PLN 204 billion);
- the average annual value of withdrawals for the two-year period of the pandemic (2020–2021) amounted to PLN 204 billion, which is close to the level of withdrawals recorded for 2019 and 2022;
- the short-term surge in cash demand that occurred in February/March 2022 in connection with Russia's armed aggression on Ukrainian territory had an impact on the level of withdrawal values throughout 2022, which was 9.3% higher than that recorded in the previous year;
- in 2022, the value of lodgements in NBP recovered to the upward trend seen before the pandemic period, i.e. in 2019.

Figure D1. Value of banknotes and coins withdrawn and lodged from/in NBP**Figure D1.** Value of banknotes and coins withdrawn and lodged from/in NBP

In 2022, in the case of the denomination structure of the value of banknotes withdrawn from and lodged in NBP, the upward trend of the share of the 200 zł and 500 zł denominations continued, with a downward trend observed for the 100 zł denomination. This banknote lost its prevailing share in the denomination structure of NBP withdrawals in 2022 in favour of the 200 zł denomination. On the other hand, in the denomination structure of lodgements of Polish currency in NBP, the PLN 100 denomination, despite the decrease observed in recent years, still holds a dominant share of around 50% (Figure D2).

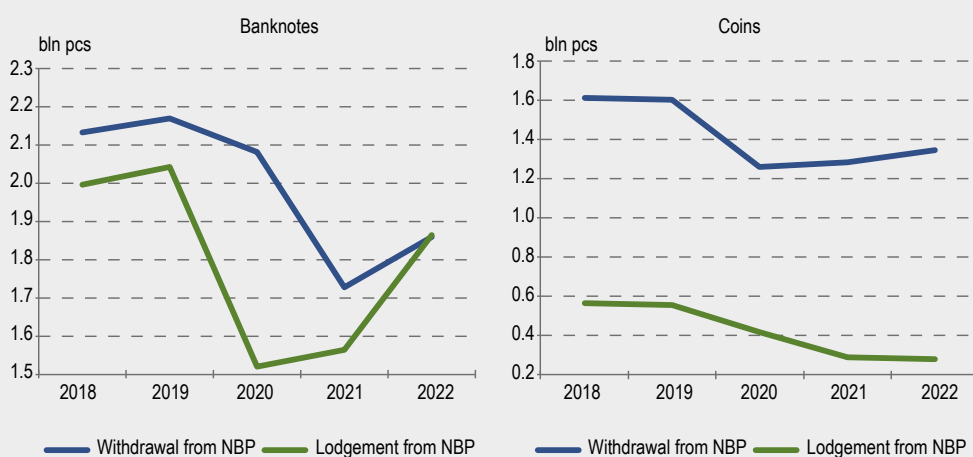
Figure D2. Denomination structure of the value of banknotes withdrawn and lodged from/in NBP

Source: study of NBP Cash and Issue Department.

Analysing the number of banknotes and coins withdrawn and lodged (Figure D3), it can be concluded that:

- there is a decreasing trend in the number of banknotes withdrawn from NBP; the nature of this trend does not cause a decrease in the value of withdrawals, as the share of the highest denominations, i.e. 500 zł and 200 zł, is increasing in the denomination structure;
- in the case of the number of banknotes lodged in NBP, an upward trend has been visible since 2021;
- in 2022, the number of banknotes withdrawn and lodged remained at a similar level;
- in the case of coins withdrawn from NBP, a return to an upward trend was observed after the decline observed in 2020;
- for coins lodged in NBP, a continuing downward trend was observed.

Figure D3. Number of banknotes and coins withdrawn and lodged from/in NBP



Source: study of NBP Cash and Issue Department.

Chapter 6

Glossary of terms

Glossary of terms

Cash back – the service consisting in cash withdrawal while paying for shopping in a retail establishment by payment card, cf. *Assessment of the Polish payment system functioning in the second half of 2021*, NBP Payment System Department, April 2022.

Circulation – the volume (or value) of general circulation coins remaining in cash circulation, less the volume (or value) of banknotes and coins at NBP cash desks and vaults, deposited by NBP in vaults of other banks, and withdrawn from circulation by NBP due to being worn out or damaged.

CIT companies (cash-in-transit) – undertakings commissioned by banks to perform activities related to counting and sorting of banknotes and coins (entrusting actual activities in accordance with Article 6a(1)(2) of the Act of 29 August 1997 – Banking law) and transporting cash.

Collector coins and banknotes – gold and silver collector coins, collector banknotes, numismatic items (i.e. banknotes and coins which were not put into circulation as well as banknotes and coins withdrawn from circulation) as well as gold ounce coins issued by NBP.

Digital wallet (e.g. e-wallet, digital wallet, e-purse) – an account set up with a third-party online payment company to which payment cards are linked. The account acts as a substitute for a physical debit/credit card and allows for performing cashless transactions (deposit and withdrawal of funds by transfer or card), transfer of funds between electronic wallets.

Polish currency – banknotes and coins within the meaning of Article 2(1)(7) of the Act of 27 July 2002 – Foreign Exchange Law.

Processing of banknotes and coins – counting, sorting and checking banknotes or coins in terms of authenticity.

Recirculation (also referred to as turnover or recycling) – means putting into circulation banknotes fit for circulation via banks' cash points, devices operated by their clients (i.e. ATMs) formerly processed by the bank or on its behalf by an undertaking. This process takes place without the participation of NBP. Coins undergo a similar process.

Supply – number (or value) of banknotes or coins which were lodged in NBP or were withdrawn from NBP by banks. Supply of banks by NBP stems from Article 68(2) of the Act of 29 August 1997 – Banking Law and it implements Article 37 of the Act of 29 August 1997 on Narodowy Bank Polski.

www.nbp.pl

