

NBP

Narodowy Bank Polski

Report on Cash Circulation in Poland in 2018



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Warsaw, 2020

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Chapter 1

Summary



Summary

The central bank is an institution of major importance in the monetary system. As the central bank of the Republic of Poland Narodowy Bank Polski (hereinafter referred to as NBP), fulfils tasks defined in the Constitution of the Republic of Poland, the Act on Narodowy Bank Polski and the Banking Law. Within its core functions, NBP also acts as the issuing bank and the bank of banks. Holding the exclusive right to issue banknotes and coins, NBP ensures their adequate quality in circulation and liquidity of cash settlements, putting banknotes and coins in the full denomination structure in circulation.

NBP activity in the scope of cash cycle comprises: orders for production of banknotes and coins placed at manufacturers, verification of authenticity and fitness of banknotes and coins, their storage and distribution. In practice, the area which NBP influences by means of regulations concerning the withdrawal and lodgement of Polish currency¹ comprises mainly banks². Besides the central bank and banks, domestic cash cycle participants also include manufacturers of banknotes and coins, CIT companies³ processing cash on behalf of banks, ATM deployers, retailers and consumers.

Depending on the activity and role of individual commercial cash cycle participants, central banks adopt various cash cycle models. Taking into account the activity of Narodowy Bank Polski, in accordance with the report⁴ published in December 2013 by the European Payments Council, the cash cycle in Poland was classified as a centralised model in which the central bank plays a key role in the cash distribution process.

The “Report on Cash Circulation in Poland in 2018”, hereinafter referred to as the Report, is the second report prepared by NBP representing the set of information in the functioning of the domestic cash cycle. Its purpose is, among others, to present statistical data on the phenomena occurring in the cash circulation market as well as to monitor the factors influencing the behaviour of its participants.

The Report presents major factors influencing the cash cycle model operating in Poland, the relationships between the central bank and cash cycle participants as well as statistical data reflecting the trends in the cash circulation observed in 2018 and in the years 2013-2018. The subject matter of this Report covers cash circulation related to banknotes and coins of the Polish currency with the transaction (circulation) function as their major economic function. In connection with the foregoing, the data do not include so-called collector coins and banknotes, which play a payment function and have the status of legal tender, but are not treated as a universal means of payment.

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

² 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.

³ CIT (cash-in-transit) companies are entrepreneurs to whom banks have entrusted 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.

⁴ Improving the efficiency of the handling of cash – Cash Cycle Model, version 2.0 – European Payments Council, 13 December 2013.

In the case of the value of cash in circulation⁵ an upward trend has been observed for several years. In the years 2013-2016 the average growth exceeded 10% y/y. In 2013, it amounted to 11.0%, and in 2016 to 14.9%. On the other hand, in 2017, a lower increase in the value of cash in circulation was recorded, at a level of 5.9%. The value of cash in circulation⁵ as at 31 December 2018 amounted to PLN 219.2 billion, which means that, similarly to 2013-2016, the annual increase in the value of cash in circulation amounted to over 10%. Moreover, it should be noted that in April 2018 the value of cash in circulation exceeded PLN 200 billion.

At the end of 2018, the highest share was recorded for the 100 zł banknote: 61.4% (in 2017 – 61.6%) and the 200 zł banknote: 14.9% (in 2017 – 13.9%). With regard to coins, the following coins had a significant share in circulation: 1 gr – 37.5% (in 2017 – 37.5%) and 2 gr – 17.3% (in 2017 17.5%).

The number of banknotes and coins withdrawn by banks from NBP in 2018 exceeded 3.7 billion pieces and increased by 4.9% in relation to the previous year. On the other hand, the number of banknotes and coins lodged in NBP by banks reached over 2.6 billion pieces and was 0.9% higher than in the previous year. Despite an increase in the number of withdrawn and lodged coins and banknotes, in 2018 growth of so-called banknote recirculation⁶ was observed, which shows the tendency of diminishing frequency rate of return to NBP. This means that in 2018, a banknote came back to the regional cash centre of the NBP, on average, after 370 days from the moment of its withdrawal by a bank (for comparison: in 2013, a banknote returned to NBP after 208 days and in 2017 – after 352 days). It can be assumed that this phenomenon is the result of, among others, the implementation of the banknote quality criteria in July 2018, resulting from the regulation on the method and procedure to be used in counting, sorting, packing and labelling packages of banknotes and coins, and in conducting activities related to the supply⁷ of banks with banknotes and coins⁸. In the case of coins, the recirculation rate in 2018 reached approximately 11,500 days, which means that compared to 2017, a coin returned to NBP 500 days less frequently.

The developments in the value of cash in circulation are related to the following factors:

- fundamental (e.g. exchange rate, GDP, inflation, interest rates),
- seasonal (i.e. occurring cyclically during public holidays, holidays, the beginning of the school year, etc.),
- one-off (e.g. financial crisis).

⁵ Value of cash in circulation is provided without collector coins and banknotes. Collector coins and notes include 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 one ounce gold coins.

⁶ Recirculation (also referred to as return rate or recycling) shall mean putting into circulation banknotes fit for circulation via banks' cash desks or branches, customer operated machines (i.e. ATMs) formerly processed by the bank or on its behalf by an entrepreneur. This process takes place without the involvement of NBP. A similar phenomenon is observed in the case of coins.

⁷ The 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.

⁸ Regulation No 19/2016 of the President of Narodowy Bank Polski of 17 August 2016, hereinafter referred to as Regulation No 19/2016.

At the same time, it can be observed that:

- in 2018, the value of circulation in relation to GDP amounted to 10.4% and reached a similar level as in 2017, i.e. 10.0%,
- in 2018, the value of M1 approached the level of PLN 1 trillion and, compared to 2017, increased by PLN 106.0 billion, i.e. by 11.7%,
- in 2018, the share of cash in M1 amounted to 20.1% in terms of the value and was similar to 2017 (20.4%).

In 2018, the activities of NBP focused on strengthening the security of the cash cycle and its participants, ensuring the adequate fitness of banknotes and coins in circulation and increasing the effectiveness of processes functioning within the cash cycle. As regulator of the cash circulation market and catalyst of changes, NBP strived to accomplish these objectives, among others, by preparing amendments to Regulation No. 19/2016, which entered into force on 1 July 2018 and, among others, referred to:

- fitness criteria for banknotes (for automated and manual sorting),
- tests of banknote handling machines,
- requirements to be met by devices and methods they use for banknote classification,
- quarterly reporting,
- multi-orientation sorting of banknotes⁹,
- lodging banknotes in NBP in one stream,
- lodging coins in NBP in loose form in collective packaging, in one stream¹⁰,
- standardization of banknote packaging content.

These amendments were consulted at each stage with representatives of the cash cycle market and discussed in detail during dedicated meetings held at NBP. These activities were conducted in order to involve cash cycle participants, i.e. banks, CIT companies, manufacturers and service technicians of cash handling machines, ATM operators, associations, in designing changes.

Moreover, Narodowy Bank Polski actively participated in the process of issuing opinions and consulting the governmental draft Act amending certain acts in connection with the development of cashless payments (the first version was published in November 2017). NBP proposed introducing a new provision in the Payment Services Act of 19 August 2011 (Article 59ea) whose purpose would be the obligation to accept payments by banknotes and coins issued by NBP (with certain exceptions). Thus, NBP strives to provide consumers with the right to choose the form (method) of payment regulated in law.

In 2018, the supply of Polish currency to banks was stable. However, the Polish Organisation of Cash Service Companies indicated the slowdown in the development of this sector observed for several years.

Key statistical data regarding the cash circulation market in 2018 and 2017 are presented in Table 1.

⁹ Multi-orientation sorting means that banknotes can be stacked in any direction in the package. A package contains 100 pieces of banknotes of one denomination, arranged in any direction, on which a paper band is placed.

¹⁰ Until 30 June 2018, packets or unit bags containing coin rolls were packed in collective packaging.

Table 1. Key data for 2017 and 2018

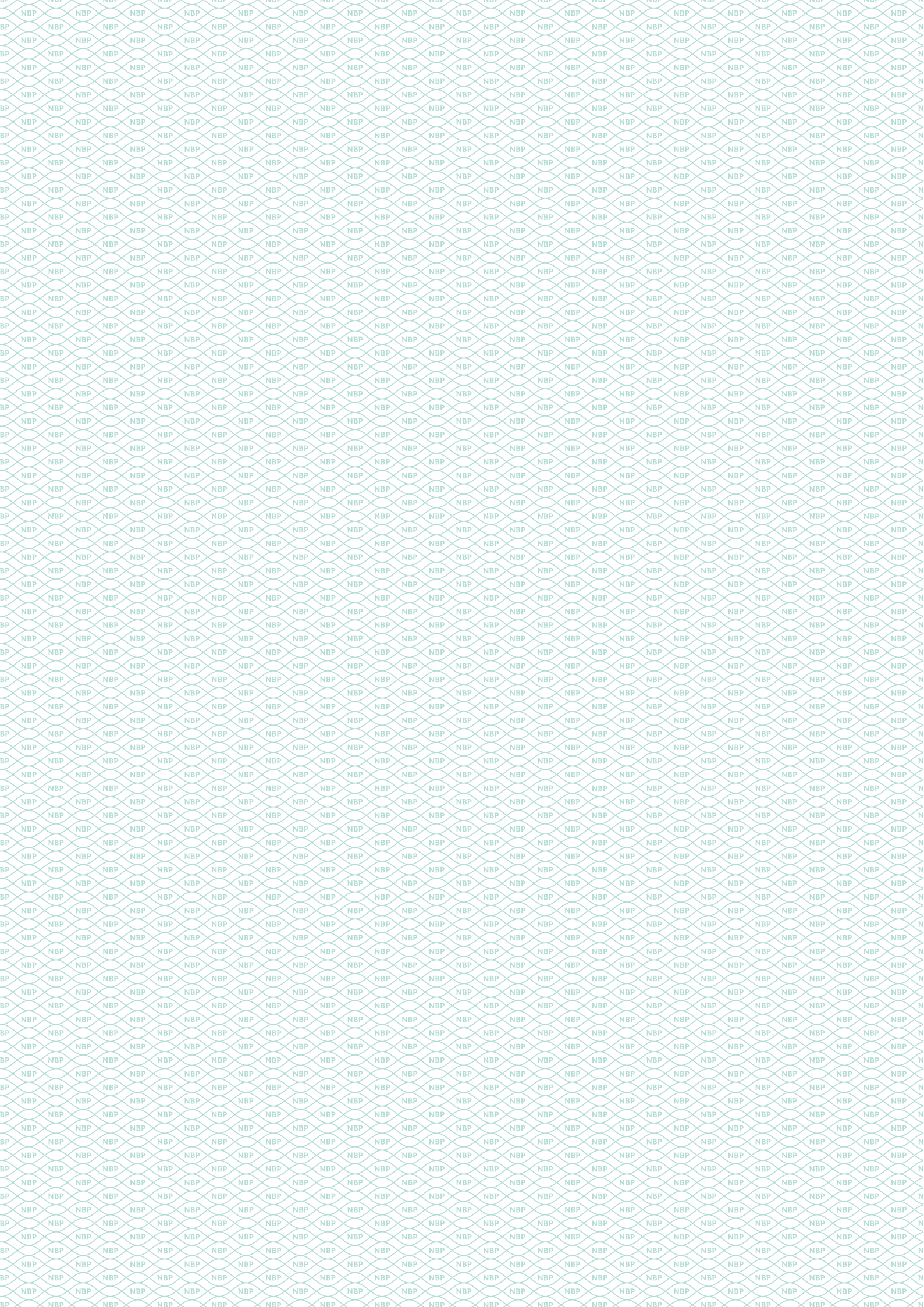
	2017	2018	Change (2018/2017)
Value of circulation (as at 31.12.2018)	PLN 198.4 bn	PLN 219.2 bn	Increase by PLN 20.8 billion (+10.5%)
Number of banknotes in circulation (status as at 31.12.2018)	1,978,722,833 pcs	2,119,922,805 pcs	Increase by 141,199,972 pcs (+7.1%)
Number of coins in circulation (as at 31.12.2018)	17,339,082,820 pcs	18,382,707,375 pcs	Increase by 1,043,624,555 pcs (+6.0%)
Number of banknotes withdrawn from NBP	2,049,518,500 pcs	2,133,613,000 pcs	Increase by 84,094,500 pcs (+4.1%)
Number of coins withdrawn from NBP	1,521,794,500 pcs	1,613,644,500 pcs	Increase by 91,850,000 pcs (+6.0%)
Number of banknotes lodged in NBP ¹	1,979,899,584 pcs	1,996,009,377 pcs	Increase by 16,109,793 pcs (+0.8%)
Number of coins lodged in NBP ²	559,062,118 pcs	565,864,753 pcs	Increase by 6,802,635 pcs (+1.2%)
Banknotes – frequency rate of return (as at 31.12.2018)	in cycles: 1.04 in days: 352	in cycles: 0.99 in days: 370	Decrease in cycles: 0.05 Increase in days: 18
Coins – frequency rate of return (as at 31.12.2018)	in cycles: 0.033 in days: 10,983	in cycles: 0.032 in days: 11,504	Decrease in cycles: 0.001 Increase in days: 521
GDP ³	PLN 1,988.7 bn	PLN 2,116.4 bn	Increase by PLN 127.7 billion (+6.4%) ⁴
Value of circulation/GDP	10.0%	10.4%	Increase by 0.4 percentage point
Value of M1 aggregate	PLN 906.4 bn	PLN 1,012.4 bn	Increase by PLN 106.0 billion (+11.7%)
Value of circulation/M1 aggregate	20.4%	20.1%	Decrease by 0.3 percentage point

¹ Number or value of Polish currency transferred to NBP by banks.

² See above.

³ Nominal gross domestic product (current prices) according to GUS (Statistics Poland no. 02/2019, publication date 25 March 2019).

⁴ GDP growth in nominal terms; according to GUS data of 31 January 2019, GDP in 2018 in relation to 2017 increased by 5.1% in real terms, against 4.8% in 2017.



Chapter 2

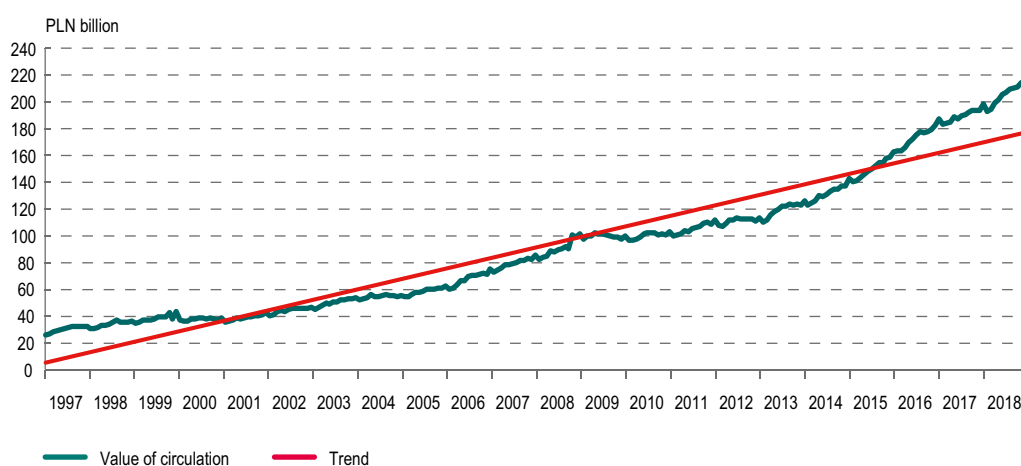
Banknotes and coins in circulation



Banknotes and coins in circulation

The value of cash in circulation as at 31 December 2018 amounted to PLN 219.2 billion. An increase in the value of cash in circulation by 10.5%, i.e. PLN 20.8 billion, was recorded as compared to 31 December 2017.

Figure 1. Value of cash in circulation in monthly terms in 1997-2018



Source: study of NBP Cash and Issue Department.

Figure 1 illustrates the growth in value of cash in circulation. In Poland, in the years 1997-2018, the share of cash in the M1 aggregate decreased from about 36% to about 20%, which means that the growth rate of current deposits in banks exceeded the growth rate of cash in circulation. This trend changed in 2008 in connection with the financial crisis. In this period, the share of cash in the M1 aggregate increased; in December 2008, it increased to 26% from 23% at the beginning of the year, i.e. by 3 percentage points. In 2009, this indicator returned to the level of 23.1%. A decline in the indicator was also noted in 2010, when it reached the level of 20.6%. After 2011, a growth of the indicator was observed to 21.6% in 2015, followed by its decline to 20.4% in 2017. In December 2018, the share of cash in the M1 aggregate amounted to 20.1%. This means that the share of cash in the M1 money supply aggregate has stabilised in the range of 20-22%¹¹.

2.1. Value and number of banknotes and coins in circulation

Throughout 2018, the value of banknotes in circulation increased by over PLN 20.5 billion, i.e. by 10.5%. Growth was recorded in relation to banknote denominations: 500 zł, 200 zł, 100 zł, 50 zł, 10 zł, whereas a decline was noted in the case of the banknote with the face value of 20 zł.

¹¹ Comparison of selected elements of the Polish payment system with the systems of other EU Member States for 2017, Narodowy Bank Polski, 2018.

Table 2. Value of banknotes in circulation by denomination in 2018 (in PLN)

Closing quarterly balance	500 zł	200 zł	100 zł	50 zł	20 zł	10 zł	Total
1	2	3	4	5	6	7	8
Q4 2017	3,613,786,000	54,914,968,800	121,885,001,400	9,398,445,350	2,473,894,680	1,664,067,620	193,950,163,850
Q1 2018	4,297,821,500	55,724,030,600	121,274,233,800	9,031,961,400	2,408,243,940	1,655,869,840	194,392,161,080
Q2 2018	5,298,833,000	58,691,056,600	125,326,287,700	9,306,800,450	2,480,081,440	1,685,868,800	202,788,927,990
Q3 2018	6,131,943,000	60,790,112,400	126,480,221,400	9,273,482,950	2,483,833,940	1,684,088,330	206,843,682,020
Q4 2018	7,111,082,000	63,376,755,200	130,209,026,600	9,508,380,450	2,464,264,220	1,733,457,790	214,402,966,260

Source: study of NBP Cash and Issue Department.

In this period, the highest growth in value was observed in the case of the highest denomination banknotes – 500 zł and 200 zł (by 96.8% and by 15.4%, respectively). This is related to the extension of the banknote denomination structure from February 2017 by introducing 500 zł banknotes and the cumulative function they play in the cash cycle.

In the banknote structure by value, the share of 500 zł and 200 zł denominations increased, respectively, by: 1.4 percentage points and 1.3 percentage points, whereas the share of 100 zł, 50 zł, 20 zł and 10 zł denominations decreased, respectively, by 2.1 percentage points, 0.4 percentage points, 0.2 percentage points and 0.1 percentage points.

Throughout 2018, the number of banknotes in circulation increased by 141.2 million pcs, i.e. by 7.1%. In terms of volume, an increase in 500 zł and 200 zł was recorded, by 0.3 percentage points and 1.0 percentage points, respectively. On the other hand, the share of banknotes of 100 zł, 50 zł, 20 zł and 10 zł denominations decreased, respectively, by 0.2 percentage points, 0.5 percentage points, 0.5 percentage points and 0.2 percentage points.

Table 3. Volume of banknotes in circulation by denomination in 2018

Closing quarterly balance	500 zł	200 zł	100 zł	50 zł	20 zł	10 zł	Total
1	2	3	4	5	6	7	8
Q4 2017	7,227,572	274,574,844	1,218,850,014	187,968,907	123,694,734	166,406,762	1,978,722,833
Q1 2018	8,595,643	278,620,153	1,212,742,338	180,639,228	120,412,197	165,586,984	1,966,596,543
Q2 2018	10,597,666	293,455,283	1,253,262,877	186,136,009	124,004,072	168,586,880	2,036,042,787
Q3 2018	12,263,886	303,950,562	1,264,802,214	185,469,659	124,191,697	168,408,833	2,059,086,851
Q4 2018	14,222,164	316,883,776	1,302,090,266	190,167,609	123,213,211	173,345,779	2,119,922,805

Source: study of NBP Cash and Issue Department.

Throughout 2018, the value of coins in circulation increased by PLN 315.9 million, i.e. by 7.1%. In the nominal structure, in terms of value, the highest growth was recorded in the case of 5 zł, 2 zł coins (excluding 2 NG¹²), 1 zł and 50 gr, respectively, by 8.7%, 8.0%, 8.0% and by 7.3%. The share of 5 zł, 2 zł, 1 zł and 50 gr coins increased by 0.5 percentage points, 0.2 percentage points, 0.1 percentage points and 0.1 percentage points, respectively. The share of 20 gr and 10 gr coins remained at the same level, whereas the share of 5 gr, 2 gr and 1 gr dropped by about 0.1 percentage points.

¹² Commemorative 2 zł coins made of Nordic Gold alloy, being a legal tender.

Table 4. Value of banknotes in circulation by denomination in 2018 (in PLN)

Closing quarterly balance	5 zł	2 zł	2 zł NG	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	12
Q4 2017	1,572,369,410	856,781,830	478,533,802	559,553,030	302,185,681	257,230,135	217,029,024	109,933,139	60,626,801	65,065,830	4,479,308,682
Q1 2018	1,595,229,300	860,747,230	478,504,156	560,732,438	304,266,248	259,536,495	219,341,587	111,008,191	61,195,767	65,780,721	4,516,342,133
Q2 2018	1,649,503,700	885,973,830	478,477,080	576,504,724	310,246,893	263,183,853	222,443,471	112,313,679	61,796,812	66,636,376	4,627,080,418
Q3 2018	1,671,184,075	911,457,134	478,339,098	593,358,586	317,913,135	268,117,686	226,801,171	114,125,879	62,704,153	67,713,726	4,711,714,643
Q4 2018	1,709,406,610	925,656,712	478,249,162	604,506,513	324,362,986	272,893,202	231,173,826	116,251,095	63,770,290	68,959,000	4,795,229,396

Source: study of NBP Cash and Issue Department.

Throughout 2018, the number of coins in circulation increased by over PLN 1,043.6 million pcs, i.e. by 6.0%. Growth was recorded for all coins (5 zł – 8.7%, 2 zł – 8.0%, 1 zł – 8.0%, 50 gr – 7.3%, 20 gr – 6.1%, 10 gr – 6.5%, 5 gr – 5.7%, 2 gr – 5.2% and 1 gr – 6.0%). In the case of 2 zł NG denomination coins, a decline by 0.1% was recorded.

Table 5. Volume of coins in circulation by denomination in 2018.

Closing quarterly balance	5 zł	2 zł	2 zł NG	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	12
Q4 2017	314,473,882	428,390,915	239,266,901	559,553,030	604,371,361	1,286,150,673	2,170,290,244	2,198,662,778	3,031,340,043	6,506,582,993	17,339,082,820
Q1 2018	319,045,860	430,373,615	239,252,078	560,732,438	608,532,495	1,297,682,474	2,193,415,873	2,220,163,828	3,059,788,346	6,578,072,088	17,507,059,095
Q2 2018	329,900,740	442,986,915	239,238,540	576,504,724	620,493,786	1,315,919,266	2,224,434,706	2,246,273,586	3,089,840,586	6,663,637,611	17,749,230,460
Q3 2018	334,236,815	455,728,567	239,169,549	593,358,586	635,826,269	1,340,588,430	2,268,011,711	2,282,517,580	3,135,207,638	6,771,372,563	18,056,017,708
Q4 2018	341,881,322	462,828,356	239,124,581	604,506,513	648,725,972	1,364,466,010	2,311,738,260	2,325,021,905	3,188,514,509	6,895,899,947	18,382,707,375

Source: study of NBP Cash and Issue Department.

2.2. Frequency rate of return of banknotes and coins

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

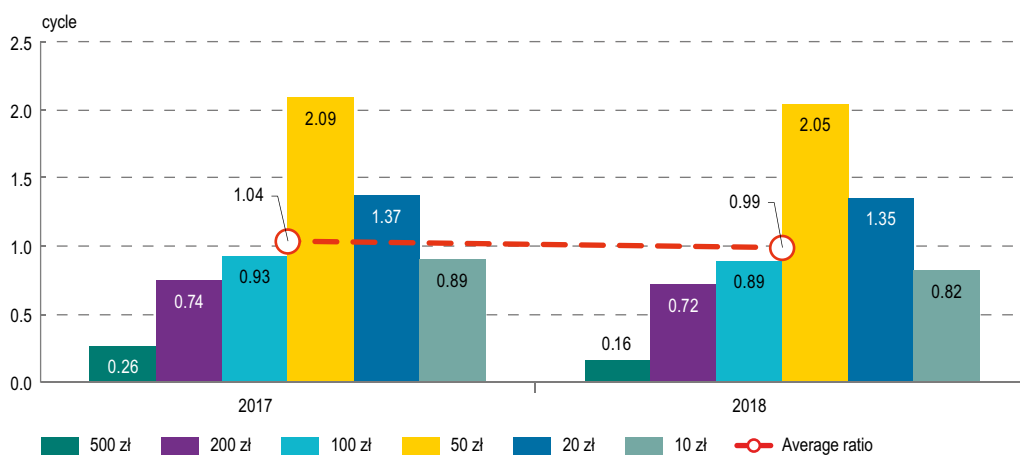
On average, a banknote is recorded at the NBP regional branch after 370 days, calculated from the moment of its withdrawal from NBP by a bank. In the case of coins, the estimated frequency rate of return to NBP is approximately 11,500 days.

The developments in the banknote (Figure 2) and coin (Figure 3) recirculation rate are illustrated below. At the end of 2018, the frequency rate of return in cycles for all banknote denominations reached 0.99 (1.04 in 2017). As at the end of 2018, the frequency rate of return for individual banknote denominations varied. 50 zł and 20 zł

denomination banknotes came back to NBP most frequently, while the 500 zł denomination banknote was recorded least frequently. In 2018, the frequency rate of return decreased compared to 2017 in the case of all banknote denominations. This change was accordingly: 500 zł – 0.1, 200 zł – 0.02, 100 zł – 0.04, 50 zł – 0.04, 20 zł – 0.02, 10 zł – 0.07 (Figure 2).

Based on the above phenomena, it can be concluded that the banknotes most frequently returned to NBP, i.e. 50 zł and 20 zł, are most willingly used by the public in daily transactions (transaction banknotes). These developments may also result from the implementation in July 2018 of the fitness criteria for banknotes resulting from Regulation No 19/2016. In the case of high denomination banknotes, i.e. 500 zł and 200 zł, a less frequent return from the market to NBP may indicate that they act as a store of value.

Figure 2. Frequency rate of return of banknotes in cycles

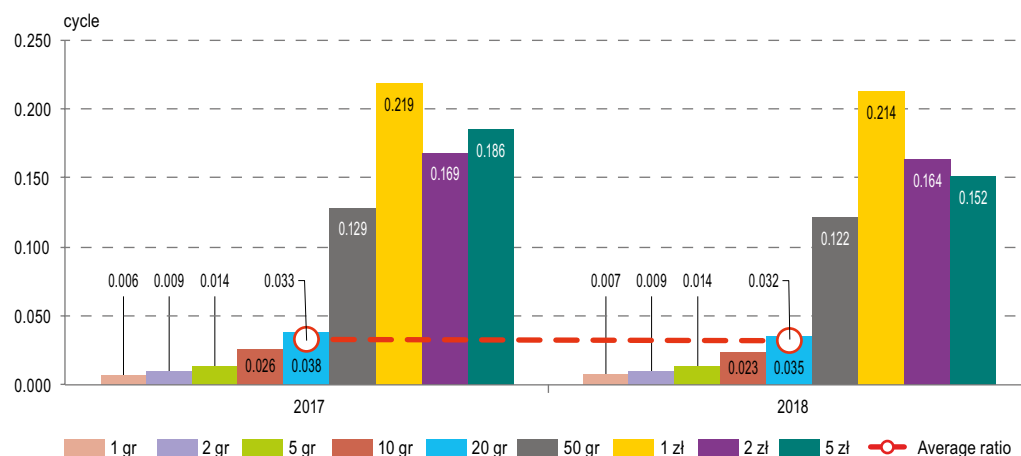


Source: study of NBP Cash and Issue Department.

Note: for analytical purposes, source figures were rounded up to the nearest decimal place.

The coin frequency rate of return has demonstrated a downward trend for many years. At the end of 2013, it amounted to 0.046 (i.e. on average coins returned to NBP almost every 22 years), and at the end of 2018, it amounted to 0.032, i.e. coins returned to NBP almost every 32 years (Figure 3).

Similar to banknotes, the frequency rate of return for individual coin denominations varied. As at the end of 2018, coins most frequently returned to NBP included coins with the denomination of 1 zł (the ratio exceeded 0.2, which means that a coin was recorded at NBP more or less every 5 years) as well as 5 zł and 2 zł coins (a ratio of almost 0.2, which means their return to NBP more or less every 6-7 years). The overall coin recirculation rate was affected by low denomination coins, i.e. 5 gr, 2 gr and 1 gr, which in practice were noted at NBP to a minor extent (according to calculations, approximately 74, 111 and 147 years). It should be noted that in the case of coins with a face value of 10 gr and 20 gr, the value of the recirculation rate is more similar to the rate of coins from the group of low denominations, i.e. 5 gr rather than to the rate of coins with a higher denomination, i.e. 50 gr.

Figure 3. Frequency rate of return of coins in cycles

Source: study of NBP Cash and Issue Department.

Note: for analytical purposes, source figures were rounded up to the nearest decimal place.

In order to increase the frequency of return of coins to NBP in July 2018, improvements were introduced, including enabling:

- lodgement of coins to NBP in one stream, i.e. without any separation into coins fit and unfit for circulation,
- lodgement of coins to NBP in bulk collective packaging, i.e. without the need to form packaging containing coin rolls¹³,
- issuing coins by banks in rolls formed by NBP without the need to count them beforehand.

Moreover, in 2019, in one of the NBP regional branches, a self-service device enabling customers to exchange coins was piloted.

2.3. Cash and cashless means of payment

The popularity of certain payment instruments in the cash and cashless area varies in global terms. In the era of dynamic development of information technologies worldwide, a simultaneous and intensive use of cashless payment instruments and services is observed. On the other hand, cash remains the basic payment instrument. However, it should be noted that ultimately the choice of payment method by consumers in a given country depends on a number of factors, including the availability of services and technological solutions, demographic characteristics and payment habits.

An example of a country where cashless payment instruments are extremely popular is Sweden. Over the last 10 years, the demand for cash in this country has decreased by 40%, while notes and coins are used in 15% of retail transactions¹⁴. There is also now a downward trend in high

¹³ Definition derived from Regulation 19/2016 – 50 pieces of coins of the same face value and the same diameter, arranged in such a way that their surfaces come into contact, packed in roll paper.

¹⁴ Address by Stefan Ingves, President of the Central Bank of Sweden, on 25 May 2018, on the occasion of the celebration of the 350th anniversary of the Central Bank, <https://www.riksbank.se/globalassets/media/riksbanken-350-ar/jubileumskon-ferens/concluding-remarks-25-maj.pdf>.

denominations (1000 SEK and 500 SEK), for which consumers' demand was previously higher due to their function as a store of value¹⁵. Data show that 20% of consumers do not use ATMs, and in the 18-24 age group, around 95% of payment transactions are made using a payment card or a smartphone application. However, the dynamic changes on the payment market do not include, for example, citizens of Sweden aged over 55, who constitute 1/3 of the country's population¹⁶.

In turn, in the United Kingdom, about 30% of payment transactions are made in cash, compared to 60% 10 years ago. At the same time, however, 17% of UK consumers indicated that functioning exclusively in a cashless environment would be highly problematic for them. Among the reasons for using cash, the British indicate mainly making a payment in the event of the lack of possibility to use a payment card (37%) and making a settlement in the event of using minor services, such as cleaning and commercial services (33%). According to the survey by the National Farmers' Union (Gwynedd), 61% of British farmers own a smartphone, but only 40% of them run their business in an area covered by the range of the telecommunications network.¹⁷ The harmonious development of cashless payment instruments therefore involves taking into account their availability and the payment habits of individual social groups.

Germany is one of the countries where cash has remained the most widely used means of payment for years – in 2017, it was used in 74% of transactions. This particularly concerned low-volume payments. In this case, 96% of transactions with a unit value of up to 5 euro were settled in cash.¹⁸ A similar trend can be observed in Switzerland, where in 70% of payment transactions cash was used in 2017. At the same time, banknotes and coins as the preferred means of payment accounted for 45% of the value of all executed transactions, which confirms the popularity of cash in low-volume transactions.¹⁹

In Poland, growth in the value of cash in circulation is noted, with simultaneous development of both cashless payment instruments and payment services. Use of proximity cards and mobile payments is popular. In 2018, proximity cards were used in 76% of transactions made with payment cards, which means that this form of payment increased by 7 percentage points as compared to 2017. The number of proximity cards is steadily growing and reached approximately 34.7 million in December 2018²⁰. In the 2nd half of 2018, the number of transactions performed via the BLIK system²¹ amounted to 58 million and increased by 77% in relation to the first half of 2018.²²

¹⁵ Walter Engert, Ben Fung, Bjorn Segendorff, A tale of two countries: cash demand in Canada and Sweden, a conference on Shaping a New Reality of Cash, Narodowy Bank Polski, 29-31 May 2019.

¹⁶ Liz Alderman, No cash? No problem. Or is it? The New York Times, 24 November 2018.

¹⁷ Access to Cash Review, Final Report, March 2019, <https://www.accesstocash.org.uk/media/1087/final-report-final-web.pdf>.

¹⁸ Deutsche Bundesbank, Payment behaviour in Germany in 2017. Fourth study of the utilisation of cash and cashless payment instruments, <https://www.bundesbank.de/en/publications/search/payment-behaviour-in-germany-in-2017-737278>.

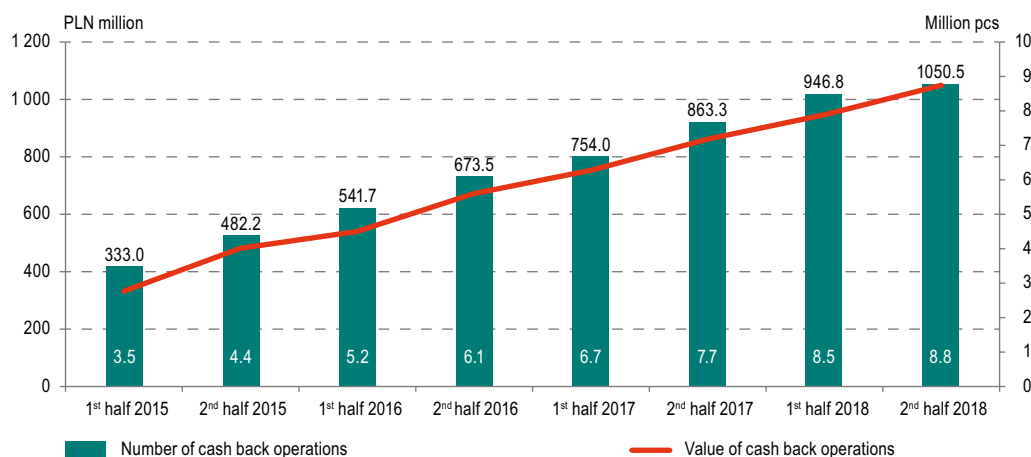
¹⁹ Swiss National Bank, Survey on payment methods, 2017, https://www.snb.ch/en/iabout/cash/id/paytrans_survey_2.

²⁰ The data can be found on the website www.nbp.pl under the Payment system tab.

²¹ A system of mobile payments launched on the initiative of several banks, enabling smart phone owners to execute payments, transfers as well as cash contributions and withdrawals.

²² The data can be found on the website www.nbp.pl under the Payment system tab.

Figure 4. Volume and value of cash back transactions in the period from the 1st half of 2015 to the 2nd half of 2018



Source: The data can be found on the website www.nbp.pl under the Payment system tab.

Note: for analytical purposes, source figures were rounded up to the nearest decimal place.

An example of a service enabling the holders of payment cards to obtain cash, which has been gaining in popularity in recent years, is cash back²³. It has an impact, among others, on increasing the availability of cash for the public and, besides ATMs, is becoming a popular way of withdrawing cash. In the 2nd half of 2018, 8.8 million transactions of this type were recorded for a total amount of almost PLN 1.1 billion. Compared to the 2nd half of 2015, the number of such transactions doubled and their value increased by as much as 117% (Figure 4).

²³ Cash back is a service consisting in cash withdrawal while paying for shopping in a retail establishment by payment card, cf. NBP, Assessment of the Polish payment system functioning in the first half of 2018, NBP Payment Systems Department, November 2018.

Chapter 3

Cash circulation market characteristics



Cash circulation market characteristics

3.1. Cash cycle model

The role of NBP in the cash cycle in Poland is defined in the Constitution of the Republic of Poland, the Banking Law Act and the Act on Narodowy Bank Polski. 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 is also responsible for the value of Polish currency, its adequate quality in circulation and liquidity of cash settlements, putting banknotes and coins in the full denomination structure in circulation.

Besides the central bank and banks, participants of national cash cycle also include manufacturers of banknotes and coins, CIT companies processing cash on behalf of banks, ATM deployers, retailers and consumers.

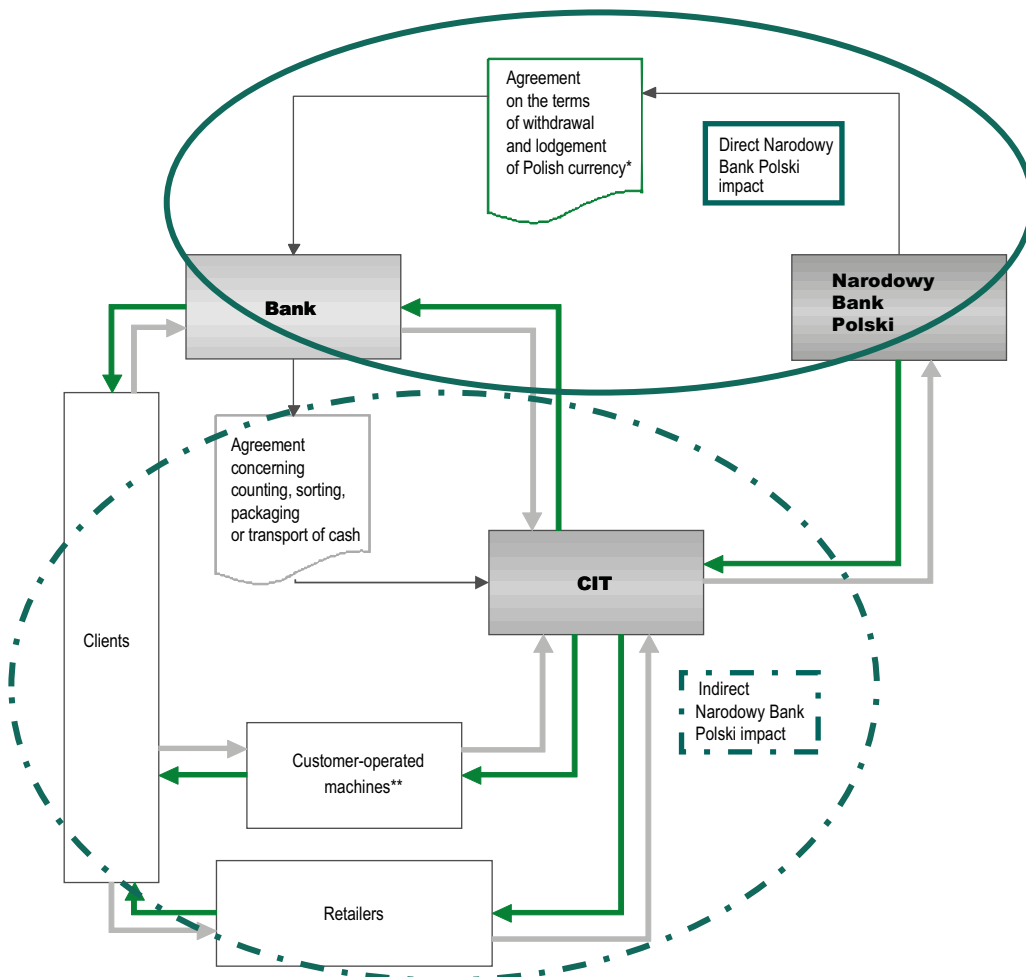
Narodowy Bank Polski, as the issuer of Polish currency, places orders with manufacturers for production of banknotes and coins. Both NBP as well as banks and CIT companies are responsible for verification of the authenticity and quality of banknotes and coins for recirculation. NBP and banks are responsible for storage and distribution of Polish currency while CIT companies deal with cash distribution and its storage on behalf of banks (excluding cash stored within NBP deposit).

The cash cycle in Poland is presented in Diagram 1. Banknotes and coins withdrawn from NBP regional branches by banks or CIT companies operating on behalf of banks go to the cash centres of banks or CIT companies dealing with cash processing²⁴ on behalf of banks, and subsequently to consumers via bank branches, ATM networks and retailers. Cash covers the opposite route, returning to the central bank. The stream of banknotes and coins from consumers, via large retailers and customer-operated machines reaches banks' cash centres or CIT companies dealing with cash processing on behalf of banks. There it is divided into banknotes and coins fit for circulation and unfit for circulation. A part of the banknotes and coins deemed fit for circulation is used by cash centres to satisfy the needs reported by banks and their customers. The surplus of banknotes and coins fit for circulation and the banknotes and coins unfit for circulation are lodged in NBP.

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

²⁴ Processing of banknotes or coins is understood to mean counting, sorting and checking banknotes or coins in terms of authenticity. After processing, banknotes and coins are returned to circulation.

Diagram 1. Cash cycle in Poland



*Basic and deposit system

**Devices for withdrawal and depositing of cash

Source: study of NBP Cash and Issue Department.

In agreements concluded by NBP with banks, the following terms are determined: security requirements, rules of participation in the SESCO system²⁵ as well as the withdrawal and lodgement of Polish currency in the basic and deposit system and the method of settlement of cash discrepancies.

At the end of 2018, the number of concluded agreements was 22 and NBP regional branches cooperated with about 330 organisational units of banks.

²⁵ The IT system administered by NBP, allowing the bank's organisational unit and NBP regional branch and DES to transfer or to receive electronic messages. Its aim is to support the process of Polish currency supply to banks in the basic and deposit system and to ensure service of associated activities performed under agreements on the terms and conditions of the withdrawal and lodgement of Polish currency and the associated activities, concluded between NBP and banks.

3.2. Reporting in the scope of cash circulation

Pursuant to NBP Regulation No 19/2016, as of 1 July 2018, banks that have entered into an agreement with NBP specifying the conditions for the withdrawal and lodgement of Polish currency are obliged to submit to NBP quarterly reporting information on the number of devices (i.e. customer-operated machines, e.g. cash dispensers, recyclers, and devices operated by the bank's personnel or by personnel of an entrepreneur assigned by the bank for processing banknotes, e.g. sorters), counting and sorting of banknotes and coins, as well as their recirculation.

The report prepared by NBP is based on the report which is attached as Annex No 4 to the Decision of the European Central Bank of 16 September 2010 on the authenticity and fitness checking and recirculation of euro banknotes (ECB/2010/14) amended by the Decision of the European Central Bank of 7 September 2012 amending Decision ECB/2010/14 on the authenticity and fitness checking and recirculation of euro banknotes (ECB/2012/19). The European Central Bank (hereinafter the ECB) committed entities dealing with cash handling to report to the national central banks (hereinafter the NCBs) or the ECB. The purpose of the reports submitted by banks is to enable the ECB or NCBs to monitor the compliance with the Decision and to improve the monitoring of the cash cycle activities

3.2.1. Legal conditions

Monitoring the changes taking place on the cash market, Narodowy Bank Polski notes an increase in the scale of banknote recirculation. Quarterly reporting is the tool used for:

- monitoring market trends in the area of putting banknotes and coins into circulation by banks without the participation of NBP,
- monitoring the number of suspected counterfeit banknotes and coins,
- analysis of cash streams operating within banking structures,
- verification of compliance with the requirement to perform tests of devices,
- identification of causes of market developments.

The analysis 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 involvement of NBP. At the same time, the scale of processing of banknotes and coins by banks and the use of specialised equipment for this purpose is subject to analysis. The data provided by banks will also be used, among others, to forecast circulation and plan orders for banknotes and coins.

The aforementioned analyses support the central bank's efforts to reduce the costs of issuance of banknotes and coins and increase the security of all cash cycle participants.

At the end of 2017, the instructions concerning quarterly reporting related to the number of devices, counting and sorting of banknotes and coins and their recirculation were posted on the NBP website, containing the necessary information on reporting and the method of filling in the reporting form. The instructions were updated several times.

In accordance with the aforementioned instructions, banks are obliged to include in their reports:

- as of 1 July 2018 information concerning banknotes and coins:
 - recirculated,
 - processed: by devices, in a bank's sorting rooms, in sorting rooms of the entrepreneurs assigned 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/entrepreneurs (including those received from another bank or NBP) assigned for processing of banknotes or coins by the bank as well as in the bank's devices and equipment of ATM deployers;
- as of 1 January 2020, in addition to the information referred to above, information on banknotes and coins processed at the bank's cash desks and subsequently recirculated, excluding the following operations: denomination structure of suspected counterfeit banknotes, banknotes and coins exchange, banknotes and coins replacement carried out in partnership branches. Information on operations carried out in partnership branches will be provided by banks in terms of value, under a separate procedure.

Reports are submitted by the banks to NBP on a quarterly basis, by electronic means, via the Internet portal of the Reporting Information System (SIS) and using the XBRL taxonomy, made available by NBP on the SIS website. The first report was submitted by banks for 2018 Q3.

3.2.2. Statistical data

All banks obliged to submit quarterly reports under the agreement on the terms and conditions of withdrawal and lodgement of Polish currency²⁶, sent completed forms for 2018 Q3 and Q4 to NBP.²⁷ The analysis was performed on the basis of data provided by banks. The statistical data presented in this subchapter are preliminary data, which do not include information on banknotes and coins processed and put back into circulation through the bank's cash desks. In a longer perspective, the analysis will allow to present the data in a broader context, taking into account the systemic conclusions.

In 2018 Q3, banks reported 10,491 organisational units²⁸, while in 2018 Q4 their number decreased by 139 units and amounted to 10,352.

In 2018 Q3, the banks counted, sorted and verified the authenticity of 1.3 billion pieces of banknotes, of which 1.1 billion pcs were recirculated, i.e. 85.9%²⁹ (Table 6). Among all the denominations of banknotes, 100 zł banknotes constituted the highest number of processed and recirculated banknotes (59.4% and 63.6%, respectively). The second most frequently processed and recirculated denomination was the 50 zł banknote.

²⁶ The reporting obligation does not apply to the whole banking sector.

²⁷ The report may be adjusted by the bank at any time.

²⁸ In accordance with the instructions concerning quarterly reporting related to the number of devices, counting and sorting of banknotes and coins and their recirculation, these are the units performing the bank's tasks related to cash circulation, in particular: branches, agencies, franchise branches, cash points, subsidiaries, head office units, bank head office units (the registered office of the institution).

²⁹ It can be assumed that the remaining part of processed banknotes could have been recirculated via the bank's cash desks (the data comprising cash circulation stream in cash desks will be included in the reporting as of January 2020) or that the banks left it for use in subsequent quarters.

In 2018 Q4, banks counted, sorted and verified the authenticity of 1.3 billion pieces of banknotes, of which 1.0 billion pcs were put back into circulation, i.e. 75.8%³⁰ (Table 6).

Among all the denominations of banknotes, 100 zł banknotes constituted the highest number of processed and recirculated banknotes (57.7% and 65.3%, respectively). The second most frequently processed and recirculated denomination was the 50 zł banknote.

In 2018 Q4, compared to 2018 Q3, banks counted, sorted and verified authenticity of 5.6% more banknotes and put back into circulation 6.9% less banknotes.

Table 6. Number of banknotes processed and recirculated in 2018 Q3 and Q4

Denomination	2018 Q3			2018 Q4		
	Volume of banknotes processed	Volume of banknotes recirculated	Ratio of the volume of banknotes recirculated to the volume of banknotes processed	Volume of banknotes processed	Volume of banknotes recirculated	Ratio of the volume of banknotes recirculated to the volume of banknotes processed
500 zł	1,397,362	981,828	70.3%	1,606,904	796,862	49.6%
200 zł	85,171,980	42,792,247	50.2%	95,740,548	38,465,330	40.2%
100 zł	744,844,483	685,490,933	92.0%	765,286,957	655,246,846	85.6%
50 zł	235,671,188	219,704,292	93.2%	242,988,495	204,752,068	84.3%
20 zł	88,334,609	54,845,861	62.1%	93,656,610	43,878,964	46.9%
10 zł	99,556,727	74,699,800	75.0%	126,045,866	61,029,174	48.4%
Total	1,254,976,349	1,078,514,961	85.9%	1,325,325,380	1,004,169,244	75.8%

Source: study of NBP Cash and Issue Department.

In 2018 Q3, banks counted, sorted and verified authenticity of 511.8 million pieces of coins, of which 351.1 million pcs were recirculated, i.e. 68.6%³¹ (Table 7). Among all the denominations of coins, 1 zł coins constituted the highest number of processed and recirculated coins (19.3% and 18.9%, respectively). The second most frequently processed and recirculated denomination was the 2 zł coin.

In 2018 Q4, banks counted, sorted and verified authenticity of 650.8 million pieces of coins, of which 337.9 million pcs were recirculated, i.e. 51.9%³² (Table 7). Among all denominations of coins, 1 gr (20.7%) and 1 zloty denomination coins constituted the highest number of coins processed. Among the coins recirculated, 1 zł denomination coin constituted the highest number (18.1%) followed by 1 gr.

³⁰ Cf. footnote 30.

³¹ It can be assumed that the remaining part of processed coins could have been recirculated via the bank's cash desks (the data comprising circulation in cash desks will be included in the reporting as of January 2020) or that the banks left it for use in subsequent quarters.

³² Cf. footnote 32.

Table 7. Volume of coins processed and recirculated in 2018 Q3 and Q4

Denomination	2018 Q3			2018 Q4		
	Volume of coins processed	Volume of coins recirculated	Ratio of the volume of coins put back into circulation to the volume of coins processed	Volume of coins processed	Volume of coins put back into circulation	Ratio of the volume of coins put back into circulation to the volume of coins processed
5 zł	47,901,786	28,019,082	58.5%	43,113,010	24,948,746	57.9%
2 zł	83,664,101	51,304,324	61.3%	83,363,240	47,748,499	57.3%
1 zł	98,822,540	66,282,395	67.1%	98,483,659	61,094,533	62.0%
50 gr	58,272,898	37,391,917	64.2%	62,386,351	38,258,191	61.3%
20 gr	40,797,578	23,818,334	58.4%	45,870,184	23,528,174	51.3%
10 gr	59,204,034	44,528,300	75.2%	68,143,055	43,454,827	63.8%
5 gr	32,596,248	26,185,084	80.3%	47,881,919	25,666,732	53.6%
2 gr	32,395,941	22,853,926	70.5%	66,935,099	22,752,995	34.0%
1 gr	58,191,110	50,667,626	87.1%	134,672,638	50,485,132	37.5%
Total	511,846,236	351,050,988	68.6%	650,849,155	337,937,829	51.9%

Source: study of NBP Cash and Issue Department.

In 2018 Q4, compared to 2018 Q3, banks counted, sorted and verified authenticity of 27.2% more coins and recirculated 3.7% less coins.

Box A. Monitoring of implementation of the changes in the cash cycle introduced pursuant to amended provisions of Regulation No 19/2016

As of 1 July 2018, the following systemic changes introduced by NBP in Regulation No 19/2016 apply:

- the obligation to verify the quality of banknotes recirculated by banks in accordance with specified criteria;
- banks' obligation to conduct tests of devices processing cash and performing fitness classification of banknotes at least once a year;
- banks' obligation to submit to NBP quarterly reporting of information containing, in particular, data concerning the following: types of devices, number of banknotes or coins counted, sorted and checked in terms of authenticity, number of banknotes recirculated, lodged in NBP and held in bank's (entrepreneur's) stocks; the reporting will enable verification of the scale of banknote and coin recycling and allow to identify the reasons of phenomena occurring on the cash cycle market, consequently enhancing the security of all its participants;
- enabling banknote multi-orientation sorting, i.e. piling of banknotes in a package¹ in any direction;

¹ 100 pieces of banknotes of one denomination, arranged in any direction, on which a paper band is placed.

- enabling lodging of banknotes in NBP in one stream, i.e. collectively fit and unfit for circulation, with the obligation to separate banknotes unfit for automated sorting;
- enabling lodging of coins in NBP in bulk in bags, in one stream, i.e. collectively fit and unfit for circulation;
- standardisation of banknote packaging content (packages containing 20 thousand, 10 thousand or 5 thousand pcs of banknotes).

In the subsequent years, the following systemic requirements will apply:

- the necessity of counting, sorting and checking the authenticity of banknotes by means of devices (e.g. sorting machines) in the case of their assignment to customer operated machines (e.g. ATMs) – from 1 January 2020;
- the introduction of a 10-per cent limit for manual sorting of banknotes, their counting and checking in terms of authenticity – from 1 January 2021.

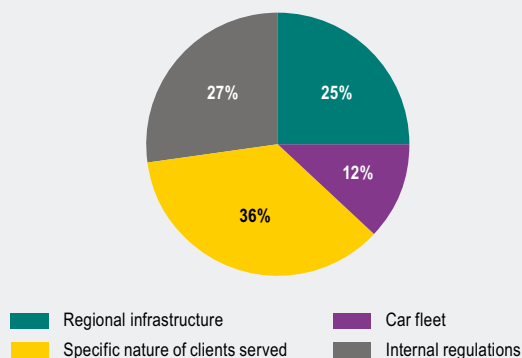
The changes introduced were aimed at optimising and standardising cash processes and result from the care for the quality of banknotes and coins in circulation and the security of market participants. The implementation form of the systemic requirements (i.e. adoption of technological solutions or introducing changes in the processes) is the responsibility of cash cycle participants.

As part of the monitoring of the implementation of the aforementioned changes by market participants, meetings with market representatives were continued in 2018 Q3 and the evaluation survey was conducted through the NBP regional branches. The questionnaire, which was sent to over 200 representatives of banks, Poczta Polska SA and CIT companies, contained, among others, questions on the following subjects:

- factors influencing the specific nature of activity of the entities surveyed;
- a subjective assessment of the quality of banknotes remaining in circulation;
- practical application of the changes resulting from Regulation No 19/2016.

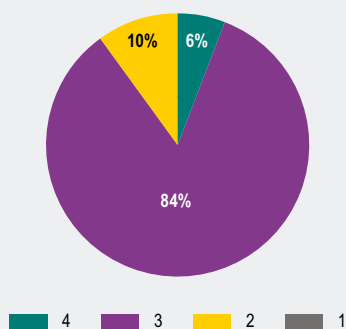
The results of the survey questionnaire analysis indicate that:

1. The nature of clients handled has the greatest impact on the specific features of the business activity conducted by the respondents; the detailed distribution of the answers obtained is illustrated in Figure A1.

Figure A1. Factors influencing the specific nature of activity of the entities surveyed

Source: study of NBP Cash and Issue Department.

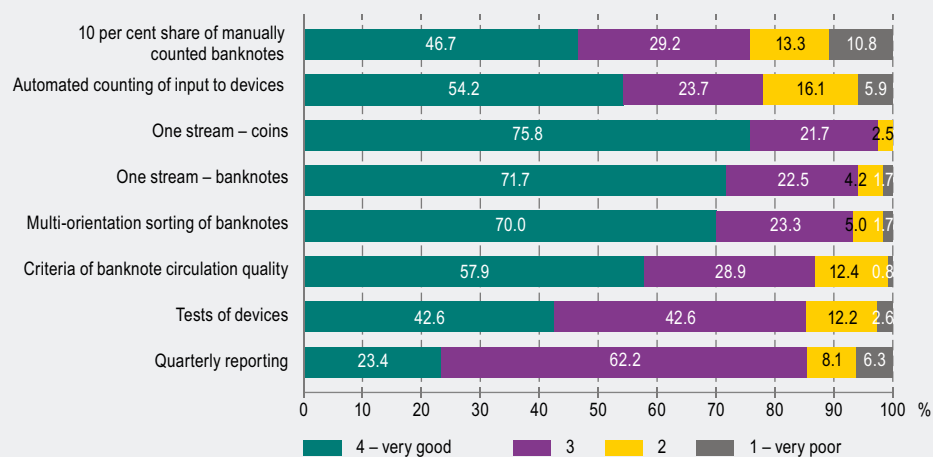
2. The quality of banknotes in circulation on a four-point scale (where „4” meant: very good and „1”: very poor) was rated as good or very good by 90% of the respondents. Only 6% of the respondents described the quality of banknotes as low (i.e. „2”). They justified their assessment mainly by the specific nature of the customers they handle who have a significant impact on the quality of the banknotes, e.g. due to the way in which the banknotes and coins are packaged within the framework of the settlement of their revenue. Figure A2 shows the detailed distribution of the responses provided.

Figure A2. Banknote quality assessment on a scale from “4” (v. good) to “1” (v. low)

Source: study of NBP Cash and Issue Department.

3. Respondents demonstrate extensive awareness of the changes since the share of responses indicating a good or very good assessment ranged from 86% (in the case of quarterly reporting) to 98% (in the case of lodging coins in one stream). Figure A3 provides a detailed distribution of responses provided.

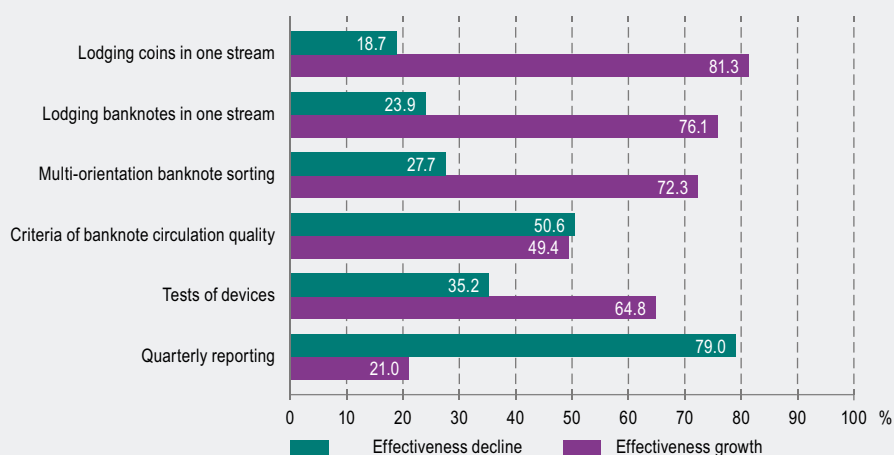
Figure A3. Level of understanding of the major changes resulting from Regulation No 19/2016



Source: study of NBP Cash and Issue Department.

4. Introduction of multi-orientation sorting of banknotes, lodgement of coins in one stream and lodgement of banknotes in one stream introduced under Regulation No 19/2016 had the greatest impact on an increase in the effectiveness of cash processing. From the point of view of respondents, the introduction of the quarterly reporting requirement has contributed to a decline in effectiveness. This assessment results, among others, from the need to obtain systemic data on the nominal structure of cash handled by a particular entity. On the other hand, 21% of respondents positively assessed the impact of the aforementioned change on the long-term effectiveness of processing, due to a possibility to use the prepared system tools in cash management. A detailed breakdown of the responses is illustrated in Figure A4.

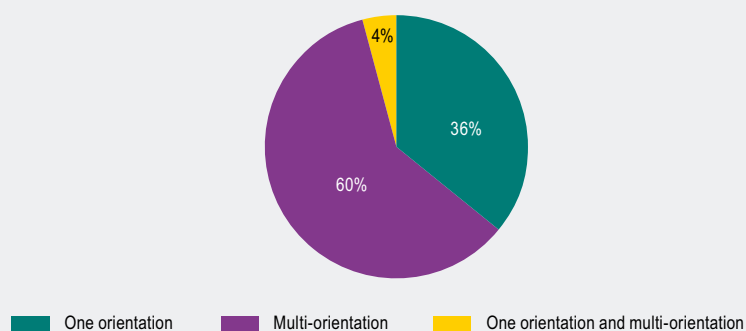
Figure A4. The respondents' indication of the changes that had the greatest impact on the increase or decrease in the effectiveness of cash processes



Source: study of NBP Cash and Issue Department.

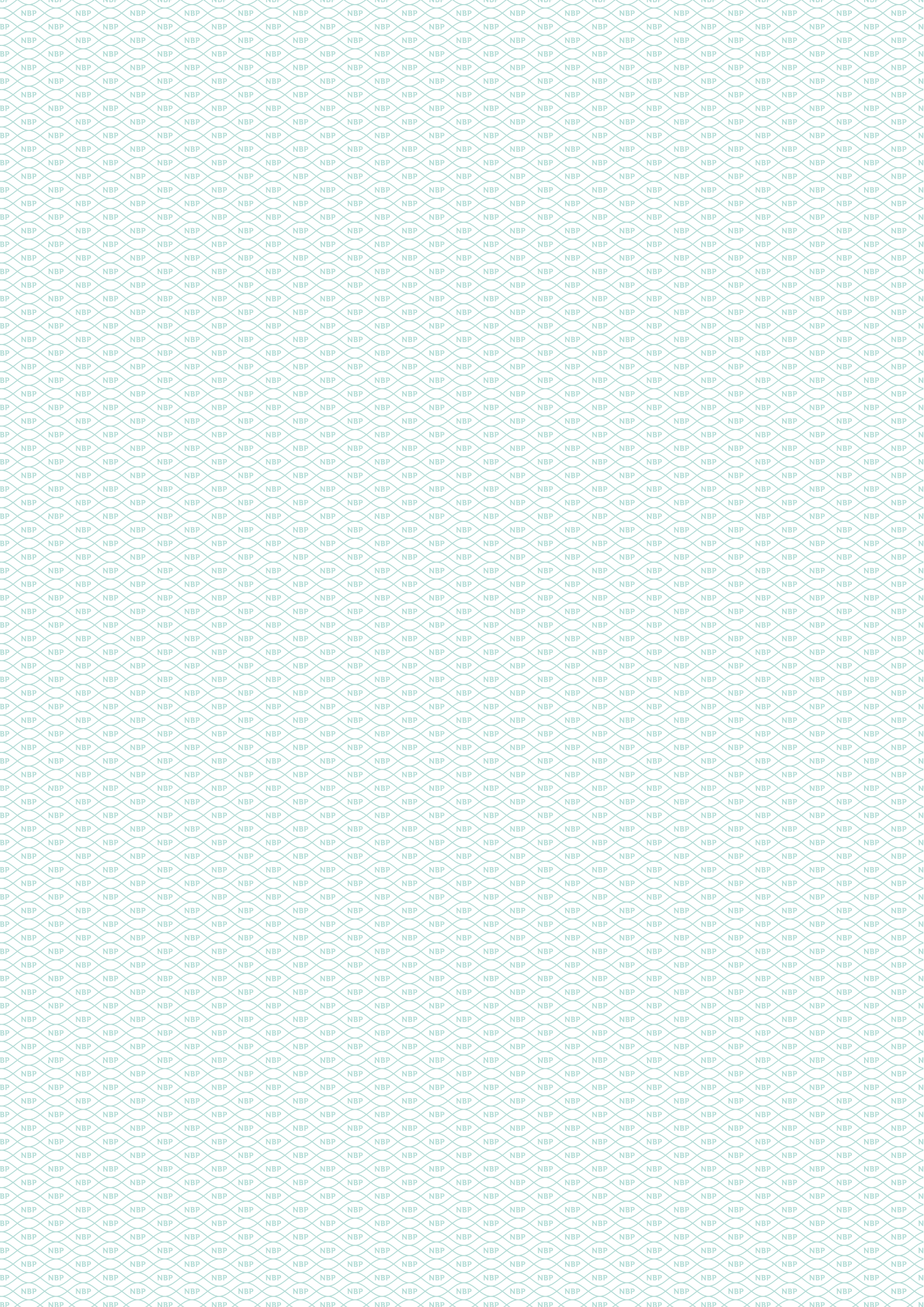
5. Despite the possibility of multi-orientation banknote sorting, 36% of respondents indicated that they arranged the banknotes in one direction, while 4% used one direction arrangement in addition to multi-orientation sorting. The reasons for using the one direction arrangement of the banknotes included, among others, the requirements of the customers handled and the employees' habits. Figure A5 shows the distribution of responses received.

Figure A5. Method of arranging banknotes in a package used in practice by respondents



Source: study of NBP Cash and Issue Department.

As part of continued monitoring of the practical application of the changes resulting from Regulation No 19/2016, it was decided to continue direct talks and meetings with market participants, among others, in order to continue the survey on the impact of changes on the effectiveness of processes.



Chapter 4

Cooperation with banks in the scope of Polish currency supply



Cooperation with banks in the scope of Polish currency supply

4.1. Withdrawing Polish currency from NBP by banks

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

- the basic system³³,
- the deposit system³⁴.

The value of banknotes and coins withdrawn by banks in 2018 was 7.5% and 4.9% higher, respectively, than in 2017 (Table 8).

Among all banks supplied with cash by NBP, a group of so-called key banks can be distinguished, consisting of 5-7 banks generating over 80% of banknote and coin withdrawals in terms of their value and volume (Table 9).

Table 8. Total value (PLN million) and volume (million) of banknotes and coins withdrawn from NBP

Value or volume	2017	2018	Change in numbers (col. 3 – col.2)
1	2	3	4
Value	184,581.1	198,381.7	13,800.6
Volume	3,571.3	3,747.3	176.0

Source: study of NBP Cash and Issue Department.

Note: for analytical purposes, source figures were rounded up to one decimal place.

Table 9. Total number of banks that have withdrawn at least 80% of the value or volume of banknotes or coins from the NBP

Value or volume	Banknotes, coins	2017		2018	
		Total share	Number of banks	Total share	Number of banks
1	2	3	4	5	6
Value	banknotes and coins	83.7%	5	82.2%	5
	banknotes	83.9%	5	82.5%	5
	coins	84.2%	6	81.5%	5
Volume	banknotes and coins	82.8%	7	82.0%	7
	banknotes	81.0%	5	86.4%	6
	coins	86.1%	6	83.5%	5

Source: study of NBP Cash and Issue Department.

Note: for analytical purposes, source figures were rounded up to one decimal place.

³³ Withdrawal and lodgement of Polish currency by banks under the concluded agreement on the terms and conditions of withdrawal and lodgement of Polish currency.

³⁴ Polish currency lodged as NBP deposit is the property of NBP and it 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 storage of NBP deposits are set out with banks on an individual basis in agreements.

4.1.1. Banknotes

The value and number of banknotes withdrawn by banks in 2018 compared to 2017 was higher by 7.4% and 4.1%, respectively (Table 10).

Table 10. Value (PLN million) and volume (million) of banknotes withdrawn from NBP

Value or number	2017	2018	Change in numbers (col. 3 – col. 2)
1	2	3	4
Value	183,763.4	197,433.0	13,669.6
Volume	2,049.5	2,133.6	84.1

Source: study of NBP Cash and Issue Department.

Note: for analytical purposes, source figures were rounded up to one decimal place.

While analysing the denomination structure of banknote withdrawals in 2018, it should be indicated that the highest share in banknote withdrawals, both in terms of value and number, was recorded in the case of 100 zł denomination banknote. In 2017, it was also the banknote most frequently withdrawn from NBP. In 2018, in numerical terms, banknotes with the denomination of 10 zł and 500 zł were withdrawn least frequently (Table 11).

In 2018, as compared to 2017, both the value and the number of withdrawals increased for the following denominations: 500 zł, 200 zł, 100 zł (in the case of value of withdrawn banknotes, respectively by: PLN 282.0 million, PLN 7,759.3 million, PLN 6,016.2 million and in the case of number of withdrawn banknotes, respectively by 0.6 million pcs, 38.8 million pcs and 60.2 million pcs). On the other hand, in 2018, the value and the number of withdrawals for banknotes with the denomination of 50 zł, 20 zł and 10 zł, compared to 2017, decreased (in the case of the value of withdrawn banknotes, respectively, by PLN 196.6 million, PLN 152.7 million, PLN 38.5 million and in the case of number of withdrawn banknotes, respectively by 0.4 million pcs, 7.6 million pcs, 3.9 million pcs).

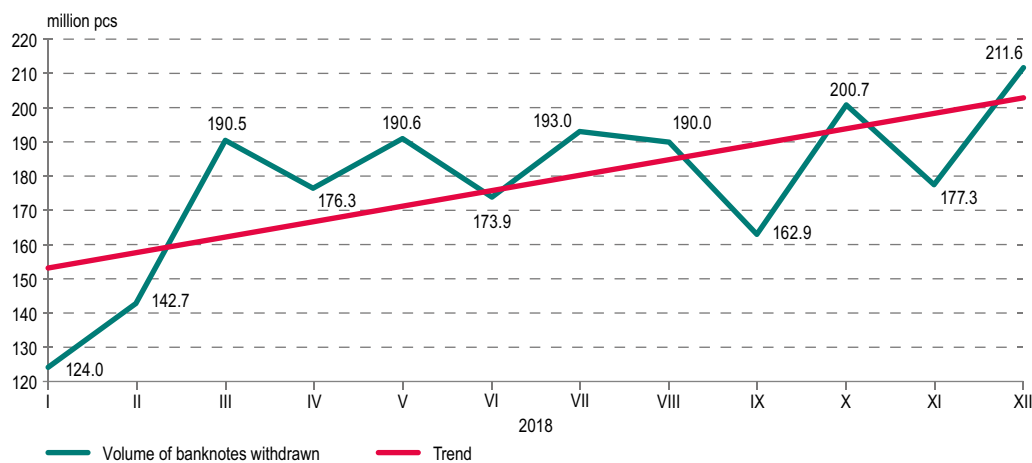
Table 11. Value (PLN million) and volume (million) of banknotes withdrawn from NBP

Denomination	Value		Volume		Structure by value		Structure by volume	
	2017	2018	2017	2018	2017	2018	2017	2018
1	2	3	4	5	6	7	8	9
500 zł	3,897.0	4,179.0	7.8	8.4	2.1%	2.1%	0.4%	0.4%
200 zł	43,038.3	50,797.6	215.2	254.0	23.4%	25.7%	10.5%	11.9%
100 zł	112,836.4	118,852.6	1,128.3	1,188.5	61.4%	60.2%	55.1%	55.7%
50 zł	19,133.9	18,937.3	382.7	378.7	10.4%	9.6%	18.7%	17.7%
20 zł	3,405.9	3,253.2	170.3	162.7	1.9%	1.6%	8.3%	7.6%
10 zł	1,451.9	1,413.4	145.2	141.3	0.8%	0.7%	7.1%	6.6%
Total	183,763.4	197,433.0	2,049.5	2,133.6	100.0%	100.0%	100.0%	100.0%

Source: study of NBP Cash and Issue Department.

Note: for analytical purposes, source figures were rounded up to one decimal place.

The volume of banknotes withdrawn from NBP by banks grew in the consecutive months of 2018. The lowest number of banknotes was withdrawn by banks in January: 124.0 million pcs, and the highest in December: 211.6 pcs (Figure 5). A factor influencing this situation is, among other things, the seasonality of banknote withdrawals. It means that banknotes are withdrawn more frequently during the holiday and public holiday periods.

Figure 5. Volume of banknotes withdrawn from NBP by banks in 2018

Source: study of NBP Cash and Issue Department.

Note: for analytical purposes, source figures were rounded up to one decimal place.

4.1.2. Coins

The value and volume of coins withdrawn by banks in 2018 compared to 2017 was 16.0% and 6.0% higher, respectively (Table 12).

Table 12. Value (PLN million) and volume (million) of coins withdrawn from NBP

Value or volume	2017	2018	Change in numbers (col. 3 – col.2)
1	2	3	4
Wartość	817.7	948.7	131.0
Liczba	1,521.8	1,613.7	91.9

Source: study of NBP Cash and Issue Department.

Note: for analytical purposes, source figures were rounded up to one decimal place.

While analysing the denomination structure of coin withdrawals in 2018, it should be indicated that the highest share of withdrawals, in terms of number, was recorded in the case of 1 gr denomination. In 2017, coins of 1 gr denomination were also most frequently withdrawn from NBP. In numerical terms, both in 2018 and in 2017, coins with the denomination of 5 zł were withdrawn least frequently (Table 13).

In 2018, as compared to 2017, both the value and the volume of withdrawals of all coins increased. The total value of withdrawn coins increased by PLN 131 million and their number by 91.8 million pcs.

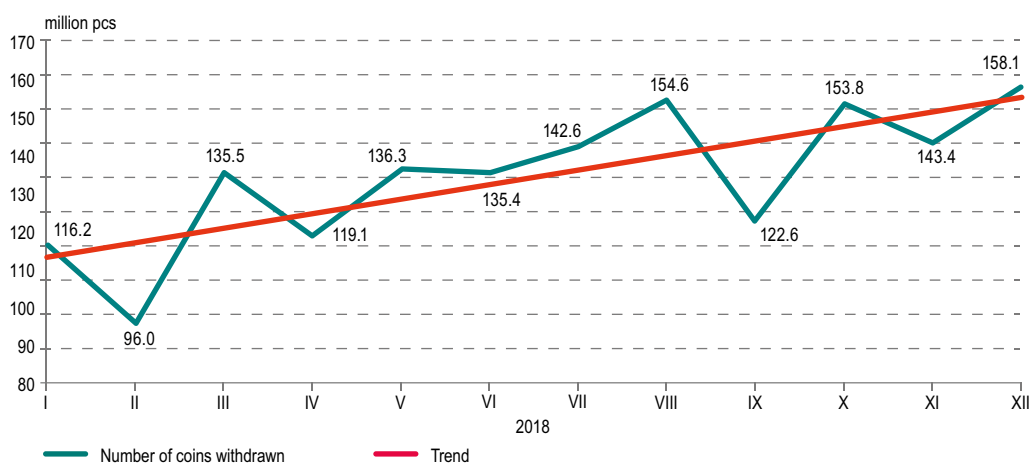
Table 13. Value, volume and structure of coins withdrawn from NBP (in million)

Denomination	Value		Volume		Structure by value		Structure by volume	
	2017	2018	2017	2018	2017	2018	2017	2018
1	2	3	4	5	6	7	8	9
5 zł	279.2	375.1	55.8	75.0	34.1%	39.5%	3.7%	4.6%
2 zł	272.3	286.4	136.1	143.2	33.3%	30.2%	8.9%	8.9%
1 zł	150.7	166.4	150.7	166.4	18.4%	17.5%	9.9%	10.3%
50 gr	55.9	60.0	111.8	120.1	6.8%	6.3%	7.3%	7.4%
20 gr	24.7	25.1	123.6	125.3	3.0%	2.6%	8.1%	7.8%
10 gr	19.4	19.5	193.9	195.1	2.4%	2.1%	12.7%	12.1%
5 gr	7.8	8.0	156.6	159.9	1.0%	0.8%	10.3%	9.9%
2 gr	3.5	3.8	176.1	188.2	0.4%	0.4%	11.6%	11.7%
1 gr	4.2	4.4	417.0	440.4	0.5%	0.5%	27.4%	27.3%
Total	817.7	948.7	1,521.8	1,613.6	100.0%	100.0%	100.0%	100.0%

Source: study of NBP Cash and Issue Department.

Note: for analytical purposes, source figures were rounded up to one decimal place.

The volume of coins withdrawn from NBP by banks increased in the consecutive months in 2018. The lowest number of coins was withdrawn by banks in February – 96.0 million pcs and the highest – in December – 158.1 million pcs (Figure 6).

Figure 6. Volume of coins withdrawn from NBP by banks in 2018


Source: study of NBP Cash and Issue Department.

Note: for analytical purposes, source figures were rounded up to decimals.

4.2. Lodging Polish currency in NBP by banks

In accordance with the provisions of Regulation No 19/2016, by 30 June 2018, banks lodged in NBP:

- banknotes in three streams as:
 - banknotes fit for circulation (circulation banknotes),

- banknotes unfit for circulation (non-circulation banknotes), i.e. banknotes which were not eligible as banknotes fit for circulation due to the level of wear and tear (e.g. stains, discolouring, tears),
- banknotes unfit for automated sorting, i.e. banknotes fixed with tape, glue or otherwise, torn, stapled or broken;
- coins in two streams as:
 - fit for circulation (circulation coins),
 - unfit for circulation (non-circulation coins), i.e. coins with mechanical type of damages, worn, with changed colour, corroded, damaged due to placing a permanent label, a drawing or other sign thereon.

Since 1 July 2018, banks have been lodging in NBP:

- banknotes in one stream (without classification into fit and unfit for circulation), whereas banknotes unfit for automated sorting are separated; the fitness criteria for banknotes, contained in Regulation No 19/2016 define the detailed method of their verification during counting and sorting manually or by means of devices, by indicating measurable parameters of damage, including the description; this allows to assess whether a banknote is damaged or fit for circulation;
- coins in one stream (without classification into fit and unfit for circulation), with the same face value, in bulk, in bags.

In 2018, the value of banknotes and coins lodged by banks in NBP was 2.4% higher than in 2017. The number of banknotes and coins lodged by banks in NBP in 2018 was 0.9% higher than in 2017 (Table 14).

Table 14. Value and volume of banknotes and coins lodged in NBP (in million)

Value or volume	2017	2018	Change in numbers (col. 4 – col. 3)
1	2	3	4
Value	173,401.3	177,607.8	4,206.5
Volume	2,539.0	2,561.9	22.9

Source: study of NBP Cash and Issue Department.

Note: for analytical purposes, source figures were rounded up to one decimal place.

Table 15. Number of banks whose total share in the value or volume of banknotes or coins lodged in NBP reached at least 80%

Value or number	Banknotes and coins	2017		2018	
		Total share	Number of banks	Total share	Number of banks
1	2	3	4	5	6
Value	banknotes and coins	85.8%	7	84.0%	6
	banknotes	86.0%	7	84.1%	6
	coins	86.6%	8	80.1%	7
Volume	banknotes and coins	86.1%	9	82.1%	7
	banknotes	84.4%	7	82.6%	6
	coins	86.6%	8	80.9%	7

Source: study of NBP Cash and Issue Department.

Note: for analytical purposes, source figures were rounded up to one decimal place.

In 2018, a group of 6-9 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 15).

4.2.1. Banknotes

In terms of value, the share of banknotes lodged in NBP in 2018 was as follows:

- banknotes fit for circulation and unfit for circulation made up 99.8% of all banknotes lodged,
- banknotes unfit for automated sorting accounted for 0.2% of all banknotes lodged (Table 16).

Table 16. Value of banknotes withdrawn from NBP by banks in 2018

Denomination	1 st half of 2018				Total banknotes lodged in NBP col. 2+5
	Fit for circulation	Unfit for circulation	Unfit for automated sorting	col. 3+4	
1	2	3	4	5	6
500 zł	416,046,000	0	210,500	210,500	416,256,500
200 zł	19,396,166,200	124,701,200	20,987,200	145,688,400	19,541,854,600
100 zł	50,487,481,000	1,104,402,200	70,971,200	1,175,373,400	51,662,854,400
50 zł	8,300,089,150	580,950,700	31,921,950	612,872,650	8,912,961,800
20 zł	1,331,176,960	252,980,540	7,756,220	260,736,760	1,591,913,720
10 zł	515,669,580	172,440,710	7,222,010	179,662,720	695,332,300
Total	80,446,628,890	2,235,475,350	139,069,080	2,374,544,430	82,821,173,320

Denomination	2 nd half of 2018			Total banknotes lodged in NBP in 2018 col. 6+9
	Fit and unfit for circulation	Unfit for automated sorting	Total banknotes lodged in NBP col. 7+9	
1	7	8	9	10
500 zł	441,750,000	555,500	442,305,500	858,562,000
200 zł	22,739,400,000	25,168,000	22,764,568,000	42,306,422,600
100 zł	58,540,350,000	89,005,700	58,629,355,700	110,292,210,100
50 zł	9,856,700,000	36,219,900	9,892,919,900	18,805,881,700
20 zł	1,702,640,000	11,820,640	1,714,460,640	3,306,374,360
10 zł	676,710,000	11,974,570	688,684,570	1,384,016,870
Total	93,957,550,000	174,744,310	94,132,294,310	176,953,467,630

Source: study of NBP Cash and Issue Department.

In terms of number, the share of banknotes lodged in NBP in 2018 was as follows:

- banknotes fit for circulation and unfit for circulation – 99.7% of all banknotes lodged,
- banknotes unfit for automated sorting – 0.3% (Table 17).

Table 17. Number of banknotes lodged in NBP by banks in 2018

Denomination	1 st half of 2018				Total banknotes lodged in NBP col. 2+5
	Fit for circulation	Unfit for circulation	Unfit for automated sorting	col. 3+4	
1	2	3	4	5	6
500 zł	832,092	0	421	421	832,513
200 zł	96,980,831	623,506	104,936	728,442	97,709,273
100 zł	504,874,810	11,044,022	709,712	11,753,734	516,628,544
50 zł	166,001,783	11,619,014	638,439	12,257,453	178,259,236
20 zł	66,558,848	12,649,027	387,811	13,036,838	79,595,686
10 zł	51,566,958	17,244,071	722,201	17,966,272	69,533,230
Total	886,815,322	53,179,640	2,563,520	55,743,160	942,558,482

Denomination	2 nd half of 2018			Total banknotes lodged in NBP in 2018 col. 6+9
	Fit and unfit for circulation	Unfit for automated sorting	Total banknotes lodged in NBP col. 7+9	
1	7	8	9	10
500 zł	883,500	1,111	884,611	1,717,124
200 zł	113,697,000	125,840	113,822,840	211,532,113
100 zł	585,403,500	890,057	586,293,557	1,102,922,101
50 zł	197,134,000	724,398	197,858,398	376,117,634
20 zł	85,132,000	591,032	85,723,032	165,318,718
10 zł	67,671,000	1,197,457	68,868,457	138,401,687
Total	1,049,921,000	3,529,895	1,053,450,895	1,996,009,377

Source: study of NBP Cash and Issue Department.

In terms of value and volume, in 2018, banks lodged more banknotes than in the previous year, by 2.5% and 0.8% respectively (Table 18).

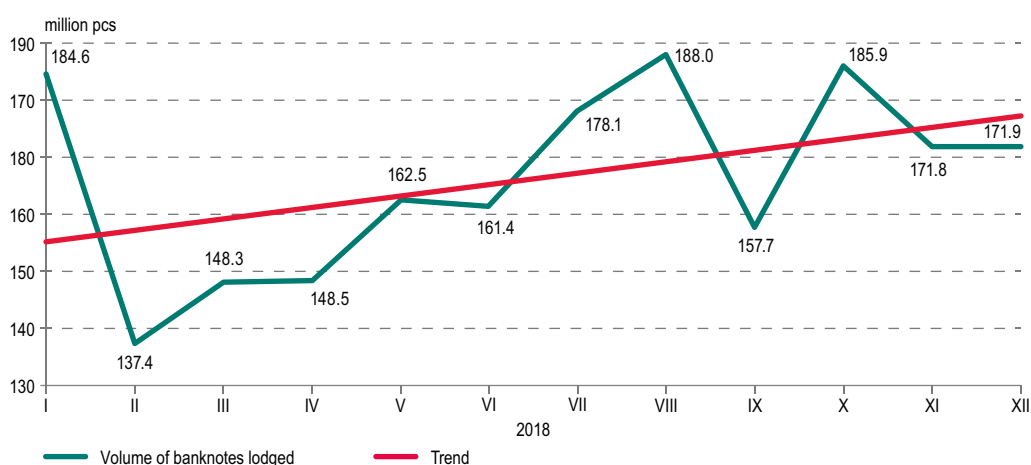
While analysing the volume of banknotes lodged in NBP by banks in the consecutive months of 2018, an upward tendency was observed. Banks lodged the lowest number of banknotes in February – 137.4 million pcs and the highest number in August – 188.0 million pcs (Figure 7).

Table 18. Value and volume of banknotes lodged in NBP (in million)

Value or volume	2017	2018	Change in numbers (col. 4 – col. 3)
1	3	4	5
Value	172,718.5	176,953.5	4,235.0
Volume	1,979.9	1,996.0	16.1

Source: study of NBP Cash and Issue Department.

Note: for analytical purposes, source figures were rounded up to one decimal place.

Figure 7. Volume of banknotes lodged in NBP by banks in 2018


Source: study of NBP Cash and Issue Department.

Note: for analytical purposes, source figures were rounded up to one decimal place.

Table 19. Value, volume and structure of banknotes lodged in NBP in 2017 and 2018 – by denomination (in million)

Denomination	Value		Volume		Structure by value		Structure by volume	
	2017	2018	2017	2018	2017	2018	2017	2018
1	2	3	4	5	6	7	8	9
500 zł	521.4	858.6	1.0	1.7	0.3%	0.5%	0.1%	0.1%
200 zł	38,522.9	42,306.4	192.6	211.5	22.3%	23.9%	9.7%	10.6%
100 zł	109,912.9	110,292.2	1,099.1	1,102.9	63.6%	62.3%	55.5%	55.3%
50 zł	19,102.7	18,805.9	382.1	376.1	11.1%	10.6%	19.3%	18.8%
20 zł	3,215.9	3,306.4	160.8	165.3	1.9%	1.9%	8.1%	8.3%
10 zł	1,442.6	1,384.0	144.3	138.4	0.8%	0.8%	7.3%	6.9%
Total	172,718.4	176,953.5	1,979.9	1,995.9	100.0%	100.0%	100.0%	100.0%

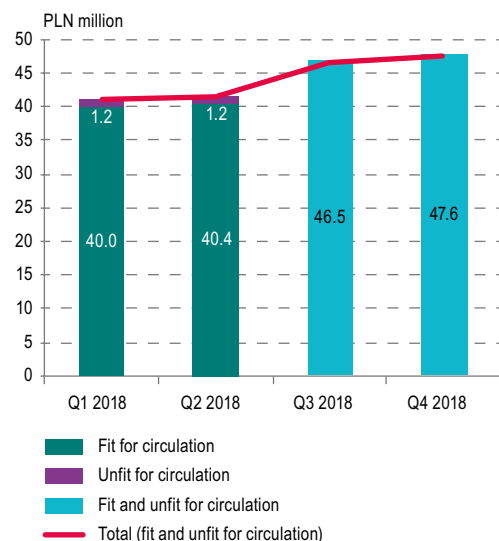
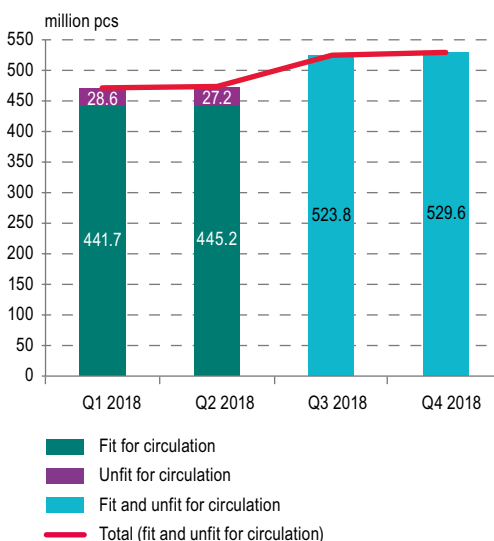
Source: study of NBP Cash and Issue Department.

Note: for analytical purposes, source figures were rounded up to one decimal place.

Banknotes with 100 zł denomination represent the highest number of banknotes lodged in NBP, while the lowest number of lodged banknotes were with the denomination of 500 zł and 10 zł (Table 19).

In 2018 Q4, the value of lodged banknotes fit and unfit for circulation increased compared to 2018 Q1 by 15.5%. In 2018 Q1 and in 2018 Q2, the value of banknotes unfit for circulation was the same (Figure 8).

In 2018, the number of lodged fit and unfit banknotes increased in quarter to quarter terms. In 2018 Q4, banks lodged 12.6% more banknotes fit and unfit for circulation in NBP than in 2018 Q1. The number of unfit banknotes lodged in NBP in 2018 Q2 decreased by 4.9% compared to 2018 Q1 (Figure 9).

Figure 8. Value of banknotes lodged in NBP**Figure 9.** Volume of banknotes lodged in NBP

Source: study of NBP Cash and Issue Department.

Note: for analytical purposes, source figures were rounded up to one decimal place.

4.2.2. Coins

In terms of value and volume, the share of coins lodged by banks in NBP in 2018 remained at the same level, whereas in terms of quality:

- coins fit for circulation accounted for 99.9% of all coins lodged,
- coins unfit for circulation accounted for 0.1% of all coins lodged.

In 2018, the value of coins lodged by banks increased by PLN 28.6 million, i.e. by 4.2% compared to 2017 (Table 20). The number of coins lodged in 2018 increased by 1.2% compared to 2017 (Table 20).

Table 20. Value and volume of coins lodged in NBP in 2017-2018 (in million)

Value or volume	2017	2018	Change in numbers (col. 4 – col.3)
1	2	3	4
Value	682.9	654.3	-28.6
Volume	559.1	565.9	6.8

Source: study of NBP Cash and Issue Department.

Note: for analytical purposes, source figures were rounded up to decimals.

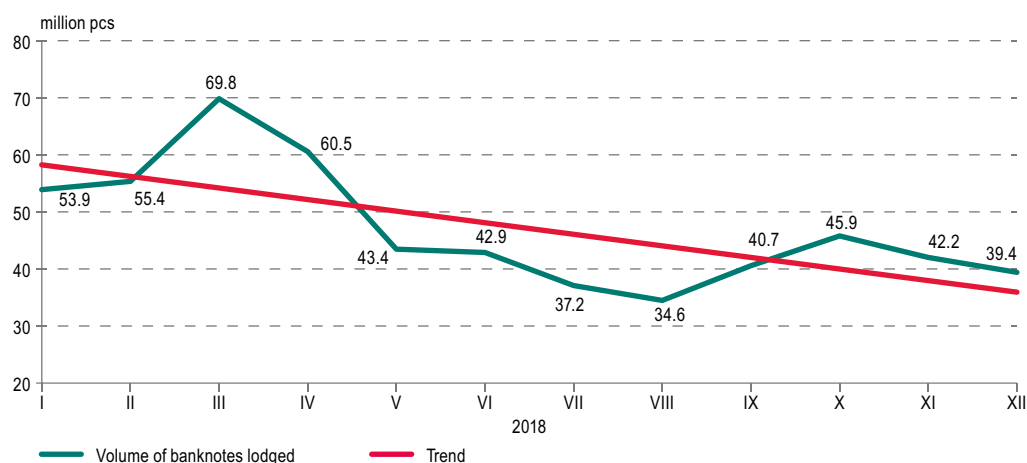
In the structure of lodged coins in terms of value, as in 2017, the highest share was recorded in the case of the denominations 5 zł, 2 zł and 1 zł (91.6% of all coins lodged). In terms of the volume of coins lodged in NBP, prevalence of the following denominations was recorded: 2 zł, 1 zł and 50 gr (55.3% of all coins lodged). In terms of volume and value, in 2018, the lowest number of lodged coins was recorded for low denominations, i.e. 5 gr, 2 gr and 1 gr, respectively, 18.4% and 0.4% of all coins lodged (Table 21).

Table 21. Value and volume of banknotes lodged in NBP (in million)

Denomination	Value		Volume		Structure by value		Structure by volume	
	2017	2018	2017	2018	2017	2018	2017	2018
1	2	3	4	5	6	7	8	9
5 zł	290.3	250.1	58.1	50.0	42.5%	38.2%	10.4%	8.8%
2 zł	219.7	224.7	109.8	112.4	32.2%	34.3%	19.6%	19.9%
1 zł	117.9	124.3	117.9	124.3	17.3%	19.0%	21.1%	22.0%
50 gr	37.7	38.1	75.4	76.2	5.5%	5.8%	13.5%	13.5%
20 gr	9.5	9.3	47.6	46.4	1.4%	1.4%	8.5%	8.2%
10 gr	5.4	5.2	54.5	52.5	0.8%	0.8%	9.7%	9.3%
5 gr	1.4	1.5	28.9	30.8	0.2%	0.2%	5.2%	5.4%
2 gr	0.6	0.6	27.6	27.9	0.1%	0.1%	4.9%	4.9%
1 gr	0.4	0.5	39.3	45.4	0.06%	0.1%	7.0%	8.0%
Total	682.9	654.3	559.1	565.9	100.0%	100.0%	100.0%	100.0%

Source: study of NBP Cash and Issue Department.

Note: for analytical purposes, source figures were rounded up to one decimal place.

Figure 10. Volume of banknotes lodged in NBP by banks in 2018


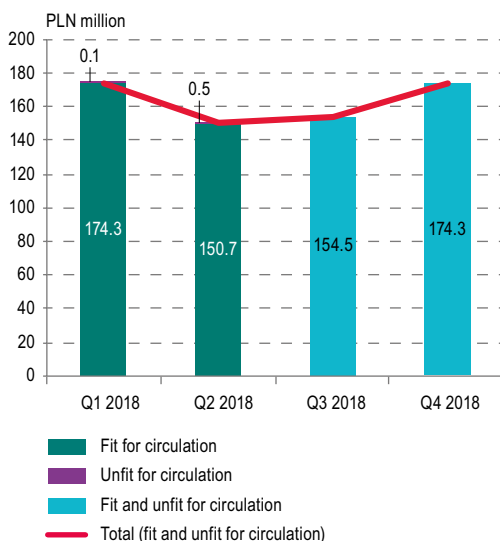
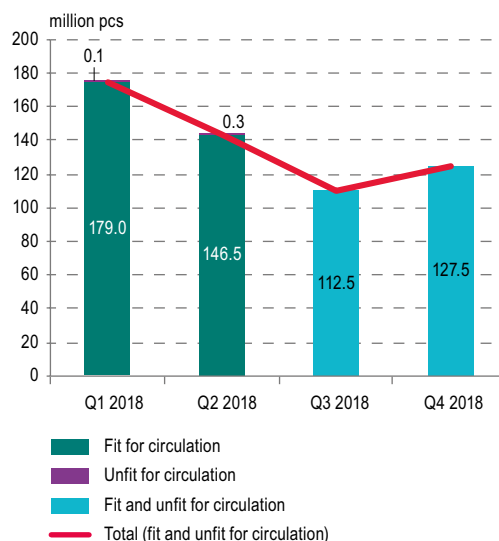
Source: study of NBP Cash and Issue Department.

Note: for analytical purposes, source figures were rounded up to one decimal place.

In the case of coins lodged in NBP by banks in individual months of 2018, a downward tendency was observed. Banks lodged the lowest number of coins in August – 34.6 million pcs, and the highest number in March – 69.8 million pcs (Figure 10).

In 2018 Q4, the value of coins fit and unfit for circulation lodged in NBP remained at the same level as in 2018 Q1. In 2018 Q2, the value of unfit coins increased by PLN 0.4 million when compared to 2018 Q1 (Figure 11).

In 2018 Q4, banks lodged 28.8% fewer banknotes fit and unfit for circulation for circulation in NBP than in 2018 Q1. In the 2018 Q2, the number of coins unfit for circulation increased by 0.2 million as compared to 2018 Q1 (Figure 12).

Figure 11. Value of coins lodged in NBP**Figure 12. Volume of coins lodged in NBP**

Source: study of NBP Cash and Issue Department.

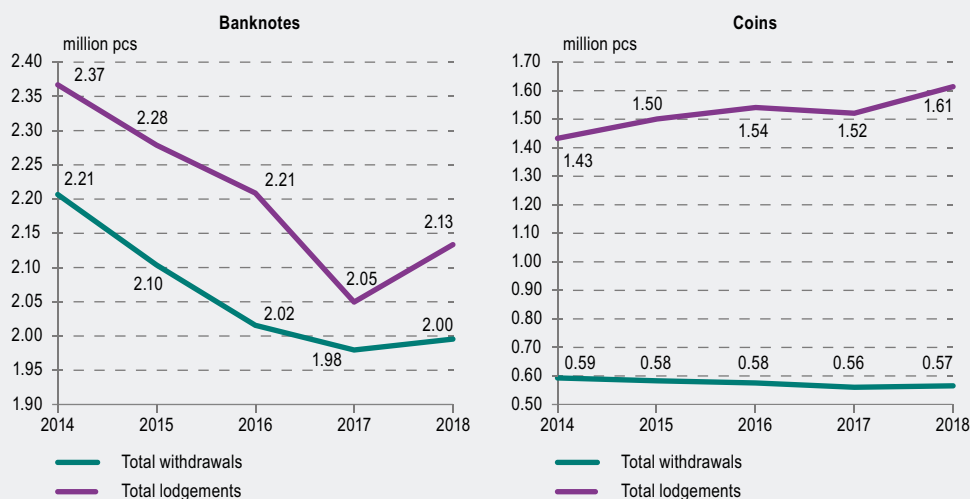
Note: for analytical purposes, source figures were rounded up to one decimal place.

Box B. Tendencies in supplying Polish currency to banks in 2014-2018

1. Withdrawal of banknotes and coins from NBP

Banknotes In 2014-2017, the volume of banknotes withdrawn from NBP gradually decreased year by year (Figure B1 and Table B1). In 2015, their number decreased by 3.7% compared to the previous year, in 2016 the decline amounted to 3.1%, and in 2017 to 7.2%. In 2018, the number of banknotes withdrawn from NBP increased by 4.1% compared to 2017. It should be noted that, although the volume of banknotes withdrawn increased significantly in 2018, it was still 3.4% lower than in 2016. This is, among others, associated with the fact that in 2017 the decline in the number of banknote withdrawals was almost twice as high as in previous years.

Coins. The volume of coins withdrawn from NBP in 2014-2016 gradually increased (Figure B1 and Table B1). In 2015, it increased by 4.7%, and in 2016 by 2.7%. On the other hand, in 2017, a decrease of 1.3% compared to the previous year was recorded. In 2018, the number of coins withdrawn from NBP increased by 6.0% compared to the previous year and by 4.7% compared to 2016.

Figure B1. Withdrawal and lodgement of banknotes and coins from/in NBP in 2014-2018


Source: study of NBP Cash and Issue Department.

Table B1. Withdrawals banknotes and coins from NBP in 2014-2018

Item		2014	2015	2016	2017	2018
Banknotes	volume	2,367,260,000	2,278,663,000	2,208,782,500	2,049,518,500	2,133,613,000
	change: year / previous year	x	-3,7%	-3,1%	-7,2%	4,1%
Coins	volume	1,432,784,500	1,500,368,000	1,541,346,500	1,521,794,500	1,613,644,500
	change: year / previous year	x	4,7%	2,7%	-1,3%	6,0%

Source: study of NBP Cash and Issue Department.

2. Lodging of banknotes and coins in NBP

Banknotes In 2014-2017, the volume of banknotes lodged in NBP gradually decreased year by year (Figure B1 and Table B2). In 2015, compared to the previous year, the number of banknotes decreased by 4.7% in 2016 by 4.2%, and in 2017 by 1.8%. In 2018, the number of banknotes lodged in NBP increased by 0.8%, but was still lower than the number of banknotes lodged in 2016 by about 1%.

Table B2. Lodging banknotes and coins in NBP in 2014-2018

Item		2014	2015	2016	2017	2018
Banknotes	volume	2,207,388,150	2,104,180,900	2,015,759,117	1,979,899,584	1,996,009,377
	change: year / previous year	x	-4,7%	-4,2%	-1,8%	0,8%
Coins	volume	591,404,948	582,916,037	575,967,355	559,062,118	565,864,753
	change: year / previous year	x	-1,4%	-1,2%	-2,9%	1,2%

Source: study of NBP Cash and Issue Department.

Coins. In 2014-2017, the volume of coins lodged in NBP also decreased (Chart B1 and Table B2). In 2015, compared to the previous year, the number of coins decreased by 1.4%, in 2016 by 1.2% and in 2017 – by 2.9%. In 2018, the volume of coins lodged in NBP increased slightly by 1.2%. Nevertheless, it was about 1.8% lower than the volume of coins lodged in 2016.

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