



PAYMENT SYSTEMS REPORT



2024

*‘Remember to set an example
in everything you do.’*

King Louis I. (‘The Great’)



PAYMENT SYSTEMS REPORT

2024

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Pursuant to Act CXXXIX of 2013 on the Magyar Nemzeti Bank, the primary objective of Hungary's central bank is to achieve and maintain price stability. As set forth in the Act on the Magyar Nemzeti Bank, one of the main responsibilities of the Magyar Nemzeti Bank (MNB) is to promote the smooth execution of payments and to facilitate the reliable, efficient functioning of the financial market infrastructures that support this. All of this is indispensable for the execution of real economy and financial transactions.

The purpose of this Report is to present a comprehensive review of trends in the field of payments and the operation of the overseen financial market infrastructures, the main risks and the measures taken by the MNB to fulfil the responsibilities above. In publishing this report, the MNB wishes to contribute to enhancing the transparency of its activities in relation to financial market infrastructures and the execution of payments, while also endeavouring to enhance financial literacy and thus raise awareness about payment-related issues.

The analyses in this Report were prepared by the Directorate Financial Infrastructures and Payments of the MNB, under the general direction of Executive Director Lajos Bartha. The Report was approved for publication by the Financial Stability Board at its meeting on 13 June 2024. Contributors to the Report include: Iván Ágoston, Beáta Csapó, Péter Császár, Vivien Deák, Dr. Mirtill Annamária Hevesi-Tóth, Attila Hodován, Csaba Horváth, László Kajdi, Adrián Kollár, Eszter Kozma, Márk Kullai, Miklós Luspay, Milán Mészárovcics, Ottó Nagy, István Nemecskó, Cecília Pintér, Dániel Rácz, Miklós Sallai, Gábor Szentpéteri, Ádám Szepesi, Kristóf Takács, Szilveszter Tordai, Zita Ubránkovics, Lóránt Varga.

The key messages of the study as well as the Report were discussed and valuable advice on the finalisation of the document was provided at the meetings of the Financial Stability Board on 13 May 2024 and 13 June 2024, and at the Monetary Council meeting on 4 June 2024.

The MNB staff relied primarily on information relevant to 2023, although looking forward the Report also analyses ongoing developments observed in the course of 2024.

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1 Introduction

The increased use of electronic payment services has many positive effects on economic activity. It reduces the social cost of transactions, improves the efficiency of real economy transactions, helps reduce tax evasion, boosts Hungary's competitiveness and allows new economic activities to emerge. The MNB is actively involved in the development of electronic payments. As a result of its efforts so far, electronic payment alternatives are now available in virtually all situations and the use of electronic payments has also grown significantly in recent years. In order to support the further development of electronic payments, the Payments Strategy for 2030 has identified the areas where further progress is needed. The MNB, in cooperation with the industry and its counterparts, will develop action plans to incentivise the use of electronic payments, remove obstacles to greater use and improve service users' understanding. The results of the measures set out in the plans will be monitored and regularly

evaluated through the Payments Development Indicator Set to be published in the Payments System Report from now on.

It is essential for the execution of real economy and financial transactions to ensure the reliable, secure and efficient functioning of financial infrastructures. To achieve this, the MNB oversees and supervises financial infrastructures, monitors the reliability and efficiency of the functioning of the systems, their availability, the liquidity management by its participants and the level of liquidity available in the systems, and verifies their functioning in compliance with the law. The MNB monitors payment service providers to maintain confidence in electronic payments and ensure that payment services are functioning in compliance with the law. This ensures that customers can always use electronic payment solutions as provided for by law and receive the necessary information about them.

2 Payment trends and the Payments Development Indicator Set

In 2023, the MNB published its new electronic payments strategy to set objectives to be achieved by 2030. Of the two objectives of the previous payments strategy, the infrastructure development objective was met by the early 2020s, as the electronic payment option is now available in the vast majority of payment situations. Significant progress has also been made in terms of its other objective, namely to incentivise use, with the share of electronic payment transactions in all payment transactions in the economy reaching 31% by 2021, up from around 10% in 2010. Based on these results, new objectives have been set to support an even wider use of electronic payment solutions.

Building on the immense wealth of payment data at its disposal, the MNB continuously measures and evaluates payment processes. The MNB regularly collects data from payment service providers on the use of electronic payment solutions, electronic payment infrastructures and payment costs incurred by customers as well as on financial infrastructures and their functioning. It also receives the NTCA's anonymised data from online cash registers and regularly conducts surveys with questionnaires to accurately map payment habits and better understand the factors that influence them. Accordingly, it now has a wealth of data consisting of over 35 billion records, expanding by around 5 billion records a year, affording detailed insight into all segments of electronic payments in Hungary and allowing in-depth assessment of processes.

The MNB aims to achieve that the share of electronic transactions by number is at least 60 percent in the economy as a whole by 2030 through broad, general incentives to use and reaches two-thirds if these are accompanied by targeted promotion of usage. Based on the results of the previous strategy, the focus in the next period should be on incentivising use and enhancing awareness of electronic payment services. Indeed, this is to enable customers to make an informed decision about the optimal payment method in each payment situation.

To identify areas for improvement and further action, the MNB has established the Payments Development Indicator Set. The 18 indicators cover all areas for

development for payments, with some indicators tracking the overall development of electronic payments and specific indicators tracking the user and supply sides. They also allow for the monitoring of the share and uptake of electronic transactions, the intensity of competition, the use of innovative services, the pricing of payment services, and the knowledge and attitudes of customers. Based on the developments and pathways forward identified by the indicator set, the MNB, in cooperation with stakeholders, will develop action plans covering a period of several years. The MNB continuously monitors the evolution of the values the Payments Development Indicator Set, assesses developments, proposes additional measures when necessary and publishes them on a regular basis in the Payments System Report in order to provide all payment market operators with relevant detailed information.

2.1 CURRENT VALUES OF THE PAYMENTS DEVELOPMENT INDICATOR SET

In 2023, the efficiency of payments in Hungary continued to improve, with the use of electronic payment solutions becoming more common in many areas and the user base expanding. Progress has been made in most of the areas tracked by the Payments Development Indicator Set over the past year. In addition to the growth in the share of the number of electronic transactions in the whole economy, electronic payments have become more common in retail and bill payments and the total value of transactions has increased at a greater pace than the GDP, also supporting the change in payment habits and a shift towards electronic payment solutions. Innovative payment solutions are becoming more widespread and more common, paving the way for continued growth in the share of electronic transactions in the coming years and to become more common in new payment situations.

Targeted measures are needed to promote further progress and some areas need to be prioritised in order to reach the 2030 objectives. The public's payments literacy is good when it comes to more commonly used services,

but needs further improvement for some innovative services, in particular payment pricing. The latter is also particularly important to enable the reduction of the costs of payments for the population as no progress has been made in this regard over the last year. In addition, electronic

wage payment should be promoted and obstacles to the emergence of new providers and new services should be identified and addressed so as to intensify competition in the payments market, resulting in better service quality and lower costs for customers.

Chart 1
Key findings on areas for improvement in payments in Hungary

The figures show that

progress has been made
in the following areas:

- The share of electronic transactions increased
 - in the economy as a whole
 - for low-value transactions
 - for bill payments
- faster pace of growth compared to the GDP, marking a significant shift towards electronic solutions
- further increase in the advantage of electronic payments for purchases compared to the EU average
- The share of users of electronic payment solutions increased
 - the account coverage for people aged 60 and over is higher
- The share of customers actively engaging in transactions has increased
 - the share of those preferring electronic payment is higher
- The uptake of innovative payment solutions continued
 - the share of customers using innovative services has increased
 - the use of innovative services has also grown
- The general public's literacy about main payment services is high
- On the merchant side, the uptake of electronic payment systems has improved
- The share of free credit transfers has increased somewhat

no progress has been made towards the
objectives set in the following areas:

- Market concentration has increased in terms of the number of transactions
- No significant change in the share of people with electronic income only
- Use of third-party service providers remains negligible
- Payment charges are still high
 - average cost level of households is high and cost differences are wide
 - costs for the smallest merchants have risen
- general public' payment literacy concerning pricing remains low

Table 1 Values of the Payments Development Indicator Set				
2021 value	2022 value	2023 value	2030 target	2023 change
Key indicators				
Share of electronic transactions by number				
31%	35%	38%	At least 60% of transactions with broad general incentives to use and at least two thirds of transactions through additional targeted measures	+3 percentage points
Concentration in the electronic payment services market				
2,026	2,152	2,223	Up to 2,000	+71
Annual additional growth of electronic payments compared to economic growth				
1.07	1.18	1.06	Over 1 each year	-0.12 *
Share of the value of electronic purchases				
41%	44%	47%	At least 62%	+3 percentage points
Use of electronic payment solutions on the end-user side				
Account penetration among people aged 60 and over				
71% (2020)	-	74%	At least 91%	+3 percentage points (compared to 2020)
Share of people with electronic income only				
75% (2020)	-	74%	At least 80%	-1 percentage point (compared to 2020)
Share of people actively engaging in electronic transactions				
39%	47% **	49%	At least 50%	+2 percentage points
Share of customers using third-party providers' (TPP) services				
0.4%	0.4%	0.4%	Steady rise	0 percentage points
Share of users of innovative payment solutions				
13%	18%	23%	At least 58%	+5 percentage points
Share of electronic payment transactions on the end-user side				
Adoption rate of innovative payment solutions				
9%	15%	19%	At least 54%	+4 percentage points
Share of free household credit transfer transactions				
36%	35%	37%	At least 80%	+2 percentage points
Share of electronic bill payments				
71%	73%	76%	At least 80%	+3 percentage points
The uptake of electronic payments in retail payments of the lowest amount				
2.4	2.2	2	Up to 1.4	-0.2
Financial awareness and attitudes towards electronic payment methods on the end-user side				
Share of people preferring electronic payment				
48% (2020)	-	58%	Steady rise	+10 percentage points (compared to 2020)
Awareness of electronic payments				
The values of continuously evolving sub-indicators are included in the publications monitoring the implementation of the strategy			Steady rise	
Reduction of the level of payment costs for the population				
The reference year is 2021 and indicator values for subsequent years are calculated in relation to this value	0%	0%	100%	0 percentage points
Development of payments on the supply side				
Acceptance costs paid by the smallest merchants as a share of turnover				
2.6%	2.7%	3.1%	Up to 1.5%	+0.4 percentage points
Electronic payments at accepting merchants				
20%	27%	34%	At least 40%	+7 percentage points
* In 2023, the additional growth rate declined compared to 2022, but the indicator remained above 1, with electronic payments growing at a greater pace than GDP, so the developments in this area can be considered positive.				
** Owing to the data available to the MNB, the methodology has slightly changed, allowing for more accurate per-customer data. Applying the previous methodology, the 2022 figure is 43%.				

The following chapters of the Payments System Report provide a detailed description of the indicators, their calculation methodology, changes in the value of the indicators and their assessment, and, where available, additional background information impacting the value of the indicator and pathways forward identified to achieve the target.

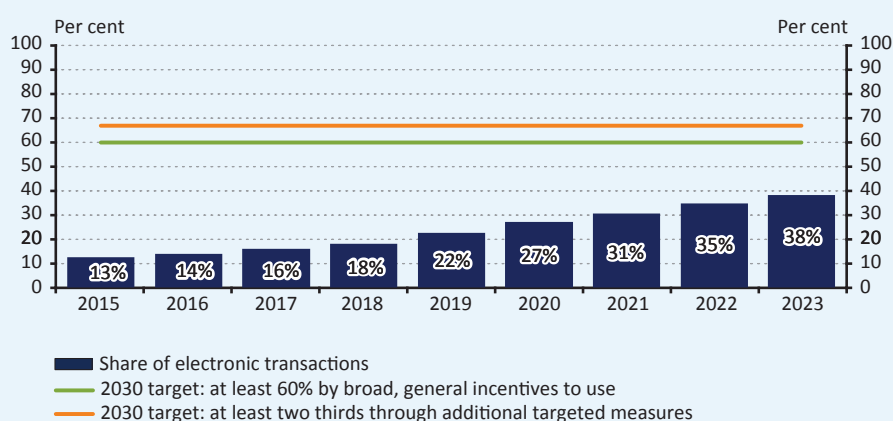
2.1.1 General indicators

The general indicators of the Indicator Set are used to monitor general, broad trends in electronic payments. In addition to the share of electronic transactions in the whole economy by number, this includes the comparison of payments and economic growth, the examination of the development of electronic payments in international comparison and the measurement of market concentration based on transaction numbers to monitor the intensity of competition.

2.1.1.1 Share of electronic transactions by number

This indicator shows how the share of electronic transactions in the economy as a whole evolves, helping to drive economic growth and reduce social costs and tax evasion. This key indicator represents the MNB's core strategic objective for payments of increasing the use of more socially efficient electronic payment methods.

Chart 2
Share of the number of electronic transactions as a percentage of total payments



Source: MNB estimate based on the NTCA online cash register database, regular reporting by banks and questionnaire survey

Indicator value 2021	Indicator value 2022	Indicator value 2023	Change in 2023	Target
31%	35%	38%	+3 percentage points	at least 60% / two-thirds

$$\text{Share of electronic transactions by number}^1 = \frac{\text{Number of electronic transactions}}{(\text{Number of cash} + \text{electronic transactions})}$$

¹ Electronic transactions: the total number of electronic payment transactions in the economy as a whole, i.e. purchases made at in-store and online points of sale (typically card purchases and credit transfers), electronic bill payments (here card payment and credit transfer options are possible, as well as direct debit or card payment of postal money orders) and electronic transactions within and between different sectors (households, businesses, government actors).

Cash transactions: the total number of cash payment transactions in the economy as a whole, i.e. purchases made at in-store and online points of sale, bill payments in cash (cash payment of postal money orders) and cash transactions within and between sectors (households, businesses, government actors).

Savings, investment and lending transactions are only included in payment transactions to the extent that the movement of money involves at least one payment account.

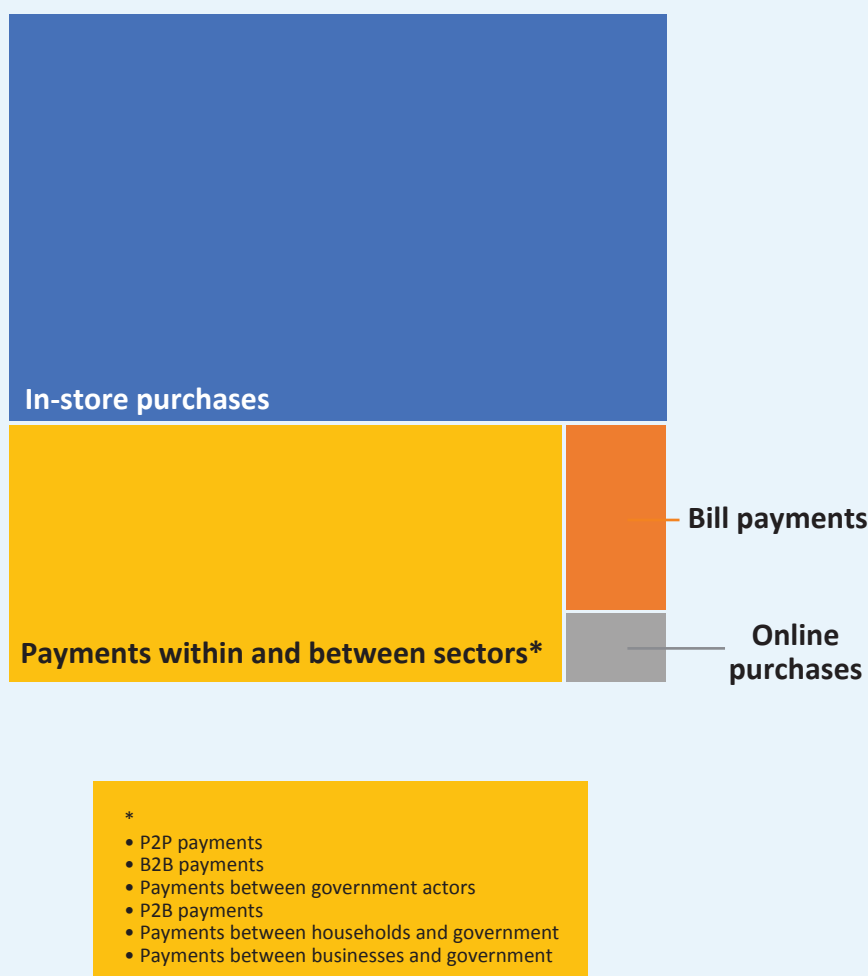
In 2023, the share of electronic payments increased by 3 percentage points in the economy as a whole, improving the efficiency of payments, the share of electronic transactions by number in the economy was 38%. The majority of transactions is made up of in-store purchases requiring personal presence, with bill payments, online payments and payments within and between different sectors representing a smaller share in comparison. Accordingly, the increase in the share of electronic payments in different payment situations has a different weight when it comes to the share electronic payments observed in the economy as a whole. All components of the indicator show an increase, with the share of electronic transactions growing by 5 percentage points to 39% for in-store purchases covered by online cash registers,

the sector with the highest weight, and by 3 percentage points to 76 percent for bill payments, the sector with the second highest weight. In addition, credit transfer turnover, commonly used for payments within and between different sectors have increased, and the use of electronic payment solutions in online commerce has also grown. As a result of the coronavirus pandemic, payment services took a huge step forward and the public has become more open to electronic payments; it is now clear that this was not a short-term change as some people have switched to electronic payments on a permanent basis.

In 2023, the gradual growth of the stocks of payment accounts and cards continued and the number of foreign currency accounts increased significantly. The number of

Chart 3

Transactions included in the calculation of the share of electronic transactions in the economy as a whole



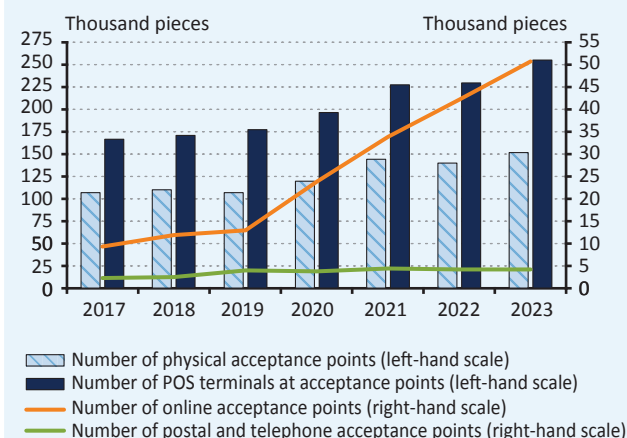
Note: The purpose of the chart is to visualise the approximate relative weight of transactions, in some cases it is based on estimates.

payment accounts held with domestic payment service providers in Hungary increased by 2.2% in a year, reaching almost 11 million, 84.3% of which are now accessible via online or mobile banking services. There was a significant growth of 5.6% in the number of foreign currency accounts; it should be noted that this figure does not include data from cross-border service providers providing services to customers in Hungary from abroad. Over the same period, the number of cards issued by domestic operators increased by 1.1%. The number of cards in active use increased at a greater rate, exceeding 7.1 million by the end of 2023 and thus reaching 71.2 percent of the total card stock. Since 2021, there has been a moderate shift from credit cards to debit cards. While the number of credit cards has decreased by 10.4% (130,000) since 2021, the number of debit cards has increased by 360,000.

In 2023, the card acceptance network expanded significantly, in particular the number of online acceptance points increased at a rapid pace. Throughout the year, the number of physical acceptance points operated by domestic service providers increased by 8.9%, while the number of POS terminals at these points rose by 11.4%, making the electronic payment option available in 150,000 stores on more than 250,000 terminals in total and in ever more widely even in sectors not subject to the obligation set out in the Trade Act. The number of online acceptance points increased at an even greater rate of 20.7 percent in a year, exceeding 50,000.

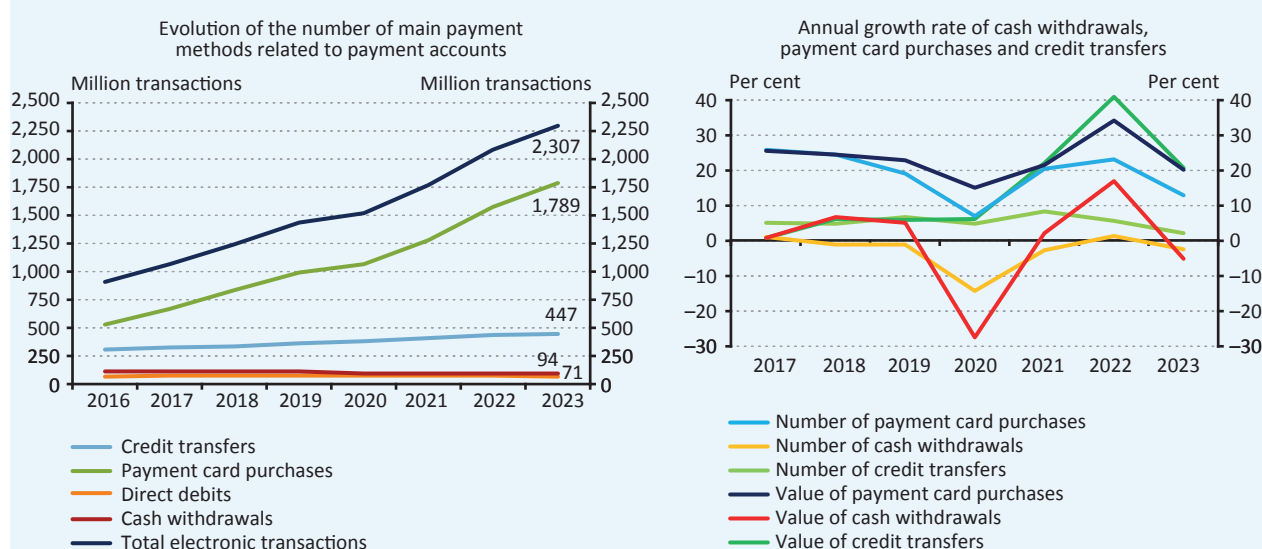
During 2023, a total of 2.3 billion electronic payment transactions were made, with the number of card payments rising by more than 200 million, one of the highest annual

Chart 4
Key figures of the card acceptance network



increases over the last ten years, while the total value of credit transfers increased by more than one-fifth. Throughout the year, the number of credit transfers rose by 2.3% and their value by 20.8%, which is above inflation. This includes a 7.9% increase in the number of instant transfers to over 200 million, with their total value up by 13.2% to HUF 50.9 trillion, partly owing to the increase in the instant transfer limit in September. Payment card turnover grew at a higher rate, presumably partly owing to the expansion of the acceptance network as described above. During 2023, over 200 million more payment card purchases were made with debit cards issued in Hungary than in 2022, one of the highest annual increases over the last ten years. Compared to the previous year, they show a 12.9% increase by number and a 20.4% increase by total value.

Chart 5
Evolution of the number of main payment transactions and the annual change of the turnover

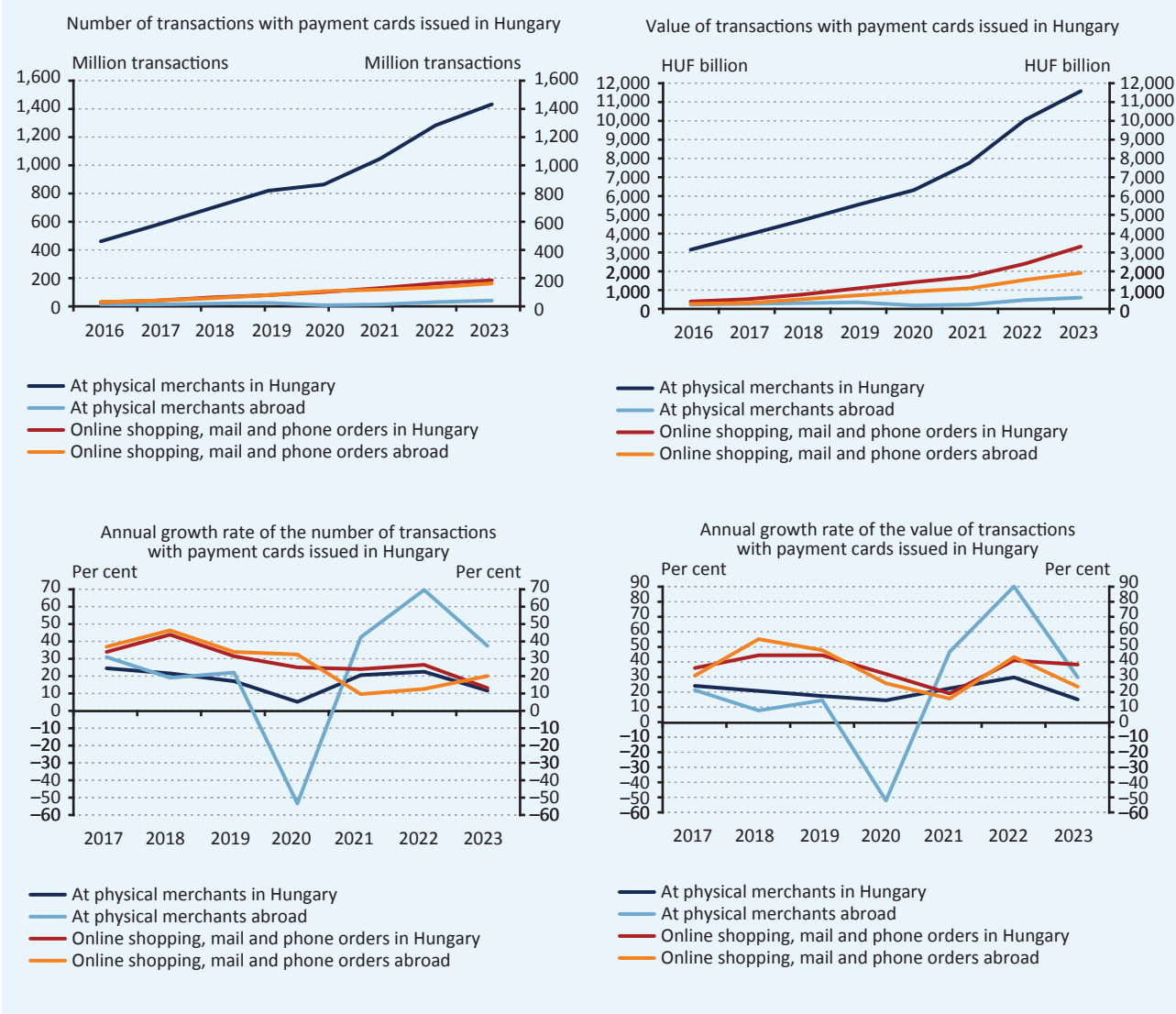


After a surge in the number of transactions due to the pandemic, the growth rate of card purchases has returned to its previous level; still, the total value of online card purchases exceeded HUF 5 trillion this year. Domestic physical card transactions continued to account for the vast majority of payment card transactions with 80.1% of the total number of transactions, but these transactions had the lowest growth rate with 11.7% by number and 15.2% by total value. In contrast, the number of physical card transactions abroad increased by more than a third in 2022, while their total value increased by 29.6%. In addition, online purchases are becoming increasingly popular, with the number of purchases rising by 16% and their value by 32.8%, totalling more than HUF 5.1 trillion.

Cash withdrawals accounted for just over a third of the total value of payment card transactions in 2023. This is now the fourth consecutive year that the value of card purchases exceeded that of cash withdrawals. Taking into account both cash withdrawal by card and in cash offices, cash withdrawals decreased by 2.3% by number and 5.1% by value in 2023, with 94 million cash withdrawals worth HUF 13.3 trillion being executed in total. Meanwhile, the total value of cash withdrawals as a share of payment card transactions declined by more than 5 percentage points in a year.

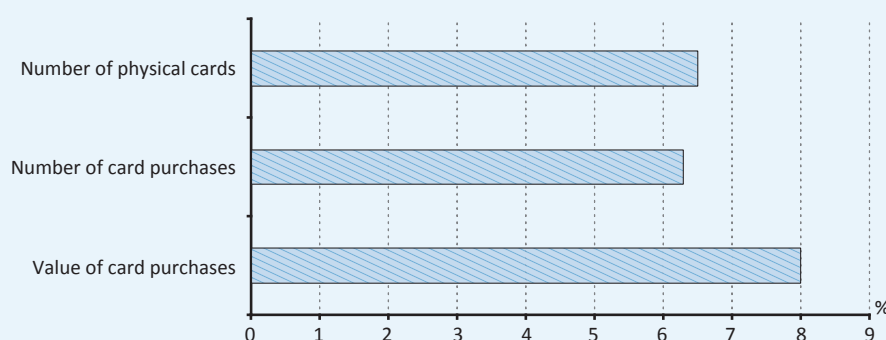
Chart 6

Turnover of payment card purchases and the annual change of the turnover by payment situations



Box 1**Cross-border payment service providers in Hungary**

As a result of the steady growth in recent years, cross-border institutions providing services to customers in Hungary have become significant operators in the Hungarian payments market. Based on MNB data, by the end of 2023, these service providers issued around 700,000 physical and 1.25 million virtual payment cards to Hungarian customers. However, despite the high number of cards, the active usage rate of virtual cards is significantly lower than that of cards issued by Hungarian providers. While customers used 76% of physical cards issued by cross-border providers for purchases in the last quarter of 2023 compared to 71% of those issued by Hungarian operators, the share for virtual cards issued by cross-border providers was only 35%. At this size, these cross-border providers have a combined customer base equivalent to that of a medium-sized Hungarian bank, which would make them the 5th largest bank in Hungary in total. While the size of such operators is already comparable to that of Hungary-based providers, there are significant differences in the way customers use their cards issued by Hungarian and cross-border providers. Accordingly, there is also a significant difference in the use of foreign-issued cards for mobile wallets. While only 23% of cards issued by providers in Hungary were registered in mobile wallets at the end of 2023, this share was 69% for cross-border providers. Different payment habits of customers using such providers, and the processes of registering for and using mobile wallets possibly being smoother with these providers than with some banks in Hungary may explain the difference.

Chart 7**Weight of cross-border service providers in payments in Hungary**

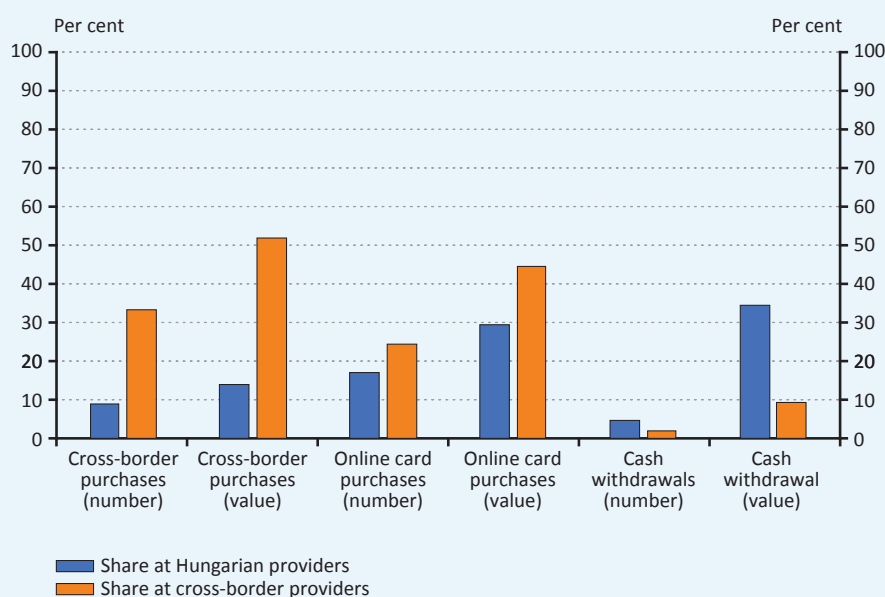
Cross-border operators have gained a large customer base within a short period of time by offering better pricing than banks in Hungary as well as innovative products, prompting operators in Hungary to compete and improve their services. Cross-border operators typically offer inexpensive or completely free services that are often used by customers and are not available from banks in Hungary, or only at a high cost. This includes bank account management and additional services such as favourable exchange rates, security-enhancing single-use virtual cards and an unlimited number of virtual cards, resulting in a high number of customers using these providers. However, such customers typically use them in addition to, rather than instead of, their traditional bank accounts. Even so, the presence and market penetration of cross-border operators indicates that customers are open to new banking solutions if they are less expensive and more convenient for them. Furthermore, competition from new operators is stimulating service development at banks in Hungary, with services that were only available from cross-border operators a few years ago, such as mobile wallet payments or foreign exchange at favourable rates, becoming increasingly prevalent at traditional banks.

Proportional to total purchase volume, cards issued by cross-border operators are used almost four times as often by customers abroad as cards issued by providers in Hungary. In 2023, customers made more than 125 million purchases amounting to around HUF 1 trillion in total with cards issued by cross-border providers, compared to the 1.85 billion transactions worth HUF 11.5 trillion made with cards issued by operators in Hungary, so nearly one-tenth of the turnover from card purchases made by Hungarian customers has already been generated with these cards. This means that, for cross-border operators the annual purchase turnover per physically issued card was HUF 1.43 million, corresponding to 77% of the comparable figure for providers in Hungary. Around 10% of transactions made with cards issued by Hungarian operators took place abroad during the year. By contrast, two-thirds of purchase transactions executed with cards issued by cross-border operators and roughly half of their value were realised abroad. It is likely that favourable exchange rates available with these operators play a significant role in this type of use, often resulting in Hungarian customers using them only in a cross-border context.

44% of the total value of purchases made with foreign-issued cards were online, compared to only 30% for cards issued in Hungary. While 17% of purchases made with cards issued in Hungary and 30% of their value were realised through remote acceptance channels, almost a quarter of purchases made with cards issued by cross-border operators and 44% of their value were realised via remote (typically online) payment. This may be explained by the availability of single-use virtual cards from these operators, allowing for the prevention of the fraudulent use of stolen card details, as well as by the difference in user base between the two types of service providers. As the services provided by cross-border operators are typically only available digitally, online or through mobile apps, their use indicates that a significant group of people are now consciously looking for cheap and convenient services from operators other than banks in Hungary.

While a third of the value of transactions with cards issued in Hungary in 2023 were cash withdrawals, this share was only 9% for cross-border operators. By number, cash withdrawals accounted for 5% of transactions made with cards issued in Hungary; this, however, accounted for a third of the total value of transactions. These different use habits are driven by the diverging business policies of operators. Cross-border providers typically do not offer free cash withdrawal of HUF 150,000, but rather apply a lower limits, which, however, are available for use in foreign currencies abroad. In order to adapt to this, it is assumed that their customers typically withdraw cash from their banks in Hungary and only use their accounts held with cross-border providers when abroad or for cash withdrawals above HUF 150,000 per month.

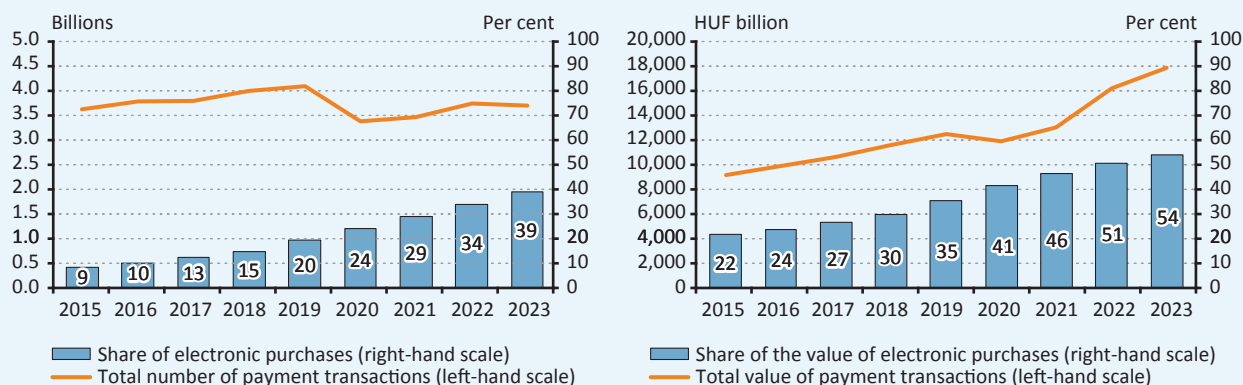
Chart 8
Use patterns of cards issued by cross-border providers



In 2023, the use of electronic payments increased at the same rate as before, by 5 percentage points, for in-store purchases covering most transactions, with customers choosing electronic payment solutions for 39% of purchases². With regard to the distribution of transactions across the economy as a whole, most transactions are in payment situations requiring physical presence, which can

be examined using online cash-register (OCR) data that track the transactional use of cash well. This shows that in this situation, the share of electronic transactions by number grew by 5 percentage points to 39%, while the share by value reached 54% with a 3 percentage point increase in 2023.

Chart 9
Number and value of transactions and the share of electronic transactions in the sector using online cash registers



Source: NTCA OCR database, MNB calculation

Year on year, the share of electronic transactions on a significant number of days exceeds the levels seen on most days of the previous year. The share of electronic transactions by number peaked at 47% on 10 December, while its lowest was 34% on 30 January. Presumably due to differences in the nature of stores, different opening hours and payment habits, the daily shares of electronic transactions for in-store purchases vary widely between different days, with a difference of up to 14 percentage points within a year, while the variation in the share of electronic transactions from day to day is steadily increasing.³ This substantial day-to-day difference is attributable to a number of factors, including, for

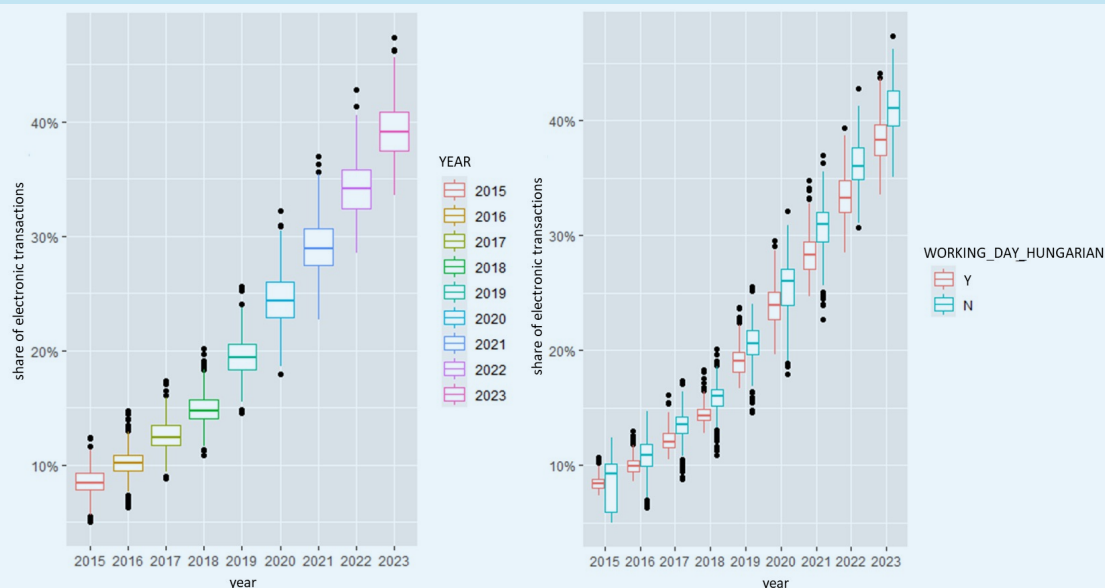
example, the higher share of electronic transactions on public holidays compared to working days. It is shown for each year that even the lower quartile of daily shares of electronic transactions for a given year is higher than the upper quartile for the previous year, with this gap widening in recent years. From 2020 onwards, each year also shows that the minimum observed for the share of electronic transactions by number per day in that year even exceeds the maximum observed three years ago. It is apparent that the use of electronic payments is growing at a great pace, with the year-on-year share of electronic transactions on a significant number of days exceeding the levels seen on most days of the previous year.

² This covers all electronic payment solutions, including bank cards, SZÉP Cards, electronic vouchers and instant payments.

³ More detailed information on the evolution over time of the share of electronic transactions by number as a percentage of in-store purchases is available at (in Hungarian) [deak-vivien-az-elektronikus-tranzakciok-aranya-es-annak-valtozasa-a-fizikai-valtozasoknal.pdf](https://mnb.hu/deak-vivien-az-elektronikus-tranzakciok-aranya-es-annak-valtozasa-a-fizikai-valtozasoknal.pdf) (mnb.hu)

Chart 10

Quartiles of the daily shares of electronic transactions at online cash registers and vending machines in each year and on working days and public holidays in each year



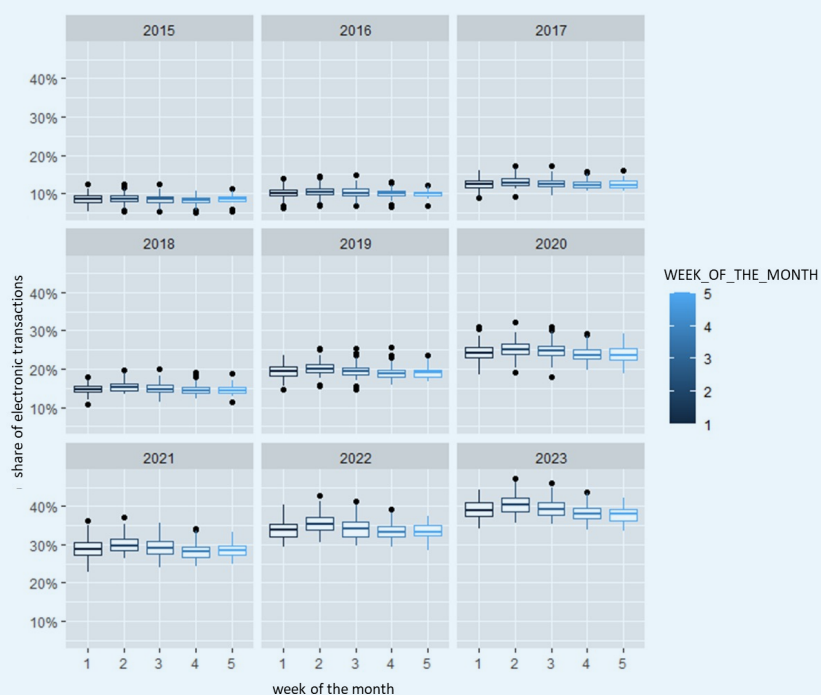
Source: NTCA OCR database, MNB calculation

Looking at the weeks of each month, particularly in the last few years, it is apparent that week 2 has the highest share of electronic transactions. While in 2015 and 2016, no significant differences were observed in the share of electronic transactions from week to week in each month, from 2017 onwards, there is a growing trend towards a higher

share of electronic transactions in week two of each month than in the rest of the month. The most plausible reason is that wages are mostly paid during the first week of each month for the majority of the population, and therefore this is when more people tend to do their major shopping, typically choosing electronic payment due to the transaction value.

Chart 11

Quartiles of the daily share of electronic transactions at online cash registers and vending machines by week in different months of each year



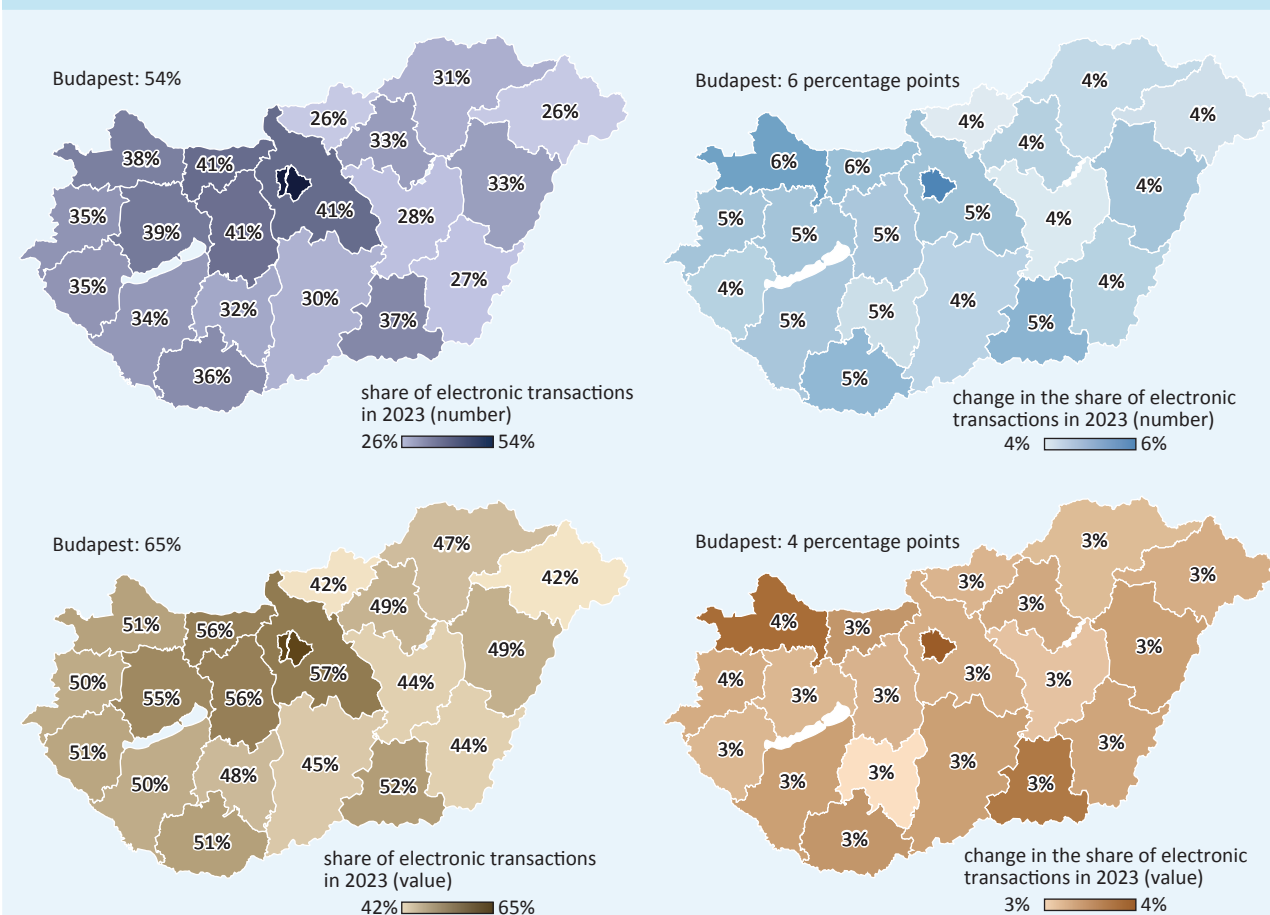
Source: NTCA OCR database, MNB calculation

There are still significant differences of up to 28 percentage points between the share of electronic transactions for in-store purchases between Budapest and individual counties.

The share of electronic transactions in each county and Budapest grew by 4–6 percentage points by number and 3–4 percentage points by value on an annual basis in 2023. There

was also a geographical disparity of 28 percentage points in the share of electronic transaction, similarly to the previous year. While 54% of purchases in Budapest involved electronic payment, this share was only 26% in Szabolcs-Szatmár-Bereg and Nógrád Counties. The share of electronic transactions by value ranged from 42% to 65% across Hungary.

Chart 12
Share of electronic transactions and evolution of the share in the sector using OCRs

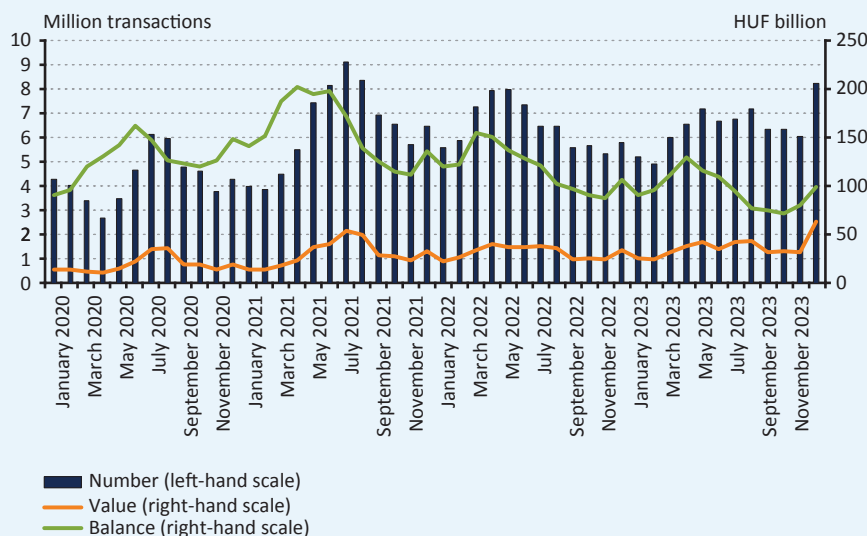


Source: NTCA OCR database, MNB calculation

The temporary possibility to shop in stores with SZÉP cards and the increase in various fringe benefits resulted in significant growth in the number of SZÉP Card payments, up by 40% by the end of 2023. From the third quarter of 2022 onwards, the number and value of SZÉP Card payments were consistently lower than in the same period of the previous year. Year on year, the steady decline only stopped in the third quarter of 2023 when the temporary reintroduction of SZÉP Card payments in stores led to a 10% and 20% increase in the number and value of purchases, respectively. In the fourth quarter, turnover continued to grow, with the number

of transactions up 20% and their value up 52% compared to the same quarter of the previous year. In view of these figures and similar temporary rule changes in 2022, it is apparent that both the number and value of transactions show significant growth owing to the use of SZÉP Cards for in-store purchases. Furthermore, it is presumed that the last month of availability of the in-store shopping option, the payment of one-off SZÉP Card benefits and the Christmas holidays resulted in a significant, 40%, increase in the number of transactions in December compared to the previous year and this was not accompanied by a decline in balances.

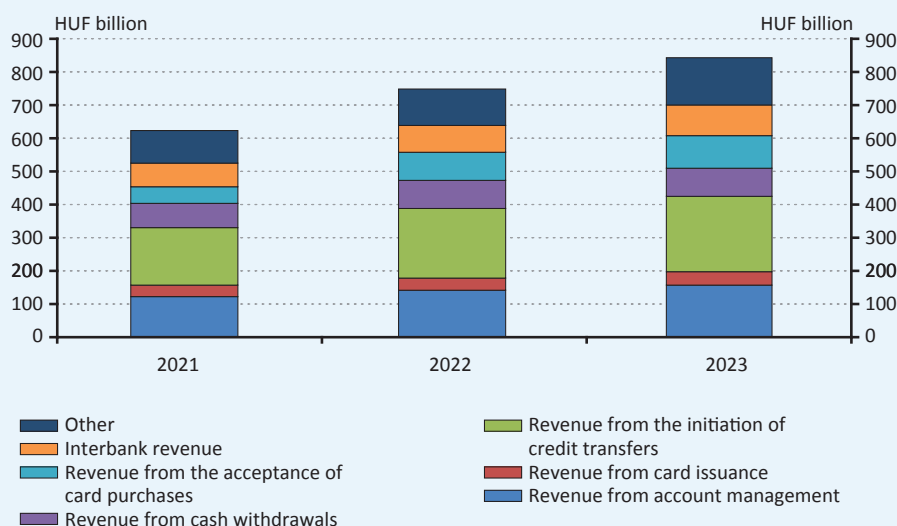
Chart 13
Evolution of SZÉP Card turnover and balances



In 2023, the payment revenues of payment service providers in Hungary grew significantly, by 12.5% compared to the previous year, reaching HUF 843 billion. Almost half of banking revenues are attributable to businesses, with households accounting for 30%, as discussed in further detail later in the report. The largest part of the revenue, 27%, continues to be generated from the initiation of

credit transfers; however, the most substantial increase was observed in card acceptance revenues, as detailed in Chapter 2.1.5.1, at 17.8%. There was no significant change in the distribution of revenue types compared to previous years, with 58.1% of the revenues coming from fees proportional to transaction values and 13.7% from fees proportional to transaction numbers.

Chart 14
Distribution of banking revenues by main revenue categories

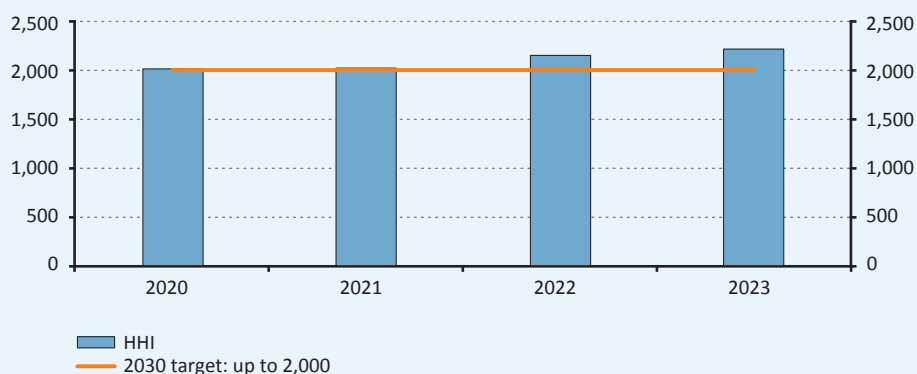


2.1.1.2 Concentration in the electronic payment services market

The MNB measures the share of market operators in the overall sector through transactions initiated by customers of payment service providers and uses it to determine the level of market concentration. The lower the value of the index, the less concentrated the market is; below 2,000, market concentration is considered to be medium or low. Intense competition for customers among payment service providers results in cheaper and higher-quality services being available to customers.

Chart 15

The value of the Herfindahl-Hirschman Index (HHI) in the electronic payment transactions market



Indicator value 2021	Indicator value 2022	Indicator value 2023	Change in 2023	Target
2,026	2,152	2,223	+71	up to 2,000
Herfindahl-Hirschman Index (HHI) as a percentage of electronic transactions initiated ⁴ = $s_1^2 + s_2^2 + \dots + s_n^2$				

While last year's bank merger reduced the number of market participants, increasing market concentration in terms of transaction numbers, it may reduce the gaps between the market shares of the largest payment service providers in the coming years, resulting in a lower concentration rate. In 2023, the value of the indicator increased by 3.3 percent to 2,223 in one year. Along the decreasing number of market participants, a lower market concentration rate may result from their market shares

getting closer to each other. This spring saw the launch of new services based on Instant Payment. As a result, new participants are expected to enter to the payments services' market in relation to these new services and the current providers expected to enter to new segments, both increasing the competition in the market and the number of transactions thus reducing concentration in the electronic payments market in the future and contributing to achieve the target value of the indicator.

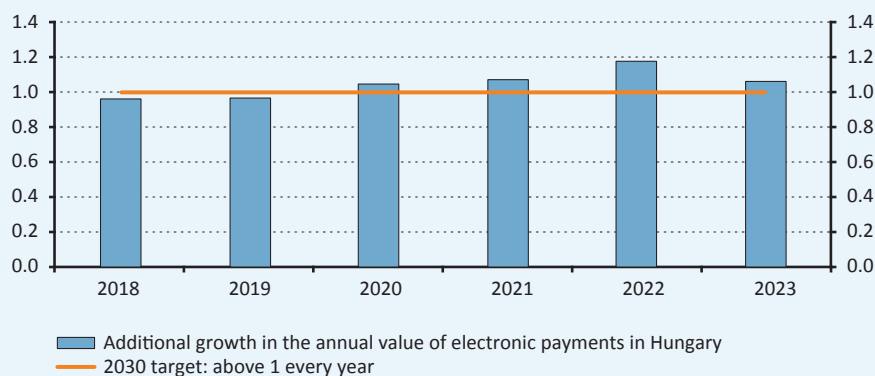
⁴ s : a payment service provider's market share of the total number of electronic transactions initiated. Electronic transactions included transactions initiated with cards issued in Hungary and, for credit transfers and direct debits, the debit side (data from the payer's side).
 n : number of operators in the payment service provider sector

2.1.1.3 Annual additional growth of electronic payments compared to economic growth

The change in the total value of electronic payments is affected by changes in payment habits, economic output and price levels. Economic growth or inflation causes the total value of electronic payments to increase even without any changes in the shares of cash and electronic payment methods by number. This indicator tracks the change resulting from changes in payment habits, with a value above 1 indicating the increased use of electronic payment solutions having an impact on the total value of electronic payments in addition to economic growth and inflation.

Chart 16

Annual additional growth of electronic payments compared to economic growth



Indicator value 2021	Indicator value 2022	Indicator value 2023	Change in 2023	Target
1.07	1.18	1.06	-0.12 ⁵	Over 1 each year
Annual additional growth of electronic payments compared to economic growth ⁶ =			$\frac{\text{Increase in the annual value of electronic payments}}{\text{Annual GDP growth}}$	

As in previous years, the use of electronic payment solutions further intensified in 2023, with the total value of electronic transactions growing at a higher rate than the change in economic output, so the indicator was above 1. Last year, the total value of electronic payment transactions was HUF 1,699,649 billion, up 20.8% compared to 2022. In addition, GDP at current prices rose by 13.7% and inflation

was 17.6%. The increase in the turnover of transfers and greater use of card purchases both contributed towards an indicator value above 1 in 2023. As a result, electronic payments have also become more widespread throughout the whole economy, contributing to the competitiveness of the economy.

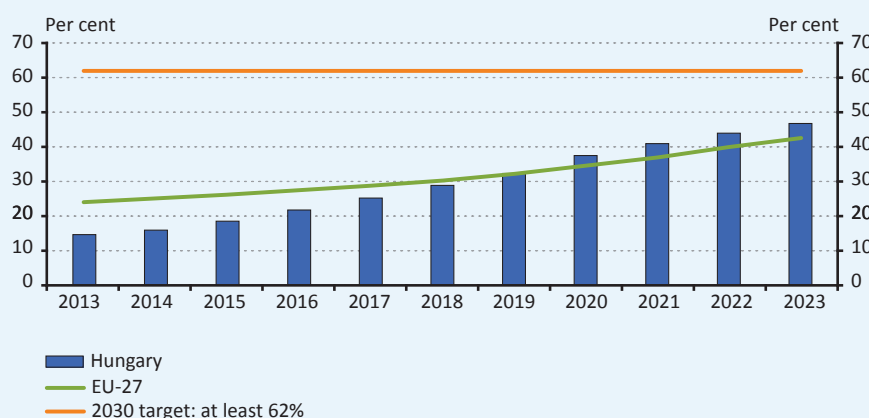
⁵ In 2023, the additional growth rate declined compared to 2022, but the indicator remained above 1, with electronic payments growing at a greater pace than GDP, so the developments in this area can be considered positive.

⁶ Electronic payment transactions include credit transfers (individual and batch, HUF and foreign currency, domestic and cross-border), direct debit and transactions with payment cards issued in Hungary. The percentage change in their annual total is divided by the annual percentage change in the GDP.

2.1.1.4 Share of the value of electronic purchases

This indicator is used to determine the annual share of electronic purchases in total household consumption and also comparable with international figures. A higher value indicates greater use of electronic payment methods among consumers, i.e. an increasing share of purchases being made without the use of cash, thus reflecting the evolution of the Hungarian electronic payments market.

Chart 17
Share of the value of purchases



Note: EU-27 figures for 2023 are estimates based on first half of 2023.

Indicator value 2021	Indicator value 2022	Indicator value 2023	Change in 2023	Target
41%	44%	47%	+3 percentage points	at least 62%

$$\text{Share of the value of electronic purchases}^7 = \frac{\text{Total annual value of electronic purchases}}{\text{Annual household consumption}}$$

In 2023, the share of electronic payments continued to grow in comparison to household consumption, with the domestic share now exceeding the EU average by 5 percentage points. As in the year before, in 2023, the share of the value of electronic purchases in Hungary increased by more than 3 percentage points, but still lags behind the V4 and Nordic averages. In recent years, growth was supported mainly by the further development of the card payment infrastructure and a significant increase in the value of card purchases, including, in particular, a high growth rate for the number of mobile purchases. In addition, the number and value of transfers is growing steadily, with the launch of the instant payment system in 2020 presumably playing a role. In the future, the uptake of services based on Instant

Payment should also contribute to maintaining or even increasing the growth rate, enabling the strategic objective to be met by 2030.

2.1.2 Use of electronic payment solutions on the end-user side

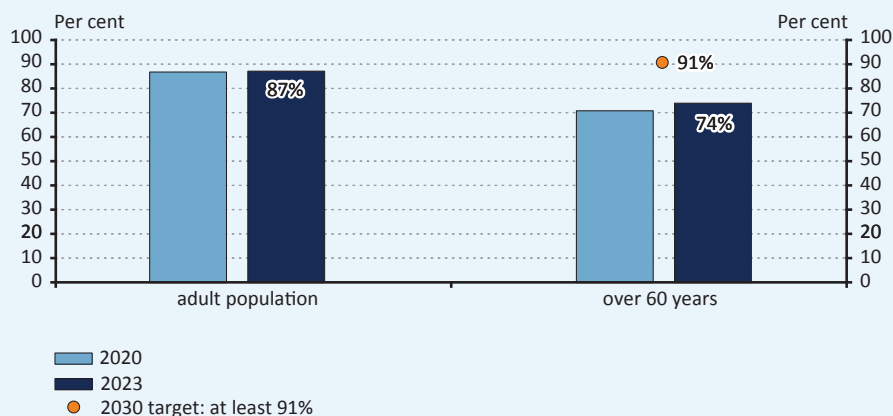
In order to be able to support the increase in the share of electronic transactions with targeted measures, it is necessary to continuously monitor the evolution of the share of users of electronic transactions on the end-user side in areas where gaps were identified when the strategic objectives were set.

⁷ Electronic purchases: Currently, the indicator's numerator includes card payments as the most commonly used alternative to cash among electronic payment methods. In the future, for example with expansion of the instant payment acceptance network, figures for other electronic payment methods may also be included in the data used to calculate the indicator. The denominator represents annual household consumption.

2.1.2.1 Account penetration among people aged 60 and over

In order to be able to use electronic payment methods, is essential to have access to these solutions, which is best measured in terms of account holders. As coverage is close to 100% among people under 60 and only differs among those aged 60 and over, this indicator focuses on the latter age group.

Chart 18
Share of people aged 60 and over with access to a bank account



Indicator value 2020	Indicator value 2022	Indicator value 2023	Change in 2023	Target
71%	-	74%	+3 percentage points (compared to 2020)	at least 91%
Account penetration among people aged 60 and over ⁸ = $\frac{\text{Number of residents aged 60 and over with an account}}{\text{number of residence aged 60 and over}}$				

In 2023, three-quarters of people aged 60 and over had their own bank accounts, still significantly below target, representing a mere 3 percentage-point increase since 2020. 87% of the adult population have their own bank accounts, which did not change in recent years; consequently, the increase in the number of accounts suggests that people who already had bank accounts opened more of it. The share of account holders among those under 60 remains above 90%. In 2020, 71% of those in the highest age group of 60 and over had bank accounts; their share rose by 3 percentage points by 2023. This growth rate over 3 years is considered low, with growth presumably coming from a relatively higher account coverage among those who retired between the periods in question and no additional growth identifiable.

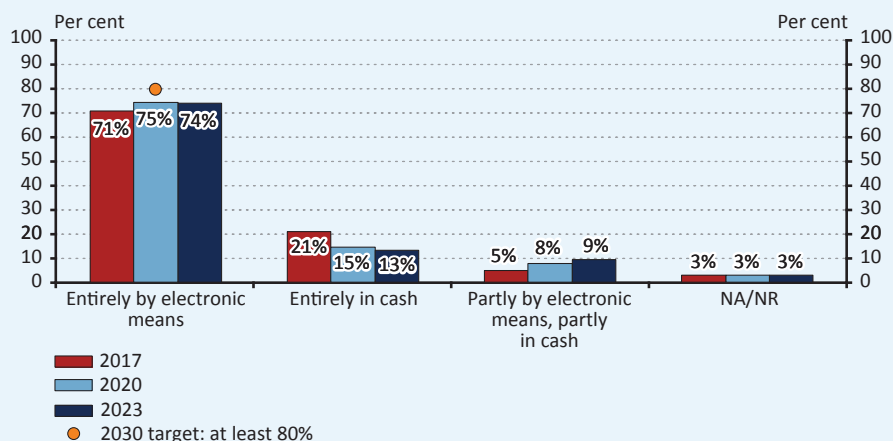
For the economy as a whole, it is beneficial to have shares of account holders exceeding 90% in all age groups, so increasing coverage and raising awareness of bank account use should be promoted among those aged 60 and over. Support for older age groups can be facilitated by producing and distributing information resources specifically for these group, raising their awareness to the availability of and encouraging them to use pension accounts that are more favourable to them. The main objective is to ensure that it is worth for at least newly retired people who previously had bank accounts and used them, for example, to receive their wages, to keep their accounts after retirement. If this group received their pensions in their accounts, it could already be ensured that the value of the indicator will continue to increase. In addition, at least educating them about the use at least the basic functionalities can help them overcome fear and uncertainty and even assigning specific tools and helpers can make this process more effective.

⁸ This indicator is calculated by the MNB on the basis of a household questionnaire survey; therefore, unlike the other indicators, it also includes accounts held with cross-border service providers.

2.1.2.2 Share of people with electronic income only

Electronic income can help encourage the use of electronic payments, while the presence of cash income can hinder this, even if it is present at less than 100%. Therefore, the share of people with electronic income should be considered and targeted measures should be developed to reduce cash income.

Chart 19
Form of regular income



Note: there has been a change in the methodology since the previous survey: in past questionnaires, respondents had to choose one of the four options above, while in the latest survey, multiple categories were available to answer the question of what percentage of their income they receive in cash and, for comparability with previous surveys, these categories were aggregated into the four categories shown in the Chart.

Indicator value 2020	Indicator value 2022	Indicator value 2023	Change in 2023	Target
75%	-	74%	-1 percentage point (compared to 2020)	at least 80%
Share of people with electronic income only = $\frac{\text{Number of adult residents receiving the full amount of their income electronically}}{\text{Number of adult residents}}$				

There have been no significant changes in electronic wage payments in recent years, with three-quarters of adult residents having only electronic income in 2023, similar to the share three years ago. In addition, those with cash-only income represent 13%, while 9% have mixed income and the remainder either have no income or did not respond. The trend so far has indicated an increase in electronic income, but economic developments in recent

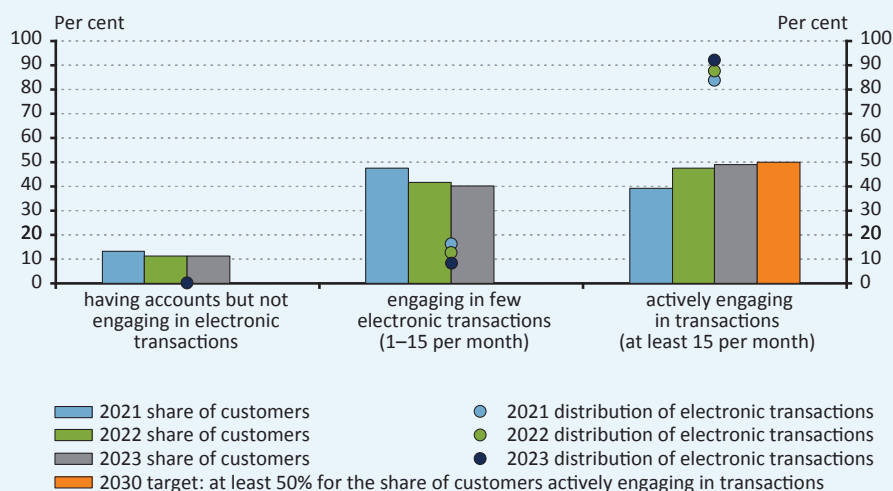
years and employment growth may have affected the form of income in different ways, with the share of people with electronic income standing at 74% in 2023. In the future, it should be considered what types of targeted measures can be taken to stimulate growth in the share of those with electronic income, as the more people receive their income in this way, the higher the share of those who actively using electronic payment solutions could be.

2.1.2.3 Share of people actively engaging in electronic transactions

This indicator is used by the MNB to measure the share of the population with bank accounts who use electronic payment solutions actively, at least 15 times a month, i.e. the share of the population for whom electronic payments have become an everyday solution. A growing share of those actively engaged in electronic transactions could contribute to an increase in the share of electronic transactions, as resulting in an increasingly broader base of people initiating electronic transactions.

Chart 20

Distribution of the share of household customers and electronic transactions among groups based on the use of electronic payments



Note: From 2022 onwards, instead of aggregating account holders' transactions at the bank level, transactions are aggregated per customer at the sector level; this change in methodology led to a significant increase in the share of customers actively engaging in electronic transactions compared to 2021. Under the previous methodology, the 2022 figure would have been 43%.

Indicator value 2021	Indicator value 2022	Indicator value 2023	Change in 2023	Target
39%	47% ⁹	49%	+2 percentage points	at least 50%
Share of people actively using electronic payments ¹⁰ = $\frac{\text{Number of household customers making at least 15 electronic transactions a month}}{\text{Number of household customers}}$				

In 2023, 49% of people with accounts were actively engaged in electronic transactions, representing a further expansion of the customer base regularly using electronic payments in their everyday lives. In contrast, 40% of account holders make less than 15 electronic transactions a month, while 11% make no electronic transactions at all. The Share of customers actively engaged in electronic transactions increased in both 2022 and 2023, with contributing factors being that electronic payments are now available in most payment situations and electronic payment solutions are becoming faster and more convenient. This has been supported, for example, by the uptake of mobile wallet payments, instant payments and the emergence of payment solutions based on them.

This growth is mainly due electronic payment becoming increasingly common among customers who were previously less actively engaged in electronic transactions. Although the current level is close to the strategic target, promoting the use of electronic payment methods remains important as the share of those who do not pay electronically at all is still high, declining from 13% to just 11% in 2 years. On this basis, additional measures may be needed to further reduce the share of those who never only rarely pay electronically, including low-cost account packages that support the use of electronic payments and the further uptake of fast and user-friendly payment methods that are free of charge or with involve no transaction fees.

⁹ Owing to the data available to the MNB, the methodology has slightly changed, allowing for more accurate per-customer data. Applying the previous methodology, the 2022 figure is 43%.

¹⁰ The indicator considers payment transactions made using payment accounts (transfers, direct debits, standing orders, foreign currency transfers) and the associated debit cards (in Hungary and cross-border).

To increase the share of customers actively engaged in transactions, additional targeted measures are needed in terms of pricing, customer awareness and promotion of use.

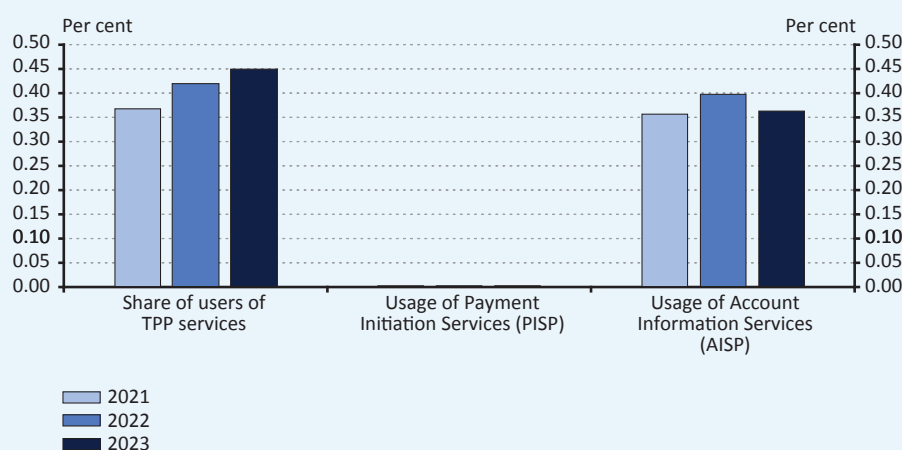
It is important that the more common use of electronic payment solutions does not increase costs for customers, so their pricing should be set in a way to avoid costs directly associated with transactions. Furthermore, customer groups engaged in fewer electronic transactions should

be addressed with targeted awareness-raising campaigns designed to provide them with more information to be able to make an informed choice between electronic and cash payments. In addition, in certain payment situations, the use of electronic payments should be directly incentivised either by offering discounts or by targeted awareness-raising. Moreover, it is crucial that electronic payments are fast, convenient, user-friendly and secure.

2.1.2.4 Share of customers using third-party providers' (TPPs) services

The MNB uses the indicator to examine the number of accounts with which payment initiation (PISP) or account information (AISP) services are registered or from which transfers are initiated through PISPs or information is retrieved through AISPs in comparison to the total number of payment accounts. The emergence of third-party providers can increase the competition in the market and raise customers' awareness when it comes to making financial decisions, including the choice of account package fitting best their payment habits. TPPs' activity may contribute to the development of electronic payments by making users able to manage their finances easier and more convenient and retrieve the information needed to make appropriate financial decisions.

Chart 21
Share of customers using third-party providers' services



Indicator value 2021	Indicator value 2022	Indicator value 2023	Change in 2023	Target
0.4%	0.4%	0.4%	0 percentage points	Steady rise

The MNB assesses the share of customers using third-party providers' services based on a set of three components and takes the highest of the sub-indicators into account to determine the value of the indicator:

$$\text{Share of users of TPP services} = \frac{\text{Number of accounts registered with PISP or AISP services}}{\text{Total number of payment accounts}}$$

$$\text{Usage of Payment Initiation Services (PISP)} = \frac{\text{Number of accounts from which transfers are initiated through PISPs}}{\text{Total number of payment accounts}}$$

$$\text{Usage of Account Information Services (AISP)} = \frac{\text{Number of accounts from which information is retrieved through AISPs}}{\text{Total number of payment accounts}}$$

The share of users of third-party providers' (TPP) services remains negligible, despite a moderate increase in 2023.

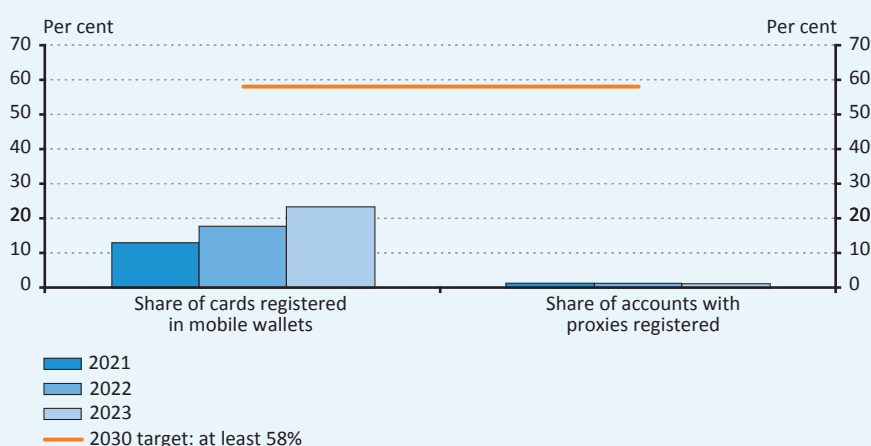
In the period ahead, the discussions initiated by the MNB should continue to ensure the operability of payment service providers' APIs which are essential for TPP services relying on banking services. Last year, the share of users of TPP services did not increase substantially from the 0.4% in 2022. The value of the indicator remains low, with a very limited number of customers using these services. The wider spread of third-party services is hampered by the lack of interest from credit institutions, which do not support the process any more than necessary and as shown

by the MNB's experience with payment inspections, also hinder the operation of new types of service providers by failing to operate in compliance with the legislation. In 2023, the number of payment initiation or account information services registered with accounts increased by 9.7% compared to the previous year, but the adoption rate of these services was lower than in the previous year. In recent years, the MNB has initiated consultations with representatives of the banking and TPP sectors and promoted the active information sharing among them to make these services operational and these actions should also be continued in the future.

2.1.2.5 Share of users of innovative payment solutions

The MNB uses this indicator to monitor the share of customers using innovative payment services. It looks at two areas in particular: card-based mobile payment services and secondary account identifiers linked to instant payments. The use of these services can simplify electronic payments in many payment situations, thereby broadening the base of people regularly paying electronically and contributing to an increased share of electronic transactions.

Chart 22
Share of users of innovative payment solutions



Indicator value 2021	Indicator value 2022	Indicator value 2023	Change in 2023	Target
13%	18%	23%	+5 percentage points	at least 58%

Composite indicator of the following components¹¹:

$$\text{Share of cards registered in mobile wallets} = \frac{\text{Number of cards registered in mobile wallets}}{\text{Total number of payment cards}}$$

$$\text{Share of accounts with secondary account identifiers registered} = \frac{\text{Number of accounts with secondary account identifiers registered}}{\text{Total number of payment accounts}}$$

¹¹ The higher of the two sub-indicators is taken into account for determining the value of the indicator as it is assumed that there is a significant overlap between users of the two types of services. In the coming years, a broader range of sub-indicators may be considered as innovative payment services evolve.

In 2023, the share of customers using innovative payment solutions increased significantly, by 5 percentage points to 23%, as a result of the rapid uptake of mobile wallet services. Card-based mobile wallet services are now available from all major banks and can typically be used after online registration. Two types of mobile payment services are common at Hungarian banks: one is where the bank's own application is used for card-based mobile payments and the other is where the bank enters into an agreement with an independent service provider, typically a large technology company (e.g. Google, Apple) to use its mobile wallet. The share of customers using proxies remains low, but instant payment services that could make broader use of such proxies are currently still being developed and their emergence could increase the number of users of this service.

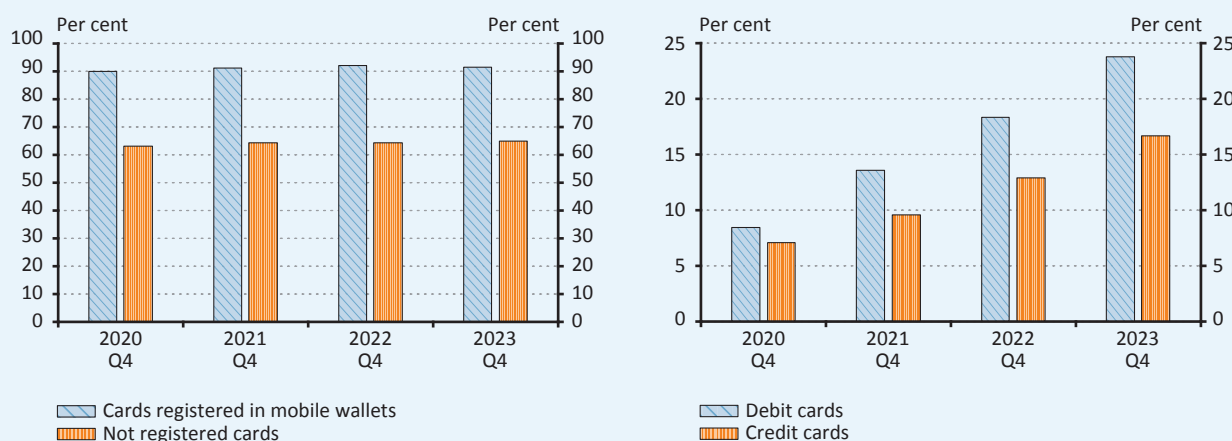
There are also significant differences among banks in the share of cards registered in mobile wallets and the pace of uptake. While for some institutions this percentage is less than 10%, there are banks where the majority of cards are already registered in mobile wallets. In every quarter over the last four years, there were institutions where the share increased by less than 5 percentage points, while the highest annual growth rate often exceeded 15 percentage points so the volume of mobile wallets rose at a rapid pace. These differences over time and among banks can

be explained by differences in the banks' customer bases and business activities, for example, in the later case, whether they explicitly encourage their customers to use new services or simply make them available.

Cards registered in mobile wallets are used for purchases at a significantly higher rate than physical cards. Looking at all cards, the share of cards used at least once in a quarter for purchasing was 71% in the last quarter of 2023, corresponding to 7.2 million cards. In particular, the share of cards used for purchases was 92% for mobile payment cards and 65% for the rest. These shares have not changed significantly over the last four years. There are also major differences in the share of cards registered for mobile payments by card type, with a 24% registration rate for debit cards and 17% for credit cards. In the first part of the period after 2020, there were no significant differences in the growth rate of cards registered in mobile wallets between the two card types, while in the second half of the period, debit card registrations grew at a greater pace. However, this difference may be related to the share of cards used for purchases for the two card types, which was significantly higher, by 20 percentage points, for debit cards at the end of 2023. For both card types, when only looking at cards used for purchases, there is no longer any substantial difference in either the share of mobile wallet registration or the pace of uptake.

Chart 23

Share of cards used for purchases by mobile wallet registration (left chart) and share of cards registered in mobile wallets by card type (right chart)



An increase in the number of secondary account identifiers registered for accounts would support account switching and thus boost competition in account management services, helping to reduce payment costs for customers. If customers provided their partners sending them

money with their secondary account identifiers, which can be used independently of the banks, instead of their account numbers tied to their account-servicing banks, they would not need to notify their partners of their new account numbers when they switch banks. In the context

of promoting new payment solutions based on instant payments, it is therefore appropriate to inform customers about the possibilities of using secondary account identifiers. It is also appropriate to raise awareness of mobile wallet payments among a broader customer base as this could contribute to an increase in the share of electronic transactions.

2.1.3 Share of electronic payment transactions on the end-user side

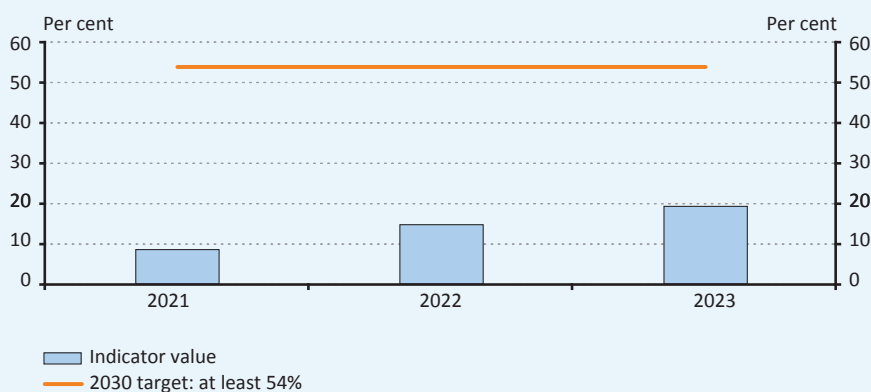
In order to design targeted measures needed for the development of electronic payments, the uptake of services should also be considered to monitor the evolution of their use in areas for improvement with such indicators.

2.1.3.1 Adoption rate of innovative payment solutions

In addition to the number of customers using innovative payment solutions, it is also important to monitor how regularly they use these solutions. The growing share of transactions initiated with such solutions in electronic payments in Hungary as a whole indicates their uptake and adoption. Such solutions include mobile payments, the use of payment initiation service providers' services, instant payments submitted to beneficiaries using secondary account identifiers or for received payment requests or instant payments initiated by QR code, Near Field Communication (NFC) or deep link. They provide additional value to customers, making electronic payments simpler, faster and, last but not least, more convenient.

Chart 24

Adoption rate of innovative payment solutions as a percentage of all card purchases and instant payments



Indicator value 2021	Indicator value 2022	Indicator value 2023	Change in 2023	Target
9%	15%	19%	+4 percentage points	at least 54%

Composite indicator of the following components:

$$\text{Share of mobile payment transactions as a percentage of electronic payment transactions} = \frac{\text{Number of card-based mobile wallet transactions, and instant payments initiated by QR code, Near Field Communication (NFC) or deep link}}{\text{Total number of card and instant payment transactions}}$$

$$\text{Use of payment request services} = \frac{\text{Number of credit transfers upon payment requests}}{\text{Total number of instant payments initiated through online banking, mobile banking or TPP (PISP)}}$$

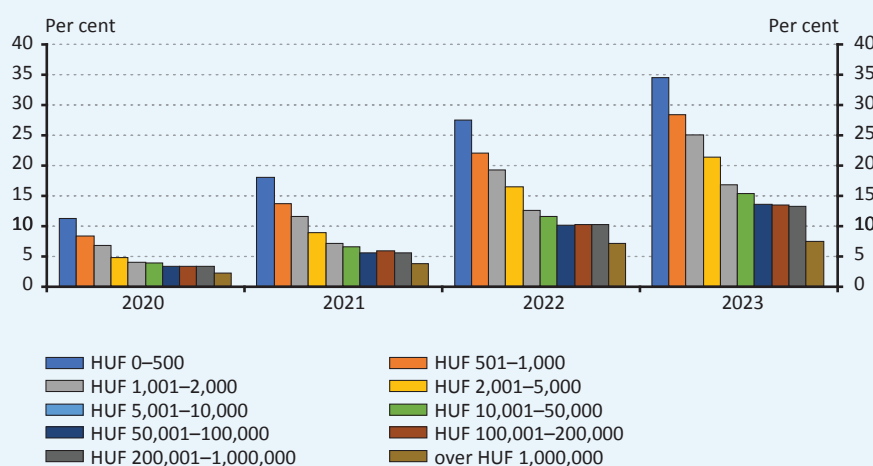
$$\text{Use of secondary account identifier services} = \frac{\text{Number of credit transfers to secondary account identifiers not executed upon payment requests}}{\text{Total number of instant payment transactions initiated through online banking, mobile banking or TPP (PISP)}}$$

$$\text{Indicator value} = \frac{\text{All innovative card and instant payment transactions}}{\text{All card purchase and instant payment transactions}}$$

The share of innovative payment solutions as a percentage of all transactions continued to rise in 2023, reaching 19%, with the largest share coming from card-based mobile wallet transactions. The increase in the indicator also suggests that innovative payment solutions are increasingly adopted in the society and are no longer used only by a narrow group of people who are more likely to adopt innovations. This is reflected in the considerable growth in both the number and share of mobile card payments over all card payments. As these services make payments easier in many cases for both in-store and online purchases, they can increase the number of people and the frequency of paying electronically, even for low-value transactions where cash is currently more common.

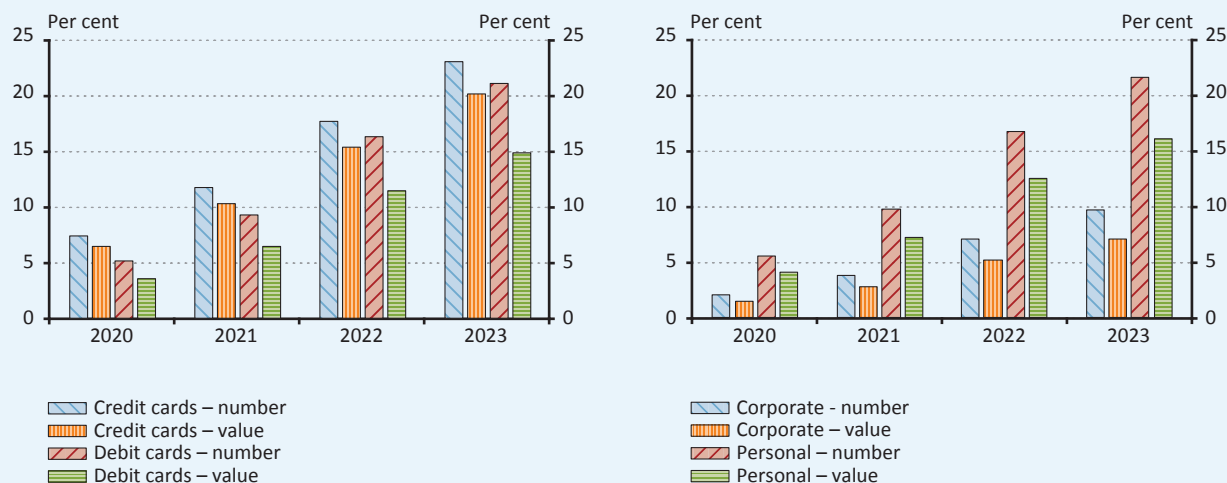
In 2023, the number of mobile wallet transactions exceeded 386 million, accounting for 21.6% of all payment card purchases, while their total value was HUF 2.7 billion, or 15.6 percent of total payment card purchase turnover. As can be seen from the difference between these shares, the use of mobile wallets is particularly popular for low-value transactions. In 2023, the share of such transactions in the HUF 0–500 range was 34.5%, up by 7 percentage points in a year. However, the continued uptake of mobile wallet use is apparent not only for small value transactions, with 7.4% of transactions over HUF 1 million being made with mobile wallets.

Chart 25
Mobile wallet adoption rates by value ranges



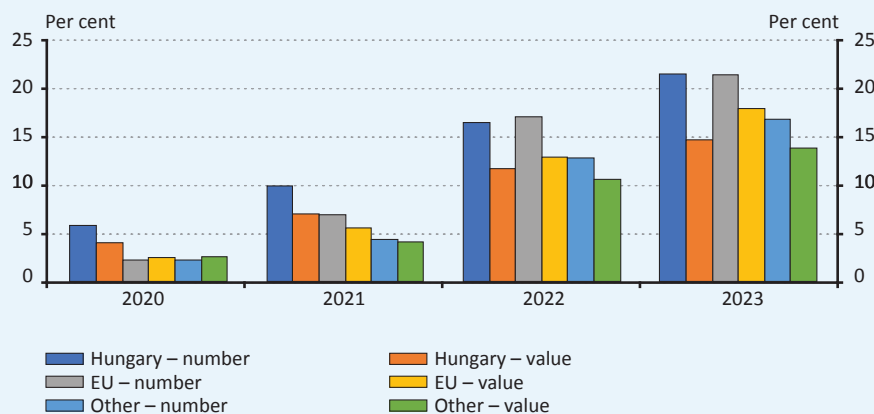
Significant differences are seen in mobile wallet use by card type, with a higher share of customers using personal and credit cards for such transactions. While only 21.2% of debit card transactions were made using mobile wallets, this share was 23.2% for credit cards. There is an even greater difference in the value of transactions. While 14.9% of the total value of debit card purchases involved mobile wallet transactions, this share was 20.2% for credit cards.

There is an even wider gap between the use of personal and corporate cards. For personal cards, the number and value of transactions made with mobile wallets were 21.6% and 16.1%, respectively, while for corporate cards, the shares were 9.7% and 7.1%, respectively. These differences are related to both different customer bases and use habits associated with different types of cards.

Chart 26**Share of mobile wallet transactions within card payments by card types**

In Hungary and in the EU, mobile wallet payments were almost equally common among customers of domestic service providers in Hungary. In comparison to the 21.5% share for card purchases in Hungary, the share of mobile wallet transactions by number was 21.4% in EU countries, compared to 16.8% in non-EU countries. In terms of value,

this share is even higher in EU countries than in Hungary, with 17.9% of purchases in the EU being made with mobile wallets, compared to 13.9% in non-EU countries and 14.7% in Hungary. This difference may also be attributed to the different profile of purchases made in EU countries.

Chart 27**Share of mobile wallet transactions within card payments by place of purchase**

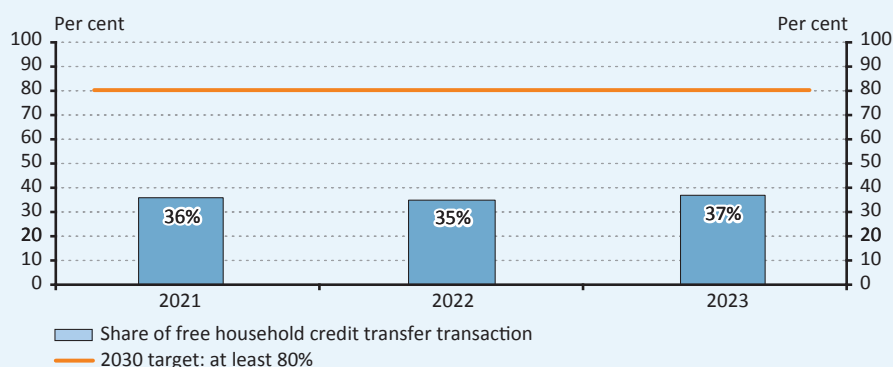
To promote the uptake of innovative payment solutions and thereby contribute to the achievement of the relevant target, targeted incentive measures should be implemented even with the current rapid growth rate. The use of mobile wallets enables easy and fast payment in many situations and the figures above clearly show that more people use these services and increasingly often in recent years. With the share of mobile wallet payments being the highest for card transactions with the lowest value, this payment solution can effectively support the emergence of electronic payments for the most numerous,

low-value transactions. With the ease of use and due to the majority of customers having mobile phones in almost all situations, this method can have a meaningful impact on users' payment habits, thus targeted measures should be implemented to raise awareness of the possibilities and benefits of use among customers not yet using this service and specifically promote the use of this service in this segment. This could help to make electronic payments become a part of everyday life even for people who use electronic payment solutions less often.

2.1.3.2 Share of free household credit transfer transactions

Costs directly associated with transactions can be a strong disincentive to the use of electronic payment methods as customers are faced with such costs each time they pay, as opposed to, for example, the use of cash apparently being free of charge. Therefore, it is also important for the possibility of making transfers without direct transaction fees to become highly prevalent. With this indicator, the MNB tracks the share of free transactions as a percentage of the total number of credit transfers.

Chart 28
Share of free household credit transfer transactions



Indicator value 2020	Indicator value 2022	Indicator value 2023	Change in 2023	Target
36%	35%	37%	+2 percentage points	at least 80%

$$\text{Share of free household credit transfer transactions}^{12} = \frac{\text{Number of free individual household credit transfer transactions}}{\text{Total number of individual household credit transfers}}$$

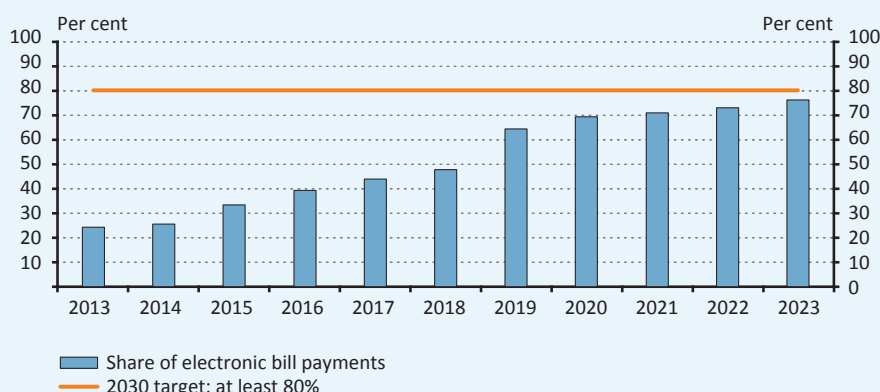
The share of free credit transfers in 2023 was 37%, a marginal improvement compared to previous years, but still far from the target. Pricing is an important consideration when using electronic payments. Since credit transfers became a widely used payment solution similar to cards with the introduction of Instant Payment, their pricing should be in line with that of cards, i.e. they should incur no transaction fees. Current transaction-related fees hinder the uptake of electronic payments, which is contrary to the MNB's strategy. As banks may no longer charge transaction fees for transfers initiated with standard input solutions or payment requests, the share of free transfers is expected to increase with the uptake of payment solutions based on them and a rise in turnover. Therefore, in order for the indicator to reach the target of at least 80%, it is also necessary to ensure that payment solutions that are easy to use in all payment situations more widely than now based on transfers emerge. In 2023, such services were only available to a limited extent, but ongoing developments are expected to lead to promote the emergence of these services in the coming years.

¹² Free household credit transfers: the number of credit transfers where no per-transaction fees are charged.

2.1.3.3 Share of electronic bill payments

With this indicator, the MNB tracks how regular utility and insurance bills are paid. For these types of regular payments the proportion of electronic payment methods is significantly greater than in the economy as a whole, but there is still room for further improvement in some sectors. In this context, enhanced customer experience can be particularly important for electronic payments, enabling remote bill payment without the need for personal presence.

Chart 29
Share of electronic bill payments



Note: Bill payment figures for the year before 2019 exclude bill payments not made by postal money order or direct debit (e.g. card payment online or at a service provider's branch, bank transfer); however the increasingly prevalent payment of postal money orders by bank card is included in the indicator throughout the period in question.

Indicator value 2021	Indicator value 2022	Indicator value 2023	Change in 2023	Target
71%	73%	76%	+3 percentage points	at least 80%
$\text{Share of electronic bill payments}^{13} = \frac{\text{Estimated annual number of electronic bill payments}}{\text{Estimated annual number of bill payments}}$				

In 2023, the share of electronic bill payments continued to increase, with over three-quarters of bills paid electronically. In the previous year, the share of electronic bill payments rose by 3 percentage points. This exceeds the 2 percentage-point growth rate seen in 2022, so despite the high base, there is no sign of a significant slowdown in growth. The 76% share is now only 4 percentage points below the target, which could be achieved with support from the introduction of new Instant Payment (AFR)-based solutions through targeted improvements in some sectors, in addition to the continuous and overall change in payment habits.

There are significant differences in the share of electronic payments among sectors, so targeted measures should be

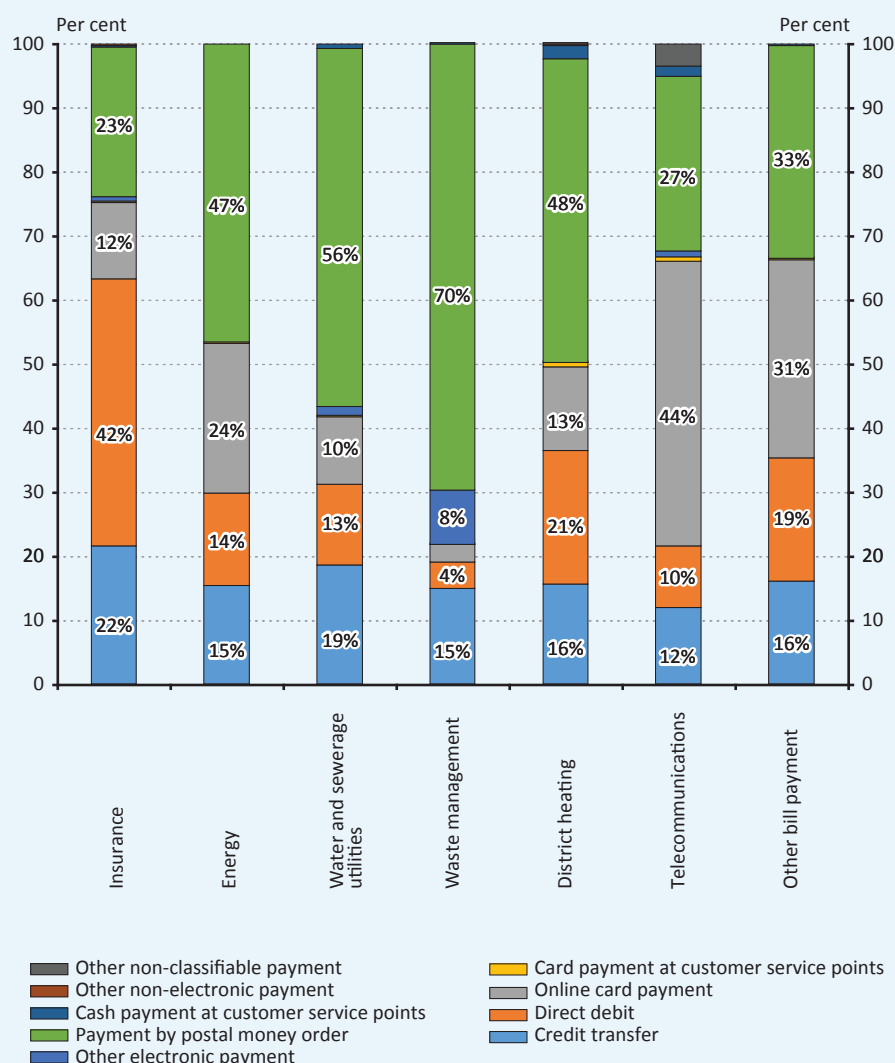
implemented to improve electronic payment options in sectors with a lower share of electronic payments. The 3 percentage-point increase is driven by a modest decline in cash payments at customer service points and the use of postal money orders as well as an increase in the electronic payment of postal money orders. As indicated by the 3 percentage-point change, although the use of electronic payment methods continued to grow, there has not been a major shift in bill payment methods. The share of bank transfers and online card payments increased by 1 percentage point. At the sector level, the water and energy sectors saw the uptake of online card payments, while the uptake of direct debit was concentrated in the insurance sector where it is already used to a great extent.

¹³ Electronic bill payments: It includes the number of bills paid by direct debit, credit transfer, online bank card payment and electronic payment solutions via postal payments or customer service points. Pre-2019 figures only include electronic bill payments by postal money order or direct debit.

Bill payment estimates are based on the annual survey of bill issuers conducted by the MNB.

The MNB estimates the share of electronic payments for postal money orders on the basis of data from the Hungarian Postal Service (Magyar Posta).

Chart 30
Bill payment methods by sector



Note: The share of electronic payments represents the estimated share of electronic bill payments in the relevant sector. For this estimate, the MNB divided postal money order payments into electronic and non-electronic payments based on an estimate.

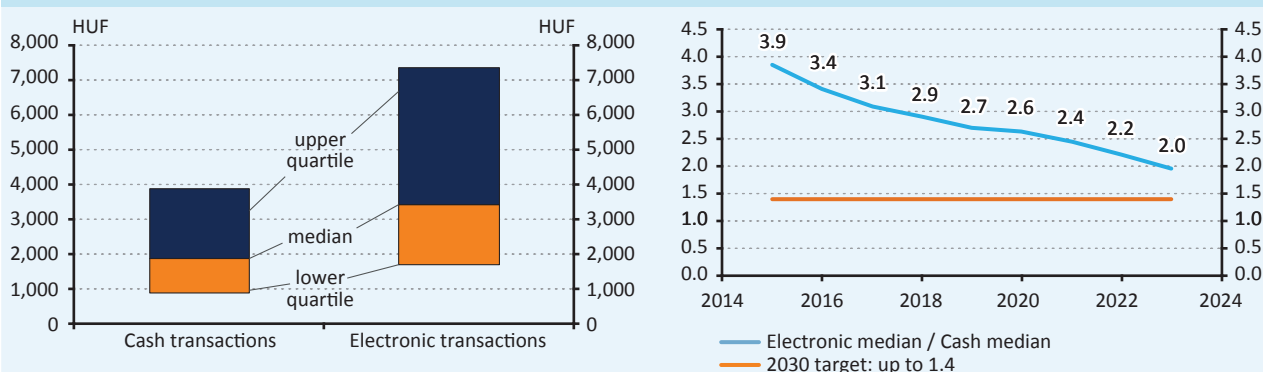
In order to increase the share of electronic bill payments, it is essential to ensure that these payment methods are universally available and easily accessible to customers at all bill issuers. This should include ensuring that bill issuers duly inform customers of their availability and make it easy to switch from cash to electronic payment. In addition to the

solutions already available, QR code payment implemented through the further development of the instant payment system could also be helpful, enabling bill issuers to offer their customers an electronic alternative at lower costs than bank card acceptance.

2.1.3.4 The uptake of electronic payments in retail payments of the lowest amount

For the lowest-value transactions, the share of cash payment is higher; this indicator is specifically designed to monitor it. For future-proofing purposes, the MNB examines the difference in the shares of electronic payments between ranges as a ratio of the medians of payment methods, rather than as the distribution of payment methods within the ranges.

Chart 31
Main quartiles of cash and electronic transactions in 2024 (left) and ratio of the medians of electronic to cash payments between 2015 and 2024 (right)



Source: NTCA Online Cash Register (OCR) database, MNB calculation

Indicator value 2021	Indicator value 2022	Indicator value 2023	Change in 2023	Target
2.4	2.2	2	-0.2	up to 1.4
$\text{Indicator value}^{14} = \frac{\text{Median of electronic payments}}{\text{Median of cash payments}}$				

The increase in the share of electronic payments also continued in in-store purchases of the lowest amount, with the gap between electronic and cash payments narrowing. The median of electronic payments, amounting to HUF 4,139, was twice the median of cash payments in 2023. This indicates steady improvement, considering that the median of electronic payments was nearly four times that of the cash median back in 2015. This means that in the past, payments of the lowest value were almost exclusively made in cash, either because electronic payment was not available or because they were made with the change left in the wallet out of habit. Over the years, the gap between the values of cash and electronic payments became narrower, with customers increasingly paying electronically for low-value purchases that could be paid relatively quickly with cash using a banknote or a few coins, without the need for customers to specifically ensure they carry sufficient cash to pay. This suggests that electronic payment is increasingly becoming the default payment solution.

Looking at the ranges, it remains true that over three-quarters of in-store transactions are still below HUF 5,000. The share of purchases below HUF 5,000 decreased from 86% in 2019 to 75% in 2023, but the majority of transactions still fall within this range. This includes large volumes of everyday lower-value purchases such as coffee, bakery products, lunch and transport tickets.

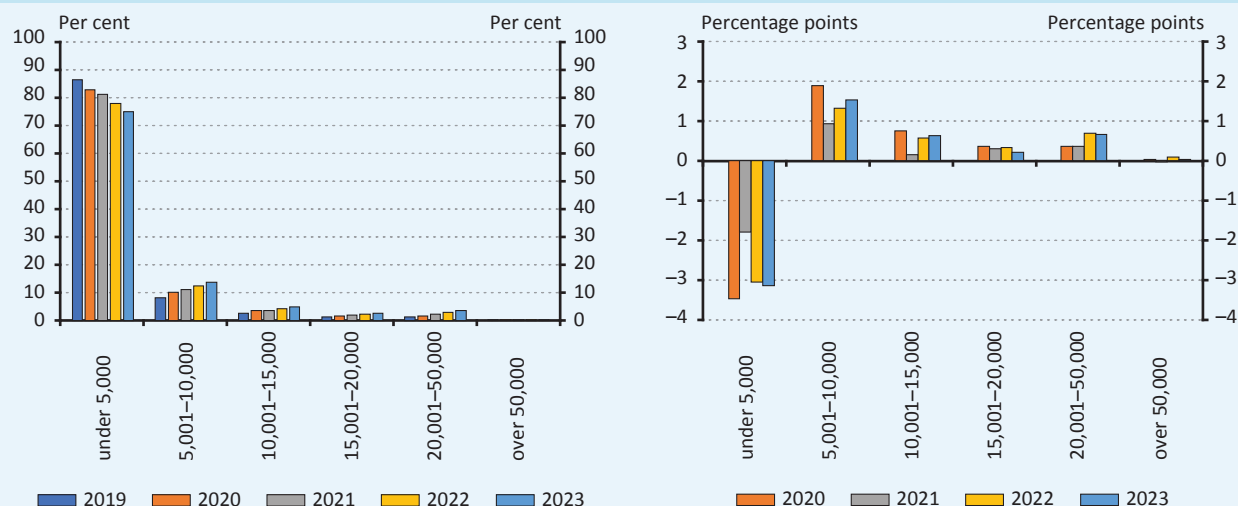
For purchases of the lowest amount, only 1 in 3 transactions are electronic, while for purchases above HUF 5,000, electronic solutions are a more common choice, about 3 times out of 5. While the share of electronic payments is 33% for in-store purchases under HUF 5,000, it is between 52% and 65% in all other ranges. Potential obstacles should be considered to find out why the adoption rate of electronic payment solutions may be lower for smaller transactions. Such obstacles could include, for example, merchants accepting only cash below a certain amount, contrary to regulations or steering customers

¹⁴ Electronic and cash payments: electronic and cash transactions made mostly in physical payment situations included in the OCR database.

towards cash payment due to the fees imposed on them. It may also be the case that payers are not aware of the

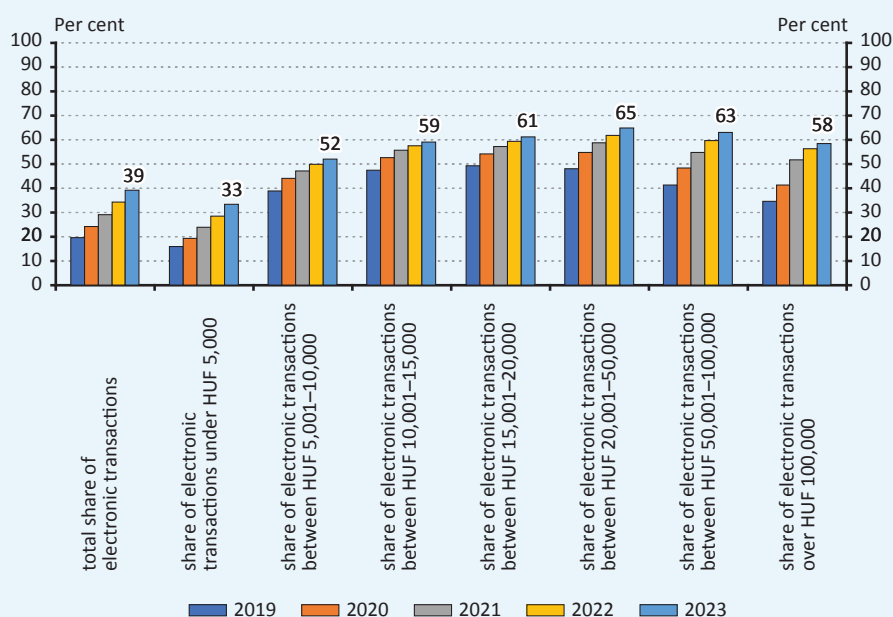
option to pay such small amounts by card or some people continue to pay in cash out of habit.

Chart 32
Distribution of in-store transactions and its evolution by range (HUF)



Source: NTCA OCR database, MNB calculation

Chart 33
Share of electronic transactions by number per value range in the sector using OCRs



Source: NTCA OCR database, MNB calculation

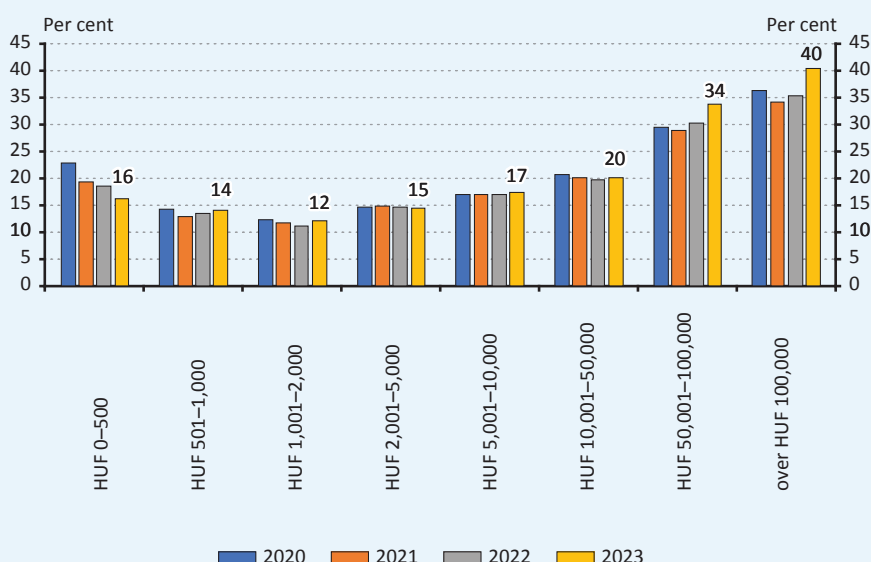
The share of online card use increased mainly for higher-value payments. Growth in the share of bank card use for low-value physical purchases can also be observed through the distribution between online and physical card purchases. Although, as in previous years, the number of online card purchases increased at a greater rate than the number of physical purchases, their share only grew significantly for high-value purchases. In 2023, a mere 16% of all card purchases between HUF 0 and 500 were made online, a decrease of 3 percentage points compared to 2022. The lowest share of online transactions was again in the HUF 1,000 to HUF 2,000 range, where 12% of purchases were made online. Lower ranges include, for example, transport ticket purchases, where the number of transactions is expected to increase, but not to the same

extent as for low-value in-store card purchases. In contrast, the share of online payments has increased significantly for high-value payments, with 40% of card purchases over HUF 100,000 being online transactions, up 4 percentage points compared to 2022.

2.1.4 Financial awareness and attitudes towards electronic payment methods on the end-user side

In addition to users of electronic payment solutions and the use of the services, it is also necessary to assess the attitudes and awareness of retail customers towards these services, which can have a major impact on the use of electronic payment services.

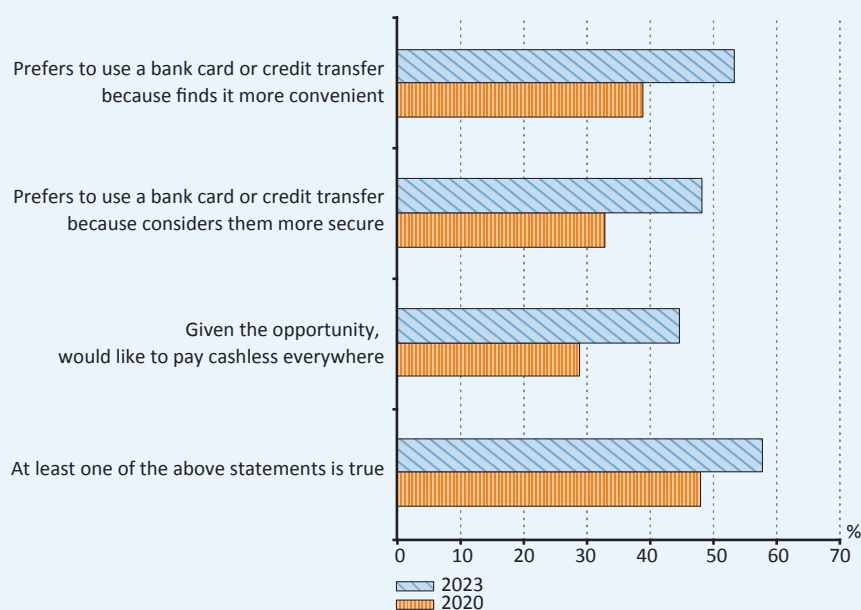
Chart 34
Share of online card payments as a percentage of total card transactions by transaction value range



2.1.4.1 Share of people preferring electronic payment

In addition to providing the option for payers to choose their preferred payment methods, including electronic payment methods, the attitudes of users towards electronic payments should also be addressed. As the more people prefer them and see their benefits, the greater the chance that the share of electronic payments, considered to be more optimal for society, will be higher. In particular, the reasons for preferences should be explored, identifying that extra element that makes them preferred for payment.

Chart 35
Share of people preferring electronic payment methods



Indicator value 2020	Indicator value 2022	Indicator value 2023	Change in 2023	Target
48%	-	58%	+10 percentage points (compared to 2020)	Steady rise
Share of people preferring electronic payment ¹⁵ = $\frac{\text{Number of adults preferring electronic payment}}{\text{Total adult population}}$				

58% of the population (would) prefer to pay electronically, which is a nearly 10 percentage-point increase in the share of people who prefer bank cards or credit transfers to cash over three years. Specifically, 53% of the population said that they use these solutions primarily due to convenience, while 48% mentioned security (among others). Nearly half of the population would be happy to pay cashless everywhere if they had the option. The considerable increase in the share of people who prefer electronic payments also shows that those who have already started

to transfer money on a regular basis or pay with physical cards or even cards registered in mobile wallets are also more likely to choose electronic payments later on, so this value is consistent with the change in activity presented above (Section 2.1.2.3) and the growth in the share of users of innovative payments (Section 2.1.2.5). In the future, targeted awareness-raising activities can be implemented to further increase the share of people who would prefer electronic payment solutions or already have a positive experience with them.

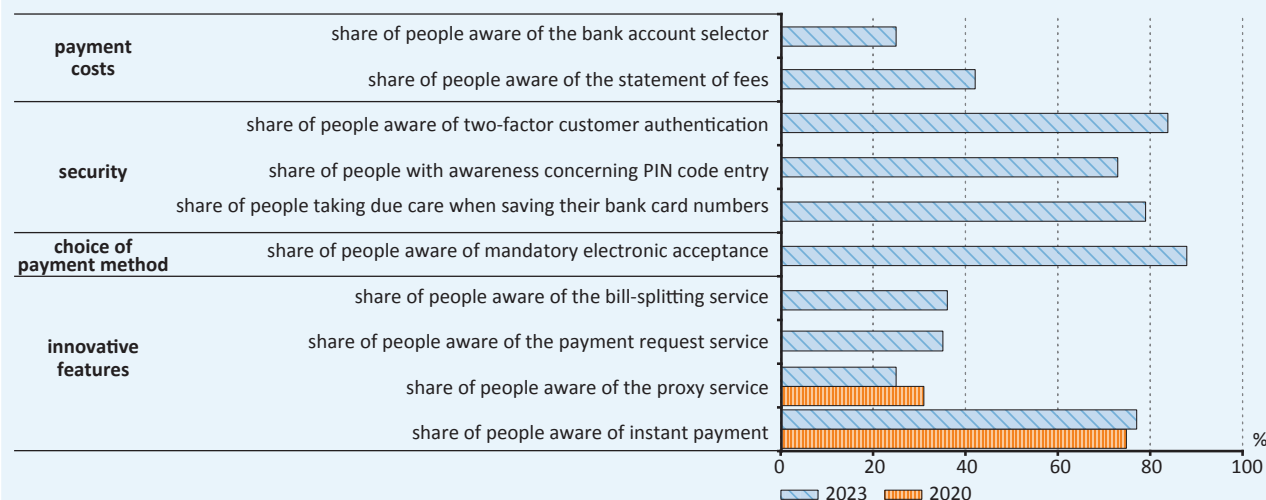
¹⁵ People preferring electronic payment: At least one of the following statements is applicable:

- Given the opportunity, you would be happy to pay cashless everywhere.
- You prefer to use a bank card or transfer because you consider them more secure.
- You prefer to use a bank card or transfer because you find it more convenient.

2.1.4.2 Awareness of electronic payments

The more people are aware of the possibilities offered by electronic payment services and the information related to them, such as what to look out for in terms of security, how much a service costs at their payment service providers, how easy it is to check whether it is available cheaper, the more likely they are to use them, and thus the higher the growth rate of the share of electronic transactions may be.

Chart 36
Awareness of electronic payments in the adult population¹⁶



Indicator value:

- Current value: as this topic always covers awareness of current topics and innovative services, and thus the questions are constantly changing, no aggregate indicator and target can be provided; instead, progress within each theme can be assessed individually
- Target: values per area of awareness should steadily increase over the years

Calculation:

Evaluation of responses to various questions about current awareness of electronic payments. Currently, the indicator covers questions related to awareness of innovative features, choice of payment method, security knowledge and payment costs.

Over the years, the topics covered continuously expanding with questions to assess different areas of awareness.

¹⁶ Questions asked in the survey:

- Instant payment has been available since 2 March 2020, meaning that transfers take place within 5 seconds at any time of the day. Have you heard about this? (share of 'yes' responses)
- Have you heard that you can register your phone number, email address or tax ID as a proxy so that people who would like to transfer money to you can also make transfers using this proxy? Please select the statement that applies to you. (share of people aware of the service)
- Did you know that there is a feature that allows you to send a payment request from your online banking or mobile banking platform to another person by specifying the amount to be paid, who can then simply approve it and automatically transfer the amount for free? (share of people who are aware of the payment request service)
- Did you know that there is now a feature called bill-splitting? This means that if, for example, you have covered a shared expense, you can easily send requests to the relevant people to pay you the amount you provide through a simple approval process. (share of people aware of the bill-splitting service)
- Did you know that almost all stores offer electronic payment (card, transfer)? (share of 'yes' responses)
- Do you save your bank card details in different merchant mobile apps or websites? (share of 'never' or 'depending on the reliability of the website' responses)
- Do you think it is possible for the bank to ask you for a PIN or password by phone or email (share of 'no' responses)
- Have you ever heard that when you pay by bank card for online purchases, you also have to confirm the transaction on one of your devices, typically a mobile device? (share of people aware of two-factor customer authentication)
- Did you know that banks in Hungary are required to send an annual cost summary to all their customers every year? (share of people aware of the statement of fees)
- Did you know that there are now sites where you can search for the bank account that would be the best for you based on your needs? (share of people aware of the bank account selector)

There is a high level of awareness of broadly available services and payment information that has been communicated for a long time. However, awareness of new payment solutions needs to be enhanced even further. Around one-third of the adult population is aware of innovative (instant payment-related) features, nearly 90% know that electronic payment is available in almost all stores and three-quarters have heard of the instant payment service. Three-quarters of internet users are familiar with secure shopping, but less than half of the population are aware of the fee statement and bank account selection features available to help them reduce payment costs.

Awareness-raising of electronic payment solutions is a key priority for the further development of payments and the MNB also plans to take targeted measures in this area in the future. If a higher share of customers were aware of the

possibilities for using payment solutions, their availability and their functioning or were more familiar with them than at present, it would contribute to more people using these services in a broader range of payment situations. There is also a need to raise awareness in pricing in order to ensure that customers know their own payment costs, are able to compare them with the costs of other account packages available on the market and make informed choices about which services to use and with which provider. To this end, access to fee statements should be made simpler, customers should be informed about them and bank account selection services should also be promoted. Additionally, there is also a need to enhance the level of awareness of security. This is to ensure that customers are familiar with how to handle their sensitive payment and personal details, to which institutions they can provide them and when and able to identify when criminals are trying to defraud them.

2.1.4.3 Reduction of the level of payment costs for the population

The MNB's objectives for pricing, as set out in its payment strategy, are to reduce the fee level for customers and cost differences among customers, meaning that:

- the standard deviation of the average monthly costs in real terms in each category based on the number of electronic transactions in the current year should not exceed the standard deviation for 2021
- average costs in real terms in each category based on the number of electronic transactions in the current year should be lower than the median of real costs
- the median of real costs for the current year should not exceed the median for 2021

Chart 37

Monthly costs incurred by household customers in relation to payments per group based on the number of monthly electronic transactions

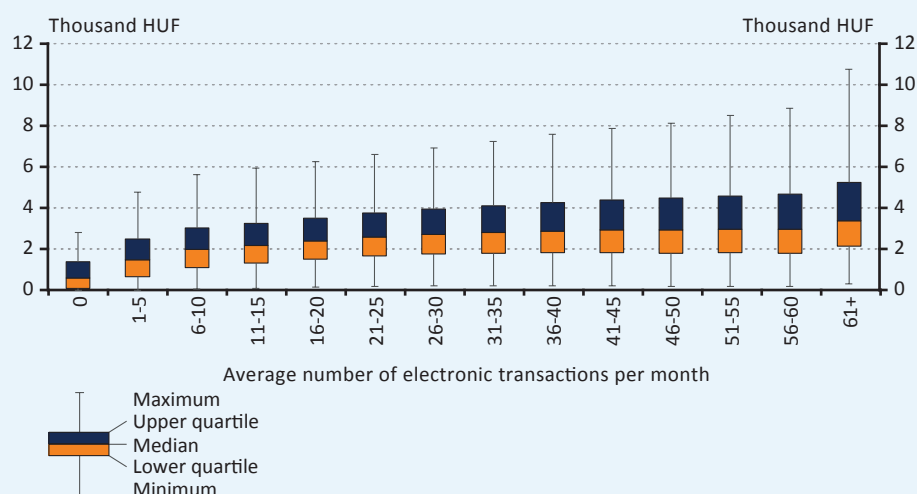


Table 2

Standard deviation, average and median of payment costs incurred by customers in 2023 per category based on the number of monthly electronic transactions

		Average number of electronic transactions per month													
		0	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61+
Monthly average costs	standard deviation	1,663	2,403	2,524	2,622	2,609	2,720	2,753	2,948	3,020	3,215	3,609	3,538	3,444	4,315
	average	961	1,829	2,236	2,367	2,490	2,602	2,708	2,804	2,906	2,993	3,073	3,135	3,196	3,551
	median	608	1,472	1,875	2,000	2,113	2,214	2,300	2,374	2,440	2,492	2,541	2,569	2,608	2,728

Table 3

Achievement of the MNB's strategic objectives for payment pricing per category based on the number of monthly electronic transactions

	Average number of electronic transactions per month													
	0	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61+
Reduce cost differences among customers														
Reduce average cost levels														

Note: The MNB's strategic objective for a category is achieved when the indicator reaches the target in both areas

Indicator value 2021	Indicator value 2022	Indicator value 2023	Change in 2023	Target
The reference year is 2021 and indicator values for subsequent years are calculated in relation to this value	0%	0%	0 percentage points	100%

$$\text{Indicator value} = \frac{\text{Number of customer categories based on the number of electronic transactions where the MNB's cost reduction expectations were met}}{\text{Total number of customer categories based on the number of electronic transactions}}$$

While differences in payment costs incurred by customers with similar payment habits have been reduced, the level of payment costs has not decreased. Differences in payment costs incurred by customers with similar payment habits can be as high as over tenfold. In 2023, nominal costs increased mostly in the lower transaction categories, presumably due to inflation-linked fee increases. In the highest transaction categories, however, nominal costs have remained stable or somewhat decreased, presumably due to improved customer awareness and an increase in the number of free transactions (not directly related to transactions) such as card purchases. In real terms, there was a reduction in costs in 2023 compared to 2021, so if this continues in a lower inflationary environment in the future, it could greatly contribute to a lower level of costs for customers and thus the achievement of the MNB's strategic objectives for payments.

Payment costs for the households has been rising steadily in recent years, reaching HUF 265 billion in 2023, up 11% compared to 2022. This steady rise is attributable to two reasons. First, banks raise their fees at the beginning of

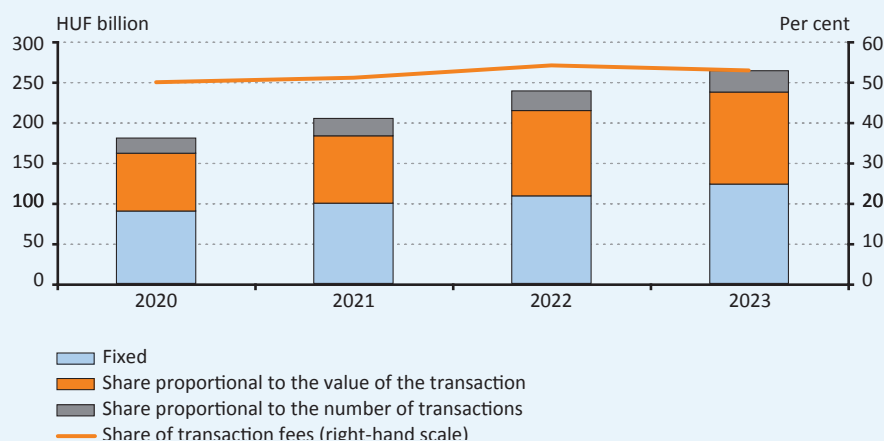
each year, typically by the rate of inflation of the previous year. Second, due to the high proportion of fees depending on transaction turnover, banking revenues automatically increase with the growth of electronic payments as, for example, customers pay more for more transfers or the increasing number of bank cards and bank accounts each year, which hinders the further uptake of electronic payments. Starting from 2023, innovative payment solutions based on Instant Payment make it possible to avoid any considerable increase in minimum costs in each category. If this is not the case, the MNB will propose additional measures to improve pricing and customer awareness.

At 43%, the high rate proportion of inflation-linked price raises and fees proportional to transaction values means that the population pays for the impact of inflation multiple times. 47% of payment revenues from households transactions were fixed in 2023, typically including monthly account management and package fees and annual card fees. The remainder was revenue proportional to the number or value of transactions. A fee proportional to the

number of transactions may be linked to transfers or cash withdrawals even if, for example, there is a set minimum or maximum fee to be paid for transactions above or below a certain limit set by the bank. A fee proportional to the value of the transaction is mainly relevant for transfers or cash withdrawals, where the fee, or a part of it, is established as a certain percentage of the transaction

value. As economic activity increases and inflation rises, transaction values go up, meaning that customers' banking costs increase automatically without any specific fee hike by the bank. With proportion of variable costs exceeding 50%, the rise in transaction numbers and the increase in transaction values are major contributors to the costs rising for customers.

Chart 38
Payment costs for the population by main cost categories



Many customers could significantly reduce their costs by choosing a bank account package that better matches their payment habits or by using only the services they need; this would require additional targeted measures to raise customer awareness. In this context, raising customer awareness will be vital in the future, with fee statements provided to everyone each year playing a major role. It is important to ensure that banks make fee statements easily accessible to customers, including through mobile banking, and notify their customers of their availability, thereby help customers understand exactly which services they need and what pricing applies to them in different account packages. In many cases, they don't need to switch banks to do so as lower-cost account packages are also available at their current banks or they can replace certain services with cheaper ones in their current package. For example, for many customers free push notifications by mobile phone instead of costly SMS notifications or a cheaper bank card could also be suitable that can be used for in-store and online purchases and cash withdrawals in the same way as an advanced bank card. The MNB's updated bank account selection program can help account holders find the account package that best suits their payment habits.

In order to reduce payment costs incurred by the population, the MNB aims to stimulate competition

among banks that would result in better-quality services at lower prices. A lack of intense competition in electronic payment services results in increased costs and reduced pricing transparency and poor customer understanding. The MNB's strategy aims to improve this by 2030. With the emergence of cross-border operators, competition in payments in Hungary may intensify as these operators continue to provide their services to customers with significantly lower fees, increased transparency and, in line with international practice, often without direct transaction fees. Banks in Hungary put themselves at a competitive disadvantage with their pricing practices and should adapt to new market conditions by moving away from inflation-linked pricing towards transparent pricing that incentivises the use of electronic services.

2.1.5 Development of payments on the supply side

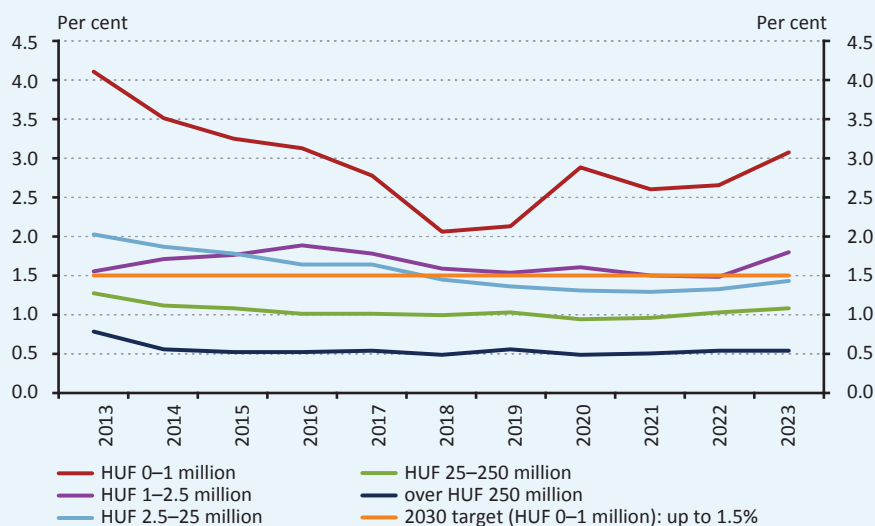
In many payment situations, merchants offering electronic payment are able to directly influence the customer's choice of the payment method; therefore, merchants should have an interest in the greater use of electronic payments. Consequently, costs incurred by merchants and the utilisation of merchant infrastructure should be monitored.

2.1.5.1 Acceptance costs paid by the smallest merchants as a share of turnover

The MNB uses this indicator to monitor the costs incurred by merchants in relation to accepting electronic payments. For this purpose, it focuses on the merchants with the lowest turnover, as smaller merchants are still subject to significantly higher acceptance fees proportional to turnover. Thus, a decrease in the fees incurred by these merchants is a good indication of the reduction in acceptance costs in the economy as a whole, promoting the adoption of electronic payment methods, and them being actively offered to customers, in all sectors.

Chart 39

Share of acceptance costs as a percentage of card payment turnover by categories based on merchants' quarterly card turnover



Indicator value 2021	Indicator value 2022	Indicator value 2023	Change in 2023	Target
2.6%	2.7%	3.1%	+0.4 percentage points	up to 1.5%
$\text{Indicator value}^{17} = \frac{\text{Acceptance costs for the smallest merchants}}{\text{Electronic payment turnover of the smallest merchants}}$				

The uptake of electronic payments is hindered by the fact that, contrary to the MNB's objectives, merchants with the highest turnover were the only ones that did not experience any increase in electronic payment acceptance costs in 2023. During the year, the share of acceptance costs incurred by merchants in the lowest turnover category (HUF 0–1 million) as a percentage of turnover increased to 3.1%, up 0.4 percentage points compared to 2022. However, acceptance costs increased by varying rates not only those in the smallest turnover category but also for almost all merchants, with costs exceeding the indicator's target, at a value of 1.8%, for merchants with turnover between HUF 1 and 2.5 million. This means that now more than 50,000 merchants pay acceptance service fees that exceed the

target. These costs are still significantly higher than those incurred by merchants with higher turnover; fees paid by merchants with a quarterly card payment turnover of over HUF 250 million remained unchanged at 0.5%. The fact that there has been no meaningful electronic alternative to card use for retail transactions could significantly contribute to high costs and this is where the qvick payment solution, based on instant payment, can make a difference.

Furthermore, the uptake of electronic payments may also be hampered by the fact that an increasing share of payment service providers' electronic payment acceptance service revenues come from fees proportional to the number or value of transactions. In 2023, these accounted for 97.8% of

¹⁷ Smallest merchants: merchants with a quarterly electronic payment turnover between HUF 0 and 1 million.

Electronic payment turnover: currently, the indicator is calculated from card payment turnover, but will be extended to include instant payment turnover in the future.

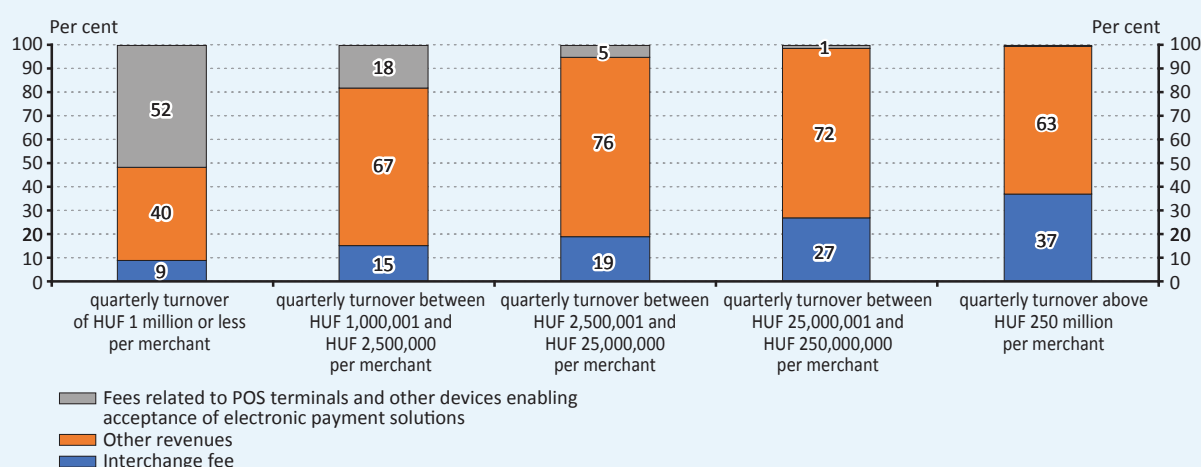
total acceptance revenue, while the share of POS terminal fees, representing fixed one-off or monthly costs, has been reduced to negligible level. This fee structure hinders the use of electronic payments as it does not reduce costs for acceptors even with higher electronic payment turnover. It can also be seen that interchange fees charged by card companies account for an increasingly smaller portion of costs, meaning that the fees set by acquiring service providers represent an increasingly larger portion, more than two-thirds (67.2 percent), of merchants' costs in 2023.

The new qvık payment option based on Instant Payment can significantly contribute to reducing costs for the smallest merchants, and the MNB expects banks to actively promote its widespread adoption among merchants. With qvık payments becoming available to all customers in 2024, merchants will also have an interest in implementing acceptance of the new payment services. These payment services will be available to customers for free and merchants will be able to accept them at a lower cost than current electronic payment services. In order to support the adoption of acceptance services, the MNB will launch targeted awareness-raising efforts where it will continuously consult with merchants and their representative organisations about the details of the service's development. Information and educational resources will also be produced in the future to raise awareness among stakeholders. The introduction of Instant Payment on the acquirer side can be further supported by preferential or subsidised acceptance schemes and the MNB

will also involve stakeholders in exploring the possibilities of developing these schemes.

For smaller merchants, the adoption of the acceptance service based on Instant Payment, and thus the elimination or replacement of the POS terminals with cheaper devices, could help reduce costs. Looking at the distribution of payment service providers' revenues from payment card acquiring by item and merchant category, the higher the merchants card payment turnover, the lower the share of fees related to POS terminals is as a percentage of total fees. At the same time, the share of interchange fees increases with the growth in card payment turnover, while the share of additional revenues, typically from merchant fees, first increases and then decreases somewhat. It is worth noting that merchants in the higher turnover categories are more likely to have POS terminals of their own or operated independently of banks than merchants with lower turnover, which could explain the low share of POS fees for merchants with higher turnover as they do not use payment service providers for this service and therefore it is not reflected in these figures. By adopting the acceptance of the qvık payment solution based on Instant Payment, merchants could substantially reduce the cost of accepting electronic payments as these payment could be accepted without POS terminals and with lower transaction-related fees. In the future, the MNB will intensify awareness-raising efforts to ensure that merchants are familiar with the benefits of Instant Payment and the possibilities of adopting the service.

Chart 40
Distribution of payment service providers' revenues from payment card acquiring by item and merchant category in 2023



In terms of fees proportional to turnover as a percentage of card payment revenues, the smallest merchants pay relatively the highest card acceptance fees, but there are

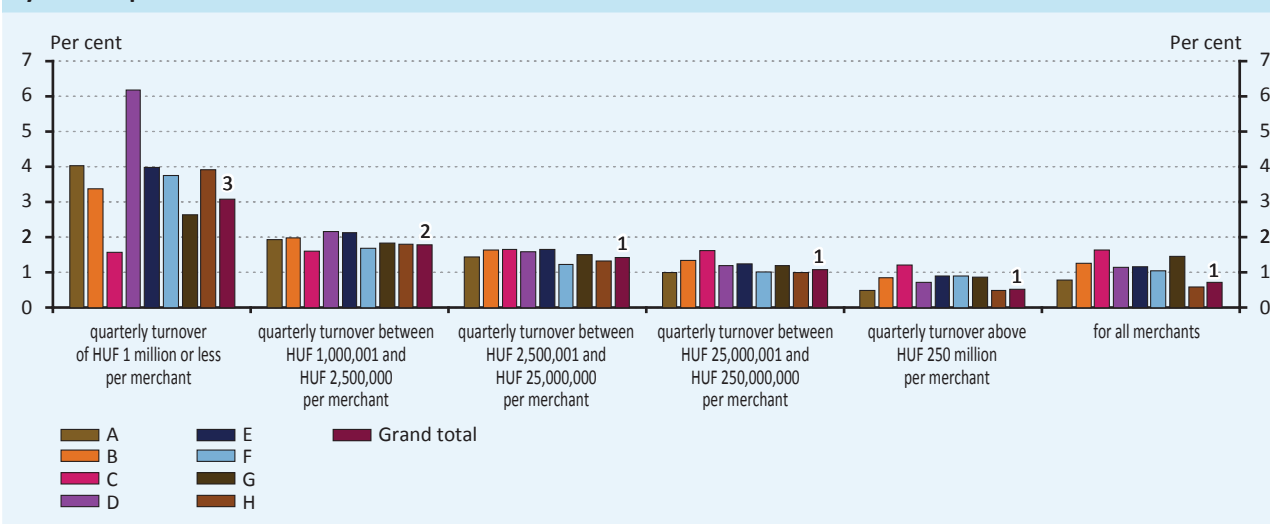
significant differences among acquiring service providers in terms of costs. Merchants with the lowest card payment turnover see the largest differences in fees proportional

to revenues among service providers. There are providers where merchants in the lowest card payment turnover category pay less than 2% of their card payment revenues in card acquiring fees, while for other providers, these fees

account for a 6% of card payment turnover on average for merchants in the same category. In the other categories, the minimum and maximum values are between 1% and 2%.

Chart 41

Card acquiring costs as a percentage of card payment income by quarterly card payment turnover category and by service provider in 2023

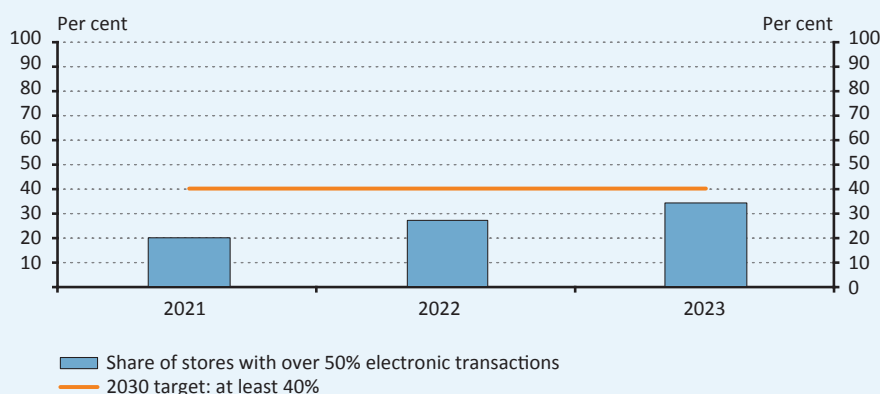


2.1.5.2 Electronic payments at accepting merchants

From 1 January 2021, merchants required to use online cash registers (OCRs) are also required to provide an electronic payment option; therefore, instead of the level of provision of acceptance, the share of electronic transactions per store should be considered from now on as it allows for monitoring the utilisation of the electronic payment infrastructure.

Chart 42

Share of stores with over 50% electronic transactions



Source: NTCA OCR database, MNB calculation

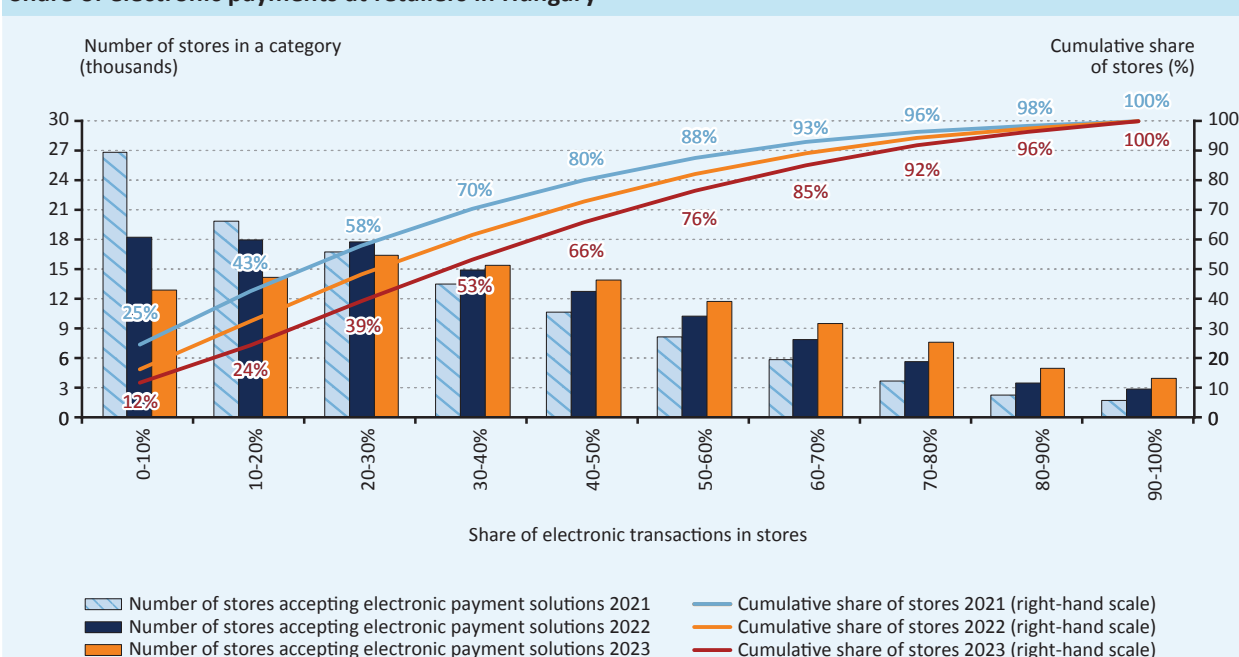
Indicator value 2021	Indicator value 2022	Indicator value 2023	Change in 2023	Target
20%	27%	34%	+7 percentage points	at least 40%
Share of stores with over 50% electronic transactions ¹⁸ = $\frac{\text{Number of stores with over 50\% electronic transactions}}{\text{Number of stores}}$				

¹⁸ Stores: retail units of taxpayers with the same scope of activity by district, included in the OCR database mainly containing transactions requiring personal presence.

In 2023, a third of stores had customers paying electronically more often than with cash, meaning that the share of stores with a surplus of electronic transactions has grown considerably in recent years. In 2021, 80% of stores were cash-intensive, meaning that the majority of stores saw more cash purchases than electronic purchases. The share of cash-intensive stores is steadily declining, by 7 percentage points per year, down to 66 percent in 2023. Looking at this from the electronic payment side, it can be seen that one-fifth of stores had more electronic transactions than cash transactions in 2021 and the share of these stores with a surplus of electronic transactions has

been steadily increasing, by 7 percentage points per year, over the last two years. A more detailed look at the share of electronic transactions in stores reveals that the number of stores with the lowest share of electronic transactions is steadily declining. In 2021, a quarter of stores still fell into the category of stores with a share of electronic transactions between 0–10%; however, by 2023, their share fell to 12%. In 2023, up to 40% of transactions were electronic in 53% of stores, meaning that at least 60% of purchases were made in cash. In the preceding years of 2021 and 2022, this was the case for 70% and 62% of stores respectively, providing further evidence of the uptake in electronic transactions.

Chart 43
Share of electronic payments at retailers in Hungary



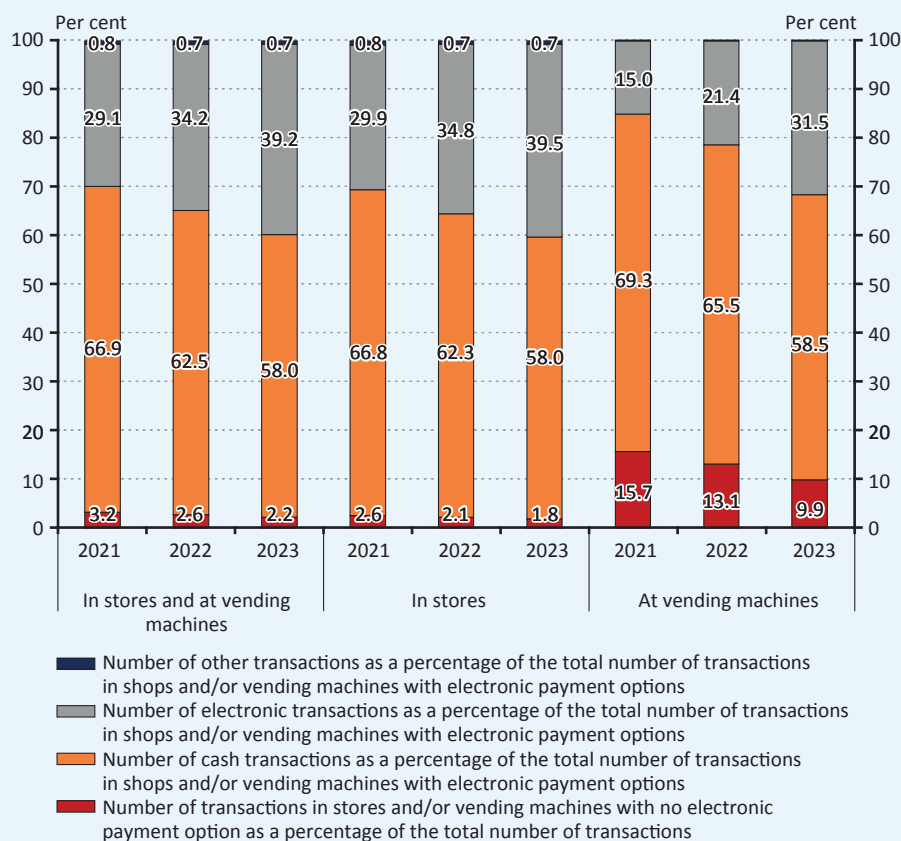
Source: NTCA OCR database, MNB calculation

Despite the requirement to provide an electronic payment option from 2021, there are still some stores that do not provide an electronic payment option. However, in 2023, only 2% of purchases were made in these stores, so there is no significant disadvantage for shoppers in terms of choice of payment method.¹⁹ 83% of stores definitely accept electronic payment, but the remaining 17% of stores that do not provide this option accounted for a mere 2% of in-store purchases last year. Some merchants do not have brick-and-mortar stores as they only operate vending machines and are therefore not subject to the

requirement to accept electronic payment. For these merchants, the share of electronic acceptance is 56% and 10% of transactions were recorded on vending machines of merchants with no sign of electronic payment acceptance. These shares have been steadily improving over the years, with the share of in-store and vending machine purchases with no electronic alternative to cash becoming increasingly minimal and the share of electronic transactions steadily increasing. The share of electronic payments increased by 5 percentage points to 40% in stores and by 10 percentage points to 32% at vending machines.

¹⁹ More details on the utilisation of the electronic payment infrastructure by stores are available at (in Hungarian) deak-vivien-az-uzletek-27-szazalekaban-mar-tobb-szor-fizetunk-elektronikusan.pdf (mnb.hu)

Chart 44
Share of payment methods by number



*Note: For vending machines, it is not required to report payment methods so it cannot be clearly identified for each transaction how it was paid.
Source: NTCA OCR database, MNB calculation*

2.2 FRAUD CASES OBSERVED THROUGH ELECTRONIC PAYMENTS

2.2.1 Developments in fraudulent payments

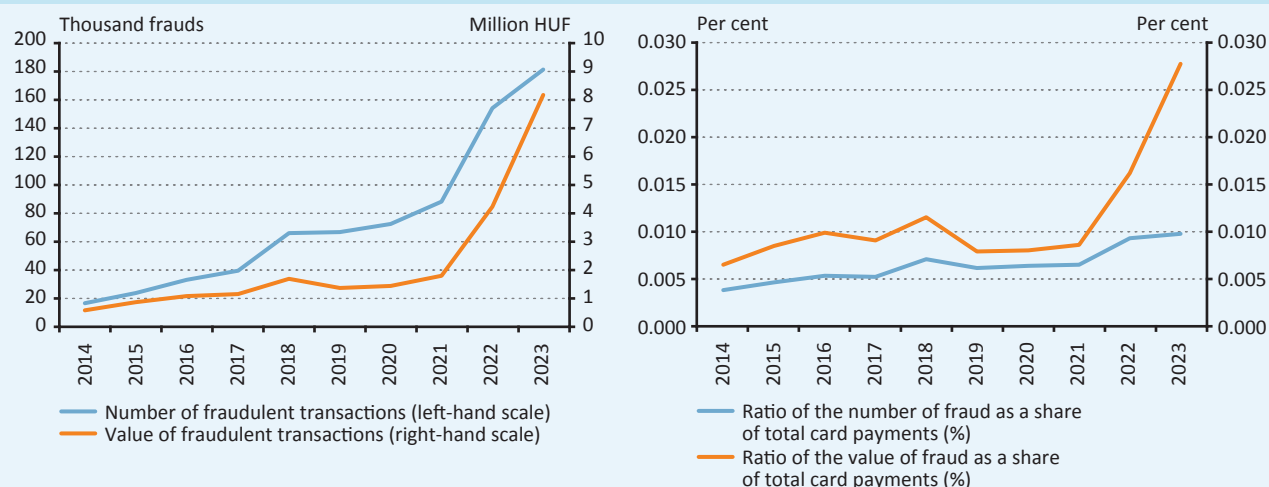
Despite of the greater growth rate in the number and value of successful card (issuer) fraud in 2023, electronic payments are secure as the level of volume and value of payment fraud over all electronic transactions is still low. In 2023, the number of successful fraud cases with cards issued in Hungary increased by 18% and their value increased by 92% compared to the previous year, resulting in more than 182,000 successful fraud cases worth over HUF 8 billion. At the same time, there was an increase in the volume of card payments; consequently, the share of the volume and value of successful card fraud over all

card payments was also low, below 0.03%. The highest volume of fraudulent transactions was observed in the first quarter and the highest total value in the third quarter.

In terms of the methods applied in fraud cases, phishing had the highest share in 2023, accounting for 71% of all successful card fraud cases. During these types of fraud fraudsters typically execute fraudulent transactions themselves by obtaining sensitive customer information. The share of the number of successful fraud cases involving strong customer authentication (SCA) is lower (24%) than the number of successful fraudulent transactions without strong customer authentication (non-SCA) (76%). Non-SCA fraudulent transactions were typically lower-value transactions, with a share of 43% of the total value of card (issuer) fraud.

Chart 45

Volume and value of fraudulent card payments and share of volume and value of fraudulent card payments over total card payments (issuer)

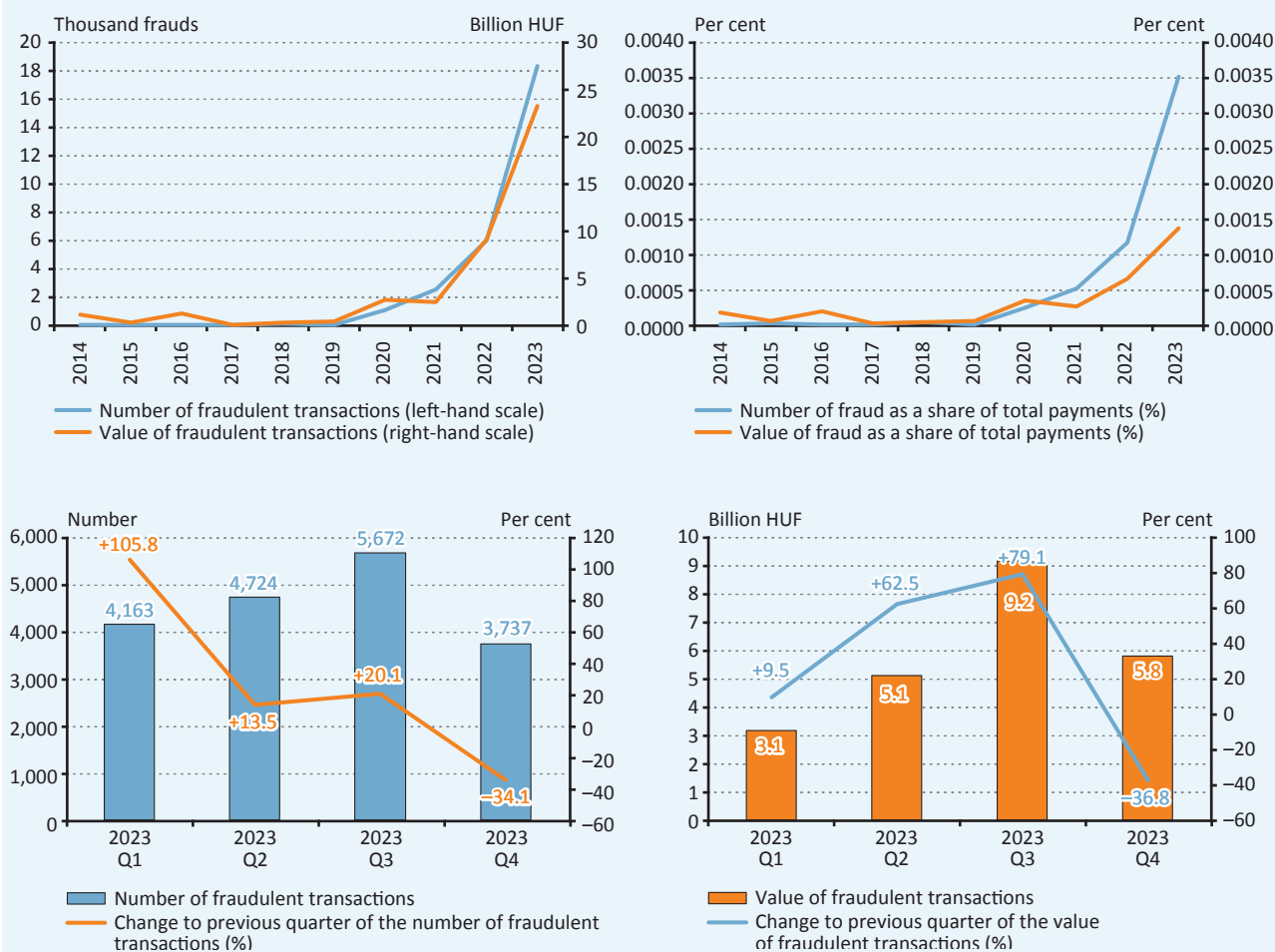


The volume of non-card based fraudulent transactions, occurring mainly in credit transfers, has also increased year on year; however, it is important to note that a significant fall is shown in the last quarter of 2023. The share of the volume of fraudulent transactions over total payments (credit transfers) remained low (0.0035%), but it was more than twice of the volume of the previous year. The highest share of non-card fraud cases relates to credit transfers. In 2023, the first three quarters of the year were characterised by an upward trend but in the last quarter, the number of successful fraud fell by 34% compared to the third quarter, but it still exceeded by more than 85% (1,714 cases) the same period last year. By number, there were significantly less fraud cases than for card transactions, but they were typically higher value transactions. 54.9% of successful fraudulent transactions were online transactions and 44.7% of them were initiated from mobile devices. In 2023, most of the fraudulent transactions were in the range of HUF 1–5 million.

Based on the type of fraud, it is clear that in many cases fraud could be prevented by stricter transaction verification on the banks' side, by enabling setting transaction limit and by raising customer awareness. 50.3 percent of credit transfer fraud is due to phishing, in addition fraud by the manipulation of the payer to initiate a transaction or direct access to users' internet account or payment accounts have a considerable share, collectively accounting for almost the same share (48.6%) as phishing from total fraud. Fraudster groups often send fake links hidden in text messages or emails or get confidential information by fraudulent phone calls and it also frequently occurs that fraudsters convince mislead customers to install malware and thus they get the users' sensitive banking information. A significant share of these types of fraud could be addressed by fraud detection mechanisms by banks or with solutions already in place at big tech firms with global presence, such as IP address verification, device ID verification, requiring two-factor authentication, especially when using new devices.

Chart 46

Volume and value of non-card fraud (mainly refers to credit transfers) and the volume and value as a share of total non-card payments



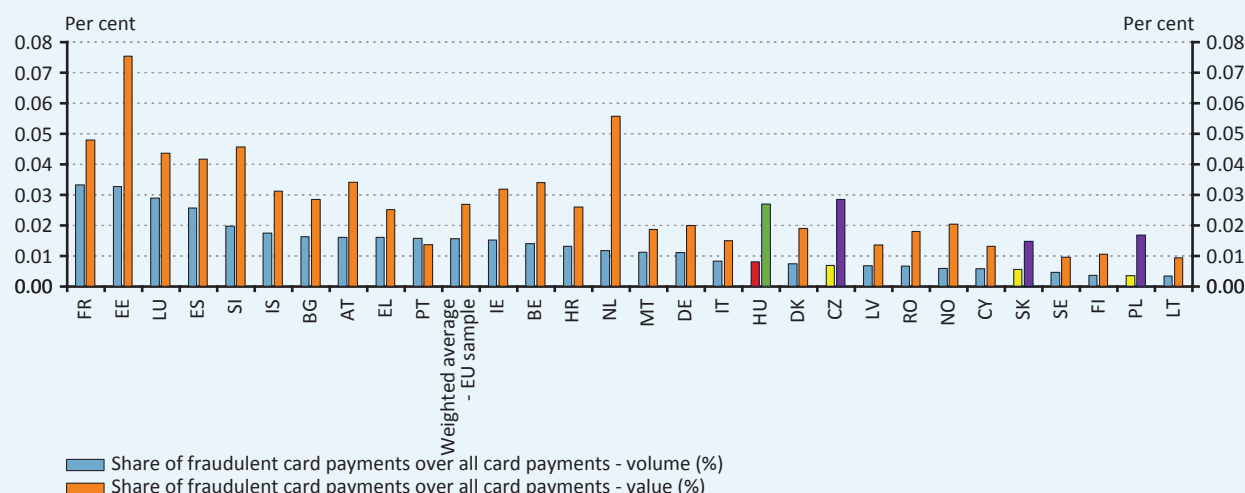
The report published by the European Banking Authority (EBA) in 2023²⁰ shows that the volume of successful fraud payments as a percentage of total payments in Hungary was below the European average for both cards and credit

transfers in 2022. While the value of successful fraud as share of total payments was equal to the European average value for payment cards (issuer), in case of credit transfers it was below the European average.

²⁰ EBA. (December 2023). *Risk assessment report of the European Banking Authority*.

Chart 47

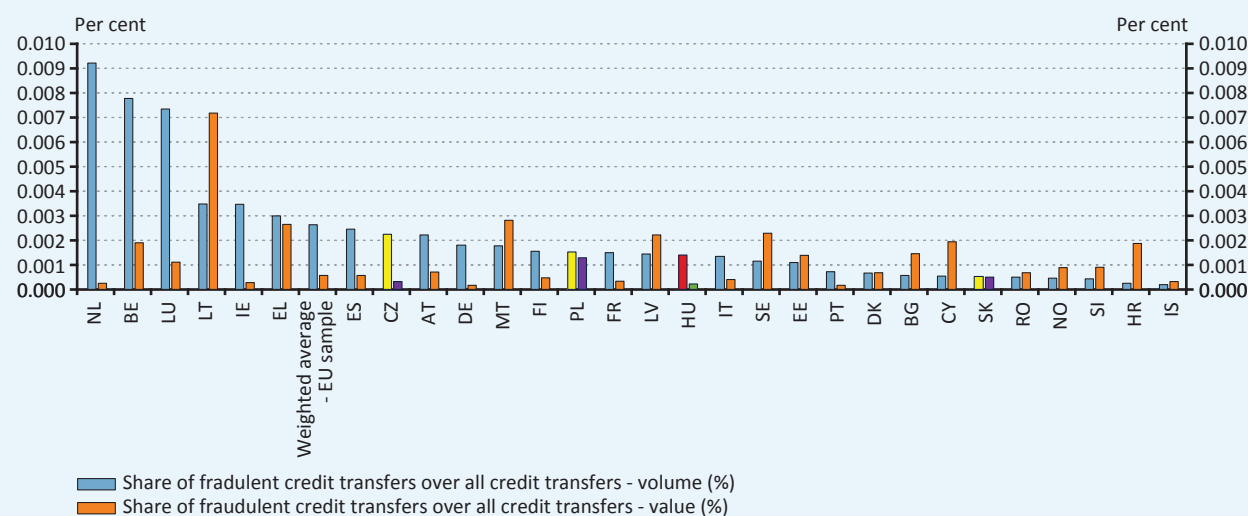
Volume and value share of successful fraudulent card payments over all card payments (EBA, 2022)



Source: EBA. The survey was based on a sample of a limited number of banks in each country

Chart 48

Volume and value share of successful fraudulent credit transfers over all credit transfers (EBA, 2022)



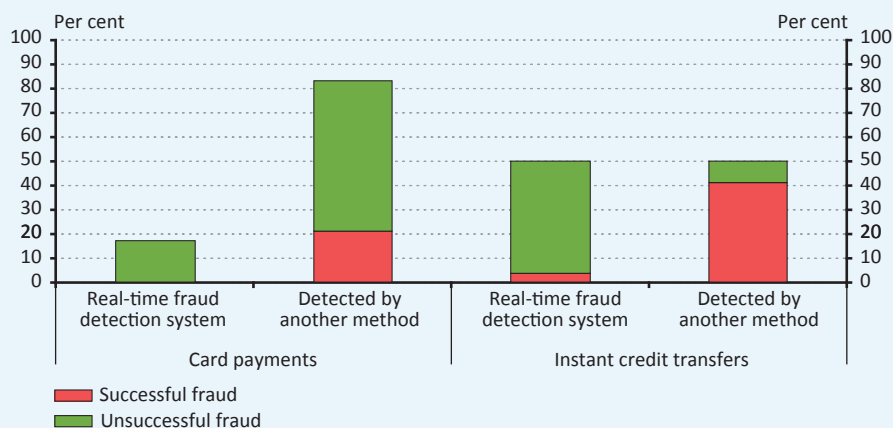
Source: EBA. The survey was based on a sample of a limited number of banks in each country

Use of modern technologies plays an important role in fighting against fraud, real-time fraud detection systems could prevent the vast majority of fraud. In the second half of 2023, 19% of all fraudulent transactions were detected by payment service providers using real-time fraud detection systems, while 81% were discovered by other means, such as notification by customer. In this context, there is a significant difference between credit transfer and card payments fraud: in case of credit transfers half of the volume of successful fraud is detected in real time, for card payments fraud it is only one-fifth of all payments fraud. The effectiveness of the real-time detection systems is well demonstrated by the

high share of unsuccessful fraudulent transactions over all fraudulent transactions detected by real-time systems: 93% and 99% of fraud cases were unsuccessful in the case of instant transfers and card transactions respectively. In cases where payment service providers did not detect fraud in real time, either because they did not use such systems at all or because their systems were not functioning properly, 82% of instant payment fraud and 25% of card payment fraud were successful. This confirms that the use of real-time detection systems on the banks' side can effectively reduce successful fraud cases, irrespective of the type of payment, value of transaction and payment scheme.

Chart 49

Share of successful fraud cases by fraud detection method and payment type (H2 2023)



The value of losses due to fraud borne by customers has increased, because it is in close relation with the type of fraud and the issuance of payment order, i.e. who initiates the payment order. In 2023 card fraud losses increased by HUF 2.1 billion and by 71.6% year-over-year in Hungary. The value of credit transfers losses due to fraud doubled compared to the previous year, rising by HUF 10.9 billion in nominal terms, an increase of 133%. From the point of view of fraud by liability bearer, card (issuer) fraud loss borne by cardholders was HUF 3.2 billion, accounting for 65.7% of the total amount of losses. In 2023 the higher share of credit transfer fraud losses were borne by customers,

as the case in card payments fraud and losses borne by cardholders increased further compared to the previous year, increasing to 98.3% of the total losses, and it was nominally HUF 18.7 billion. The reason of the high value of losses borne by customers according to banks is that in most of the cases customers themselves are directly liable for fraud. In case of phishing, identity theft and direct access to user accounts or bank accounts, fraudsters were able to obtain the information needed to successfully initiate fraudulent payment transactions, while in the case of manipulation of payer to initiate a transaction the account holders themselves issue these transactions.

Chart 50

Losses in relation to payment card fraud cases on the issuer (left hand chart) and acquirer (right hand chart) sides

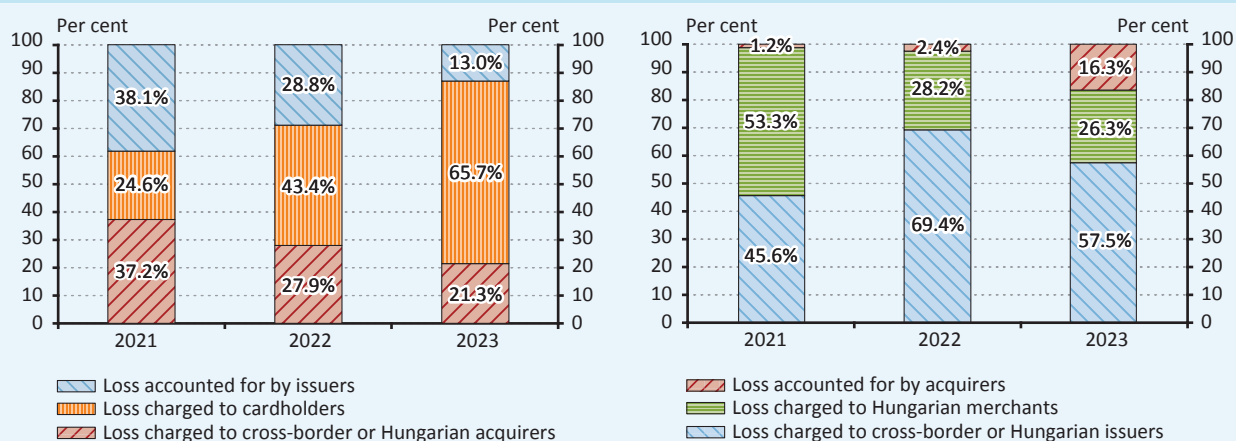
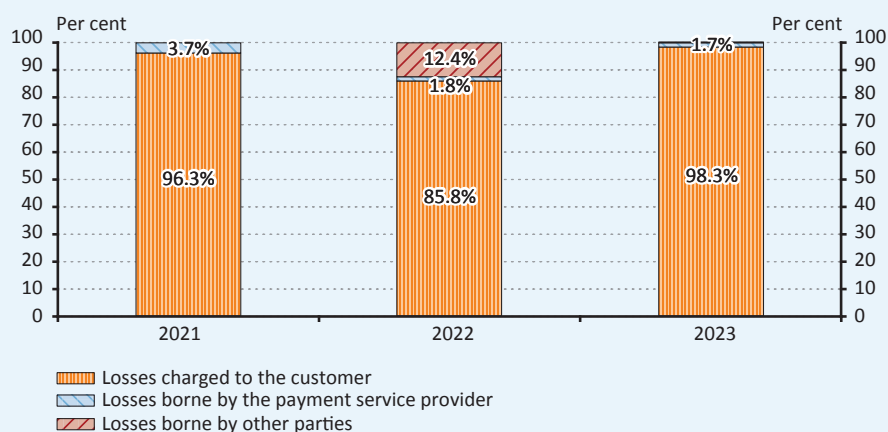


Chart 51
Total value of credit transfer losses due to fraud by liability bearer



2.2.2 Measures to prevent fraud

The significant decrease in the number and value of transfer fraud cases in the last quarter of 2023 is a result of changes in the Hungarian banking system, coordinated action by the Hungarian Police and active involvement of the MNB. Currently, 70% of medium-sized and large credit institutions use real-time transaction monitoring for at least a part of instant transfers, thereby significantly contributing to fraud prevention. By introducing device monitoring mechanisms, credit institutions are able to monitor when the banking application providing their customers with access is installed on a new device, which presumably also contributed to the decline in the number of cases. Introduced for transfers as well, the use of transaction limits could considerably reduce the damage caused in fraud cases. Device monitoring mechanisms, the timely blocking of fraudulent invoices and the tightening

of the cash withdrawal process are also important pillars to further reduce fraud. The Hungarian National Police Headquarters (ORFK) launched the Matrix Project with 300 new experts to combat cybercriminals on a larger scale than ever before. Coordinated by the Cyber Strategy Department of the ORFK, this independent unit enhances the work done by the Budapest Metropolitan and County Police Headquarters and the National Investigation Bureau of the Rapid Intervention Police. Thanks to their coordinated work, they were able to thwart the activities of several cybercriminal groups. For fraud cases in payments, consumer manipulation and fraud based on deception have become dominant, with fraudsters either obtaining sensitive information or persuading customers of payment service providers to initiate transactions. In order to maintain confidence in payments, the MNB continues to be actively involved by supporting consumer awareness-raising through cooperation with a number of institutions

Chart 52
Measures taken by the MNB to tackle fraud

MEASURES TO PREVENT FRAUD

CyberShield campaign
A new way to inform customers

MNB recommendation
Thorough customer identification, real-time transaction monitoring at banks

Central Fraud Monitoring System
Artificial intelligence-based real-time system in GIRO from July 2025



in the CyberShield project; by issuing a recommendation to payment service providers on improvements expected from the financial sector in the fight against fraud; and launching the implementation of a Central Fraud Monitoring System to effectively support the fraud prevention mechanisms of payment service providers.

CyberShield project to raise financial awareness

A large part of the population is not prepared in terms of cybersecurity for the changes brought about by accelerated digitalisation; therefore, it has become particularly important to raise awareness of the threats they face and show them how to take action to protect themselves. To this end, the MNB, as project co-owner, joined forces with the Hungarian Banking Association and the first institutions to join the project to establish the CyberShield cooperation. The primary objective of the initiative was to run a joint cybersecurity education and communication programme to enhance awareness of digital financial among customers and to share technical knowledge among partners. The messages of the programme are now disseminated by 10 member institutions working closely together under a single image for as broad social outreach as possible. In 2023, the CyberShield project ran a number of targeted campaigns on TV, radio, online and social media platforms, which will continue to play a significant role in raising customer awareness. In autumn 2023, CyberShield spots were aired 300 times on six channels over a two-month period, resulting in 61.2% of adult population coming across the campaign at least once. During the CyberShield online campaign that ran from March to May 2023, impressions exceeded 9 million and reached 3.5 million in the autumn campaign. In the social media campaign that ran in spring 2023, impressions reached nearly 8 million, followed by the autumn campaign with 4.5 million. In addition to raising awareness and providing up-to-date information on the types of fraud, the constantly updated kiberpajzs.hu website also provides guidance for those who have already been victims of fraud, guiding them through the necessary steps, in order to minimise the damage by taking swift action. In order to continue the effective fight against cybercrime, the cooperation that was initially planned to last until the end of 2023 was extended for an additional three years in 2024. In addition to communication and awareness-raising tools, which will remain essential pillars of cooperation in the future, the project also places a great deal of importance to creating the legal environment needed to tackle fraud in the long term, analysing and improving the processes of authorities and the market and collecting national and international best practices. To this end, there is also close cooperation with other institutional projects other than

CyberShield that were also launched in relation to financial fraud.

MNB Recommendation on the prevention, detection, avoidance and management of fraud committed through payment services

The MNB expects payment service providers to take all reasonable measures to be able to detect, prevent and, where appropriate, avoid abuse in a timely manner as far as possible. After examining and gathering best practices to tackle fraud at both national and international levels, the central bank summarised its expectations in its Recommendation issued in late June 2023 on the prevention, detection, avoidance and management of fraud committed through payment services and payment service providers are required to comply with this Recommendation gradually, in three phases, starting from 1 January 2024. The Recommendation contains a series of measures that EU legislators intend to include in the Regulation on payment services in the internal market (PSR), currently being prepared. The MNB monitors compliance with the expectations set out in the Recommendation on an ongoing basis. Under the Recommendation, expectations include the use of real-time transaction monitoring mechanisms by payment service providers, the use of notifications relating to new non-cash payment instruments being made available to customers, the introduction of transaction limits, the application of restrictions on payment transactions in case of risk and the establishment of lines of defence against internal and external fraud. However, it is also important to make sure that payment service providers are able to comply with the Recommendation without significantly diminishing the customer experience of electronic payment solutions.

Implementation of the Central Fraud Monitoring System

The MNB and GIRO Zrt. launched the implementation of the Central Fraud Monitoring System (CFMS) in close cooperation to effectively support the payment service providers' own fraud prevention systems. The System will use artificial intelligence to assess the fraud risk of transactions in real time and will also provide real-time feedback of the results to payment service providers, thus supporting institutions by providing additional information that cannot be obtained from payment service providers' own analyses. In order to be able to use the risk values received from the CFMS, service providers will also have to analyse the financial risks associated with payment transactions in real time, which they will also be required to do from 1 March 2025 under the MNB Recommendation

presented above. In order to ensure that the system can go live on 1 July 2025, GIRO Zrt. launched a tender process for the implementation of the project in 2023. The System is currently under development and, at the same time, the MNB and GIRO Zrt. continue to have ongoing consultations with project participants, including payment service providers, to ensure that the implementation of the CFMS is as fast and smooth as possible.

2.3 KEY FINDINGS FROM PAYMENT INSPECTIONS

Based on 2023 payment inspections, the operation of the payment service providers inspected was generally adequate, with some shortcomings identified in most procedures. In 2023, 6 payment inspection procedures were opened and 9 closed. The resolutions sent out during the year contained 38 measures and penalties totalling HUF 86 million for 6 institutions. In addition, an institution was repeatedly ordered to put an end to an infringement, with a penalty of HUF 3 million for non-compliance with the previous resolution. The inspection reports sent out during the year, included findings of 102 cases of infringement, of which 80 were detected by the MNB in inspections covering the broadest range of payment legislation subject to inspection, while 22 were detected in targeted inspections of the dedicated interface (API) for open banking.

A significant part of shortcomings identified during the inspections were related to framework payment agreements which could mislead customers and adversely influence their decisions. One-fifth of the findings in the year under review were related to violation of the Payments Act²¹. Most of the shortcomings can be classified into four types, of which the most notable was the violation of the formal and substantive requirements of framework agreements. As required by law, framework agreements of payment service providers must contain specific elements, such as liability and indemnity clauses, in addition to the features of the service. The customer must be informed thereof prior to the conclusion of a framework agreement. If these required elements are incomplete or do not comply with the legislation in terms of accuracy (meaning that, for example, the content of the framework agreement includes unjustified limitations on the liability or indemnity obligation of the payment service provider), it may adversely affect customers. This includes, in particular customers whose protection is a priority under law and

microenterprises. Therefore, the MNB considers any deviation in the content of framework agreements a serious breach of the penalty methodology, also bearing in mind that a framework agreement with unlawful content typically affects a broad range of customers and therefore potentially has a significant negative impact on the account holders concerned. This year, the number of infringements related to the opening of payment accounts, the provision of ex-post information, the correction of payment transactions, and liability and indemnity clauses was also higher.

There were still a high number of issues related to some institutions failing to instantly credit amounts received by customers. Infringements of the MNB Decree on the execution of payment transactions²² accounted for 38% of all findings, a sharp increase compared to the previous year. The majority of infringements of the MNB Decree can be classified into two types. The most common shortcoming (17% of all shortcomings) was the failure to instantly credit the amount of payment transactions. By failing to instantly credit the amount of payment transactions received to their customers, payment service providers may have also caused damage as, in these cases, customers could have been delayed in disposing of the amount of payment transactions received. The share of shortcomings in the execution of payment orders between payment service providers was also high (8% of all shortcomings). In these cases, payment service providers failed to execute their customers' payment orders within the legal time limit and transfer the amount of payment orders to the payees' payment service providers within five seconds, four hours or one day, depending on the type of payment order.

Shortcomings concerning statements of fees related to accounts held for consumers under the 3 Government Decrees adopted on the basis of the Payment Accounts Directive²³ accounted for 6% of infringements in 2023. The most common shortcoming was that the statement of fees provided to consumers was non-compliant because it was incomplete, did not contain information to the required level of detail or did not include important additional information.

In 2023, the MNB identified a high number of issues in the functioning of banking APIs enabling the operation of third-party service providers important for fostering competition in the payments market. Third-party service providers enable customers to initiate transactions through

²¹ Act LXXXV of 2009 on the Provision of Payment Services (in the chart: Payment Services Act).

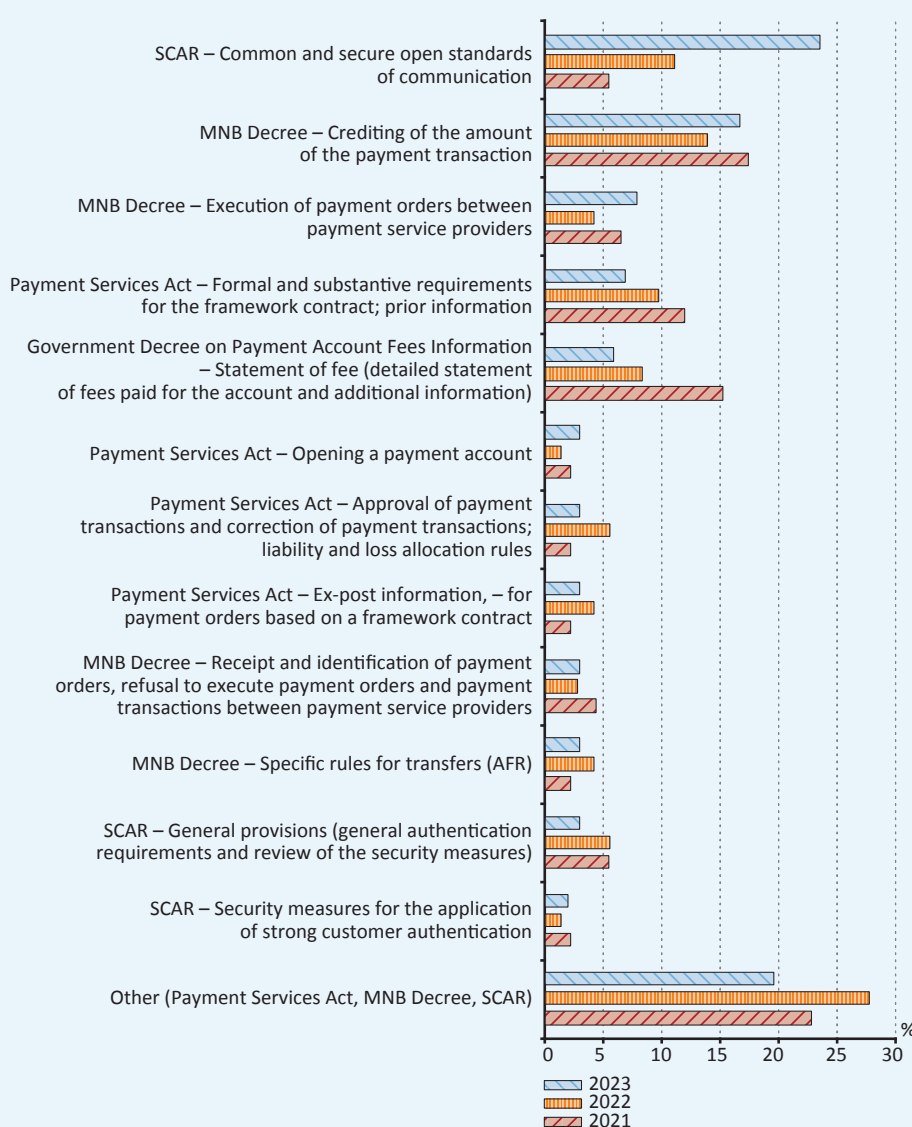
²² MNB Decree No 35/2017 (XII. 14.) on the execution of payment transactions (in the chart: MNB Decree).

²³ Government Decree No. 144/2018 (VIII. 13.) on certain issues of providing information on fees related to payment accounts held for consumers (in the chart: Government Decree on Payment Account Fees Information).

service providers independent of their account-servicing banks or access transaction data from their accounts. For these services, a third of all findings concerned the violation of the rules laid down in the Regulation on standards for strong customer authentication and common and secure open standards of communication²⁴. The main focus of these inspections was the rules on common and secure open standards of communication, with infringements detected in relation to general obligations for access interfaces, obligations for a dedicated interface, contingency measures for a dedicated interface, and data exchanges

accounting for 22% of the shortcomings identified throughout the year. In order to operationalise payment initiation and account information services, the MNB and the Banking Association co-hosted a roundtable discussion on the functioning of APIs in 2023, bringing together third-party service providers and account-servicing providers. Market operators were presented with the updated API website providing up-to-date information and contact details concerning the data of dedicated interfaces created by account-servicing payment service providers. Particular focus was given to improving the efficiency of incident

Chart 53
Share of main types of shortcomings identified during payment inspections (2021–2023)



Note: The scope of institutions subject to inspection by the MNB varies from year to year and the legislation covered by the inspections may also be different in each year.

²⁴ Commission Delegated Regulation (EU) 2018/389 of 27 November 2017 supplementing Directive (EU) 2015/2366 of the European Parliament and of the Council with regard to regulatory technical standards for strong customer authentication and common and secure open standards of communication (in the chart: SCAR).

reporting related to APIs. The MNB considers that the APIs are fundamentally working well, meeting the required minimum, but there are a number of potential obstacles other than those identified by the EBA²⁵ and the MNB²⁶, so the market cannot yet achieve its full potential. At the EBA working group meetings, the MNB has indicated on several occasions that a single, continuous EU-wide API monitoring system could address the otherwise EU-wide issue, but the idea was rejected due to the very high cost it involves.

In terms of security of payments, considerable progress was made in 2023, with security of payments being a top priority in inspections. The MNB gives particular focus to the security of payments, resulting in the MNB Recommendation on the prevention, detection, avoidance and management of fraud committed through payment services²⁷. At the EBA working group meetings, the MNB has also made a number of proposals on this topic, including, in particular, a proposal to require the use of a real-time fraud detection system, which the EBA has forwarded to the European Commission.

2.4 CURRENT TOPICS IN PAYMENTS

2.4.1 Further development of the Instant Payment service

Instant payment was launched on 2 March 2020 and, based on the experience of the past four years, the reliability and error-free operation of the system creates an opportunity for the development and widespread adoption of payment solutions built on it. The Instant Payment System (IPS) was launched in Hungary on 2 March 2020 and its implementation can be considered unique at a global level as all payment service providers were required to join. As a result, the new service has become a core service for all customers in Hungary at no extra charge. In practice, this means that the amount of every individually submitted electronic transfer below HUF 10 million and then, from September 2023, below HUF 20 million is available for use in the payee's account within 5 seconds. In order to promote the uptake of services based on Instant Payment, the MNB, in cooperation with GIRO, has made it possible to initiate transfers with QR codes and payment requests, payment solutions that has been offered to customers by many payment service providers in recent years. However, according to the MNB's market information, the main obstacle to the widespread market

and retail uptake of payment solutions based on these services is the lack of full coverage. Making these services available to a broad range of customers could reduce payment costs for both retail and corporate customers and provide a new alternative to bank cards and cash in many payment situations, opening up the possibility of electronic payments to a new customer base, thereby contributing to a further increase in the share of electronic transactions.

From 2024 onwards, the MNB will open a new chapter in the development of services based on Instant Payment in order to ensure that they offer customers real payment solutions in as many payment situations as possible. This will both create new payment options for customers and foster competition in the Hungarian payments market. Accordingly, the MNB has required payment service providers to provide their customers with ability to manage various standard input solutions (SIS; e.g. QR code, deep link, NFC) and the possibility to receive payment requests in their banks' mobile applications. This means that all payment service providers made it possible for their customers to receive payment requests from 1 April 2024 and all customers will have several options to initiate transfers from 1 September 2024. In addition, not only new payment solutions but also additional services related to the execution of transactions will become available. Such additional services could include an identification option linked to loyalty card programmes integrated into SIS, allowing for the collection of loyalty points, the activation of discounts and the payment transaction itself all at the same time. Another related option is the integration of e-receipts to be introduced in 2025 and required from all merchants from mid-2028, allowing consumers to receive their electronic receipts and, where applicable, warranty cards in a single transaction, in addition to the above-mentioned functionalities. This means, for example, that when using Instant Payment, not only can customers execute payment transactions, but they can also receive their receipts automatically in electronic format, allowing them to retrieve them easily and securely later at any time. This in itself can increase consumers' awareness of how to use modern technical solutions, which in turn can support openness to the use of mobile payment solutions in general. Overall, the use of new integrated services can result in simpler and more efficient payments than ever before, not only for customers but for merchants as well, while also greatly reducing the administrative burden on both sides.

²⁵ Opinion EBA/OP/2020/10 of the European Banking Authority of 4 June 2020 on obstacles under Article 32(3) of the RTS on SCA and CSC

²⁶ <https://www.mnb.hu/letoltes/10-2021-akadalyozasrol-ajanlas.pdf>

²⁷ <https://www.mnb.hu/letoltes/5-2023-penzforgalmi-visszaelesek-ajanlas.pdf>

With the introduction of Instant Payment, the MNB's explicit objective was to create an efficient and secure electronic payment solution that is easy to use in all payment situations, further increasing the uptake of electronic payments and the intensity of competition in the payment services market. In many cases, services based on Instant Payment offer a more attractive alternative, especially for smaller merchants, service providers and bill issuers, than the currently prevalent electronic acceptance services. In order to ensure the timely introduction of the service on the acquirer side, the MNB holds consultations with stakeholders and encourages them to actively seek new acquiring institutions and develop acceptance services based on Instant Payment. Their operation highly flexible as payees can instantly receive the value of the products or services they sell if they so wish, but also have the option to apply a once-a-day crediting process. Faster settlement can improve the liquidity of businesses, especially for the smallest operators, and they also incur more favourable acceptance fees. Additionally, in most cases, operators do not need to purchase new physical equipment as some POS terminals or other electronic devices are capable of displaying the details required for payment or transmitting to the customer's device. This means that the customer experience could be the same as for popular payment methods currently in use as contactless solutions will also be technically available. The key to the success of the new service is to have a significant number of active users, both on the merchant and bill issuer side and on the customer side. In order to achieve this goal, the MNB has indicated to payment service providers on several occasions that it expects them to provide customer-friendly development solutions for their services going beyond the legal requirements provided by the MNB and develop acquiring services that are significantly cheaper than the current ones.

In order to encourage everyday use and improve the level of customer education, the MNB has developed a uniform brand identity for Instant Payment and decided to roll out services based on Instant Payment under the umbrella brand 'qvik' in the future. When designing qvik, the MNB's aim was to introduce a brand name that is easy to pronounce, clearly distinguishable from other payment methods and refers to the swiftness of payment. With the introduction of qvik and the new elements associated with it, the brand book published in summer 2023 to specify how payment service providers should display the unique logos and pictograms for services based on Instant Payment will also be updated. The brand book also provides guidelines on how payment service providers should help and expect their business partners to display marketing elements

related to Instant Payment when providing acceptance services based on Instant Payment.

With regard to qvik services, the MNB intends to raise awareness of the new payment services not only through payment service providers but also by launching an education and brand awareness campaign. It is aimed at ensuring that customers come across the payment request service available from 1 April and qvik solutions to be launched in the second half of the year. One of this year's priorities is to raise online and brick-and-mortar merchants', service providers' and bill issuers' awareness of the benefits of qvik services and how they can be implemented. Therefore, the MNB's campaign will primarily target these operators and the MNB will also set up a dedicated website to provide information about opportunities and knowledge related to implementing acceptance. This will be followed next year by the MNB launching a targeted public campaign to ensure that as broad a range of consumers as possible are aware of the potential in and functioning of qvik payments and encourage consumers to use them.

To create trust and brand awareness, the involvement of utility companies, government actors, and merchants with large acceptance networks is of key importance; that is why the MNB launched its incubator programme. Within its framework, the MNB will provide the largest utility providers, bill issuers and retailers in Hungary with the opportunity to engage in joint advertising and develop educational resources. In addition, the MNB also supports the roll-out process through the incubator programme by providing participants with the opportunity to actively take advantage of the MNB's legal and technical assistance in the development of core services. The MNB believes that these institutions can lay the foundation for building consumer confidence in the new services and thus facilitate the uptake of services based on Instant Payment among to smaller stores and service providers.

Chart 54
Logo for qvik services



During service development, the MNB not only focused on convenience for customers and the acquirer side but also took significant steps to strengthen the security of qvik payments. This means that the MNB, based on suggestions from payment service providers, enhanced instant transfers initiated with a Hungarian input solution with additional central authentication, with its technical implementation being carried out by the central clearing house, GIRO. The new feature ensures that transactions initiated with NFC, QR code or deep link are tamper-proof during the payment process as the qvik code can only be scanned and paid via mobile banking applications that have been pre-authenticated by GIRO. This provides a high level of protection for all operators against currently known types of fraud, such as the use of payment links sent via email. For payment requests, also known as qvik requests, the MNB explicitly required payment service providers only to accept requests, in order to prevent anyone from sending large volumes of qvik requests to members of the public or businesses for fraudulent purposes. Currently, only verified operators can use such services, for example for bill payment purposes, but it is already possible for payment service providers to prevent payment requests from being sent if they detect any suspicious transactions. The MNB actively promotes innovation and continuous improvement among payment operators, merchants and bill issuers to innovate and continuously improve, as long as such improvements do not compromise security.

2.4.2 The Regulation on instant credit transfers in euro entered into force in 2024

On 7 February 2024, the European Parliament adopted the Regulation on instant credit transfers in euro which, similarly to the national legislation in Hungary, requires payment service providers to make it possible for their customers to send and receive instant credit transfers in euro. To provide background to the legislative process, in 2017, payment service providers had already agreed on an EU-wide scheme for the execution of instant euro transfers within the framework of the European Payments Council; however, not all European banks joined this agreement so the option for any payee to receive the amount transferred in euro in seconds was not uniformly implemented. Furthermore, uniform regulation was also needed to eliminate differences in national regulations and practices applied in Member States.

The legislation will ensure that all European bank customers have access to euro-based instant credit transfer services, allowing for the development of additional payment solutions based on instant credit

transfers. In order to ensure that the service is broadly available to customers, the new regulation requires that the services of sending and receiving of instant credit transfers in euro must be provided by payment service providers that otherwise provide these services to their customers in the case of non-instant credit transfers in euro. The latter payment service providers are required to ensure 24/7 that instant credit transfers in euro are credited to the payees' payment accounts within 10 seconds. Furthermore, service providers must also provide customers the option to initiate instant credit transfers in euro through any payment initiation channel open to the execution of credit transfers in euro. In addition, payment service providers will be required to immediately inform payers of the execution of instant credit transfers.

Due to the new rules, payment service providers in Hungary will also need to make improvements in the coming years. Considering that the introduction of the services requires improvements on the part of payment service providers, the obligations will be introduced gradually. As for the envisaged timetable, service providers must first provide the service of receiving instant credit transfers and then provide their customers with the option to initiate instant credit transfers. Payment service providers located in Member States whose currency is the euro will be required to provide the service of receiving instant credit transfers in euro payments within 9 months after the entry into force of the Regulation on 8 April 2024, i.e. from 9 January 2025, and the service of initiation of instant credit transfers in euro from 9 October 2025. The time limits for the latter requirement are 9 January 2027 (receiving) and 9 July 2027 (initiation) for non-euro-area payment service providers in order to ensure that payment service providers located in Member States whose currency is not the euro are also sufficiently prepared to provide these services efficiently.

Due to the need for euro liquidity management, payment service providers in non-euro-area countries have been granted exemptions from certain implementing rules. As Member States with currencies other than the euro have only limited access to euro liquidity, the competent authorities in these Member States may allow payment service providers to execute instant credit transfers in euro initiated from accounts denominated in the currencies other than the euro only up to a certain limit on days other than working days. However, no limit will apply to the initiation of instant credit transfers in euro from payment accounts denominated in euro and service providers will be required to ensure that instant credit transfers in euro are received 24/7.

In view of the significant increase in fraud cases recently, the regulation also includes provisions to heighten the security of the service. One of the most important of these provisions is the service whereby payment service providers are required to verify for credit transfers in euro that the name of the payee provided by the payer corresponds to the IBAN provided. With this service, the legislator intended to prevent cases where customers mistakenly, or in some cases due to being misled, enter the wrong IBAN, sending funds to an unintended payee. Payment service providers located in Member States whose currency is the euro will be required to provide this service from 9 October 2025, while payment service providers located in Member States whose currency is not the euro will be required to do so from 9 July 2027. Customers will also be able to set a limit on the amount to be transferred with instant credit transfers in euro, fixing a maximum amount, either on a daily or per transaction basis, that, when exceeded, prevents the execution of the instant credit transfer, ensuring that the total funds available in the payment account cannot be transferred instantly in case of unauthorised access to the payment account. In addition, and again to ensure the wide uptake of the service, the Regulation requires that charges for instant credit transfers in euro do not exceed the charges for other euro credit transfers considered similar based on certain criteria (e.g. the method of initiation).

2.4.3 The set of proposals for payment regulation in the EU

In recent years, the European regulatory framework for payments has set a number of new requirements that have had a significant impact on the functioning of electronic payments. The Second Payment Services Directive (PSD2), which entered into force on 13 January 2018, supported financial technology innovation by providing uniform payments regulation within the EU and helped stimulate competition among payment market players and boost customer confidence in electronic payments by setting rules on security requirements for payment services.

- As part of those security requirements, it introduced two-factor strong customer authentication, which has played an important role in strengthening the security of payments.
- It has set stricter liability rules than before, placing liability for damage primarily with account-servicing payment service providers for payments not initiated by customers.
- It also established a legal framework for open banking, which enabled third-party payment service providers (e.g. FinTech companies) to gain regulated access to customer

data held by credit institutions, opening the way for the provision of services based on this customer data and facilitating the operation of competitors to traditional credit institutions.

PSD2 had many positive effects, but it failed to live up to the legislators' expectations. Despite security requirements, fraud has increased significantly in recent years and account-servicing payment service providers often pass on the amount of damage caused by fraud to customers. In addition, being disincentivised, credit institutions often create obstacles for third-party service providers' to be able to access customer data and that is why open banking has not become prevalent yet. These issues are also present in Hungary.

Technological changes, increased innovation and a shift in customer needs have led the European Commission to the realisation that there is a need for a review of PSD2 and a complete overhaul of the payments regulatory framework. It has therefore called on the European Banking Authority (EBA) to make recommendations for amendments to PSD2 based on national supervisory practices. On that basis, the European Commission published legislative proposals for the review of the PSD2 requirements in June 2023. The most notable change compared to the previous regulation is that, while previously a Directive regulated payments, a Directive and a Regulation are now planned in order to further harmonise regulation and promote coherence in Member State supervisory practices. This is significant because the Regulation will be directly applicable in the Member States, leaving less room for discrepancies in Member State supervisory practices. The Third Payment Services Directive (PSD3) will mainly contain prudential requirements for the authorisation and supervision of payment institutions, while the Regulation on payment services in the internal market (PSR) will include the detailed rules for the provision and performance of payment services.

The main focal points of the amendments are all in line with the 2030 strategic objectives for payments published by the MNB, thus fostering competition and innovation and supporting the maintenance of security in payments. The legislative proposals focus on the following key objectives:

- reduce damage to customers caused by increasingly common payment-related fraud across Europe,
- to this effect, strengthen the security of electronic payments and promote customer rights,
- foster competition in the payments market by further promoting open banking.

The new draft EU Payment Services Regulation (PSR) includes a number of provisions aimed at reducing the damage suffered by customers due to fraud. In recent years, with the acceleration of digitalisation and the growth of the share of electronic payments, the number of payment fraud cases increase across the European Union. The damage resulting from fraud is often attributable to customers being subjected to deception or social engineering or their lack of financial awareness. The new regulation aims to curb this. In this context, payment service providers will be required, inter alia, to apply transaction monitoring mechanisms and take customer education measures that are capable of identifying, preventing and, where possible, avoiding fraud affecting electronic payment services, irrespective of the means of the fraud attempt. In the MNB's view, the proposed amendments to the rules on payment transactions executed due to fraud are unclear (e.g. when does the customer approve the payment transaction, when is the customer's conduct considered to be grossly negligent), which may lead to disputes in the future; therefore, the MNB proposes to clarify them. The MNB also proposes to clarify the rules on name/-account number matching to be introduced to further reduce fraud. In addition, the MNB would consider it essential for the new regulation to require payment service providers to operate real-time transaction monitoring mechanisms to effectively prevent and detect payment fraud.

The PSR will also address issues hindering the operation of third-party service providers by setting out more detailed operational rules than those in effect. Introduced by PSD2, open banking enabled non-traditional banking operators, so-called third-party service providers, to access customers' payment accounts and payment account details

and provide services on that basis, promoting competition among payment market operators. To this end, account-servicing payment service providers are required to ensure a secure data connection for third-party service providers. Experience in Europe shows that secure data connections are not functioning properly and frequent service outages and version changes make it difficult for third-party service providers to deliver their services in a smooth and continuous manner. The PSR also aims to address this issue by requiring a dedicated interface (API) and introducing additional requirements on the performance and functionality of dedicated interfaces. However, in the MNB's view, the proposed requirements are not precise enough, still creating challenges in legal interpretation. In the MNB's view, in absence of a centralised monitoring process at European level and an effective incentive scheme for payment service providers, the fragmentation of the open banking market and the quality of access interfaces operated by account-servicing payment service providers will not improve going forward. In addition, to promote open banking, the MNB considers it important to develop more detailed rules on preventing third-party service providers from accessing customer data.

A significant innovation compared to PSD2, the PSR would set out the requirements for payment services and e-money services in a single framework. This would include the standardisation of information requirements for service providers and the rules on the rights and obligations of service providers and service users, meaning that the previously separate payment services and e-money regulatory regimes would be merged. The Presidency-in-Office of the Council of the European Union launched the discussions of the legislative proposals and the package of proposals is expected to be adopted next year.

3 Financial infrastructures

The reliable and efficient functioning of financial infrastructures is indispensable for the execution of real economy and financial transactions. Payments in central bank or commercial bank money and transactions executed with securities and other financial instruments require centralised systems that allow for the clearing and settlement of transactions. VIBER is a real-time gross settlement system operated by the MNB. Its primary purpose is the settlement of large-value money and capital market transactions between participants and on behalf of their customers and the settlement of transactions cleared by related financial market infrastructures (Interbank Clearing System (ICS), KELER Group, Continuous Linked

Settlement System (CLS)). The Interbank Clearing System (ICS) is a gross payment system mainly for the clearing of households' and companies' low-amount payments operated by GIRO Zrt. (GIRO), offering three clearing methods: instant, intraday and overnight clearing. Members of the KELER Group, i.e. the central securities depository (KELER CSD) and the central counterparty (KELER CCP), are responsible for securities clearing and settlement services, and the registration of domestically issued securities. CLS is an international FX settlement system operated by CLS Bank. It is based on a multi-currency payment-versus-payment (PvP) mechanism and eliminates FX settlement risks.

Table 4
Evolution of turnover in domestic financial infrastructures (2021-2023)

Overseen systems		Number (thousands)			Value (HUF trillion)		
		2021	2022	2023	2021	2022	2023
VIBER		1,845	2,083	2,244	2,338	2,640	3,555
ICS	overnight clearing	97,353	73,777	70,830	10	5	6
	intraday clearing	138,021	156,590	151,001	130	178	190
	instant clearing	135,583	153,352	162,406	22	28	30
KELER		545	610	622	203	250	409
KELER CCP*		2,002	2,518	1,693	7	9	6

* Data refer to the capital market.

A revised methodology is applied to measure availability.

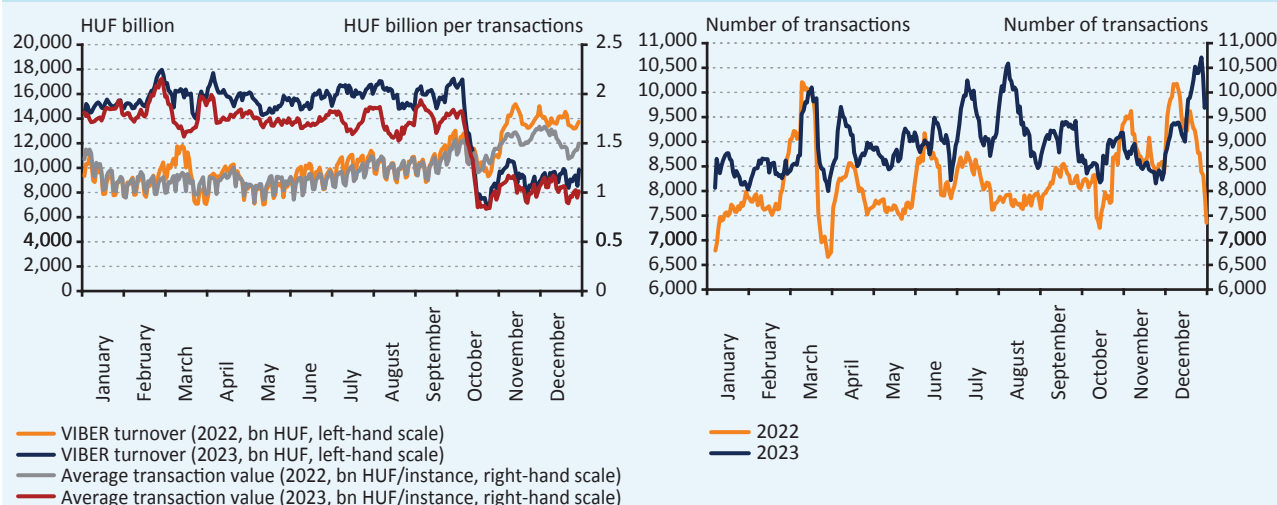
Developed by the MNB for overseen systems and approved by the Financial Stability Board, the single availability methodology is applied to measure the availability of critical systems from 2023 onwards. After one year in operation, the new methodology has lived up to expectations. The different technological, work organisation and contractual environments of critical systems had an, albeit limited, impact on the indicators calculated in relation to availability. The amendment reduced this degree of freedom. Its elements, including clear definitions of service level reduction and malfunction, and a more in-depth identification of business processes, have reinforced the ability of the indicators to reflect reality and ensure comparability of the operational reliability of critical systems.

3.1 VIBER

In 2023, the value of VIBER transactions increased by almost 35%, while the number increased by 7.7% (Table 4). Increased market volatility as a result of changes in monetary policy instruments is still apparent in turnover. Compared to the previous year, the increase in turnover was significant particularly in the first three quarters, owing to the quick deposit tender launched in October 2022 (Chart 55). The average value per transaction in the VIBER fell by almost 40% in the last quarter of 2023 due to the phasing out of the quick deposit tender. The increase in value is related to transactions related to the settlement of ICS intraday clearing and the MNB's discount bond auctions, in addition to the quick deposit tender.

Chart 55

Year-on-year evolution of the value, average transaction value (left chart) and number (right chart) of VIBER transactions

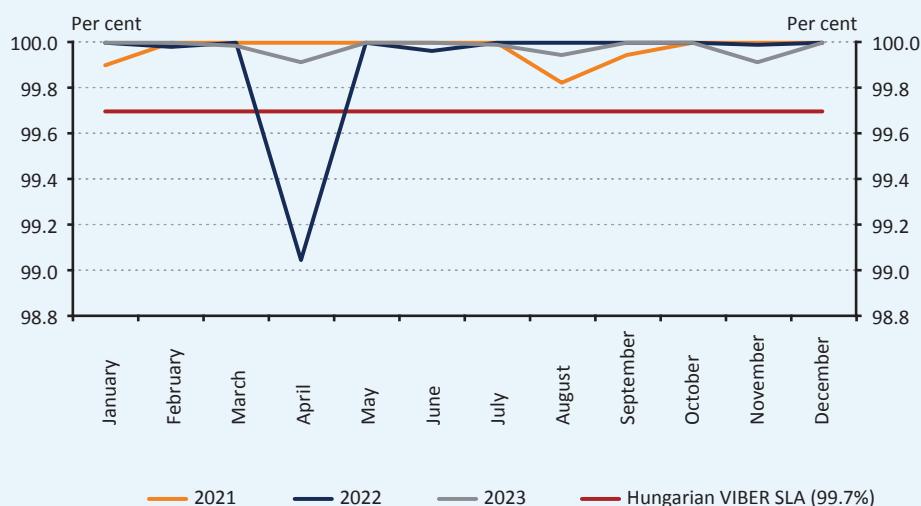


In 2023, the functioning of the VIBER was highly reliable, secure and stable, with a reduced risk of service continuity compared to the previous year. Unlike the previous year, VIBER availability met the 99.7% availability target set as the oversight expectation every month. The overall incident duration for outages of the core settlement service decreased significantly, by 75% compared to the previous

year (Chart 56). The stable functioning of the VIBER is shown by the fact that participants experienced outages of the core settlement service on only 6 days in 2023, amounting to just over half an hour in total for the entire year. Operation on a hybrid schedule continued to have no identifiable negative impact on the operational reliability of VIBER.

Chart 56

Availability of VIBER (2021–2023)



3.2 ICS

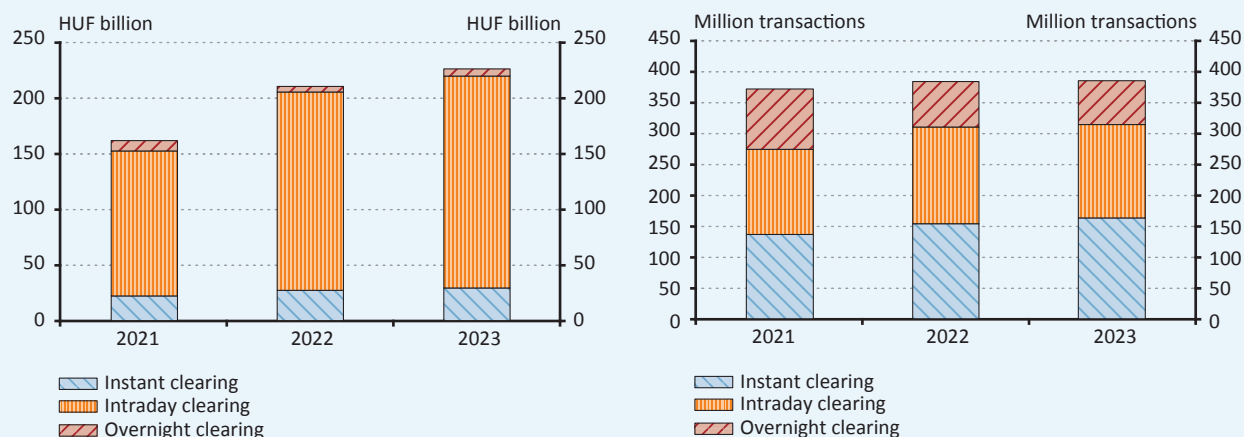
While the total number of transactions on the three ICS platforms did not increase substantially, there was a greater shift towards the instant clearing system. In terms of value, a significant share, around 84%, of ICS turnover

was executed in intraday clearing, 13% in instant clearing and 3% in overnight clearing (Table 4). In overnight clearing, only a part of the transfers by the Hungarian State Treasury (e.g. pension and family benefits) and collection-type transactions of ICS participants are cleared; the increase in overnight clearing turnover is attributable to rising inflation

and pension increases. While the number of transactions decreased by 4% in both intraday and overnight clearing, the number transactions increased by 6% in instant clearing

during 2023. In terms of value, turnover for both instant and intraday clearing increased by 7%, while the turnover of overnight clearing grew by 18% (Chart 57).

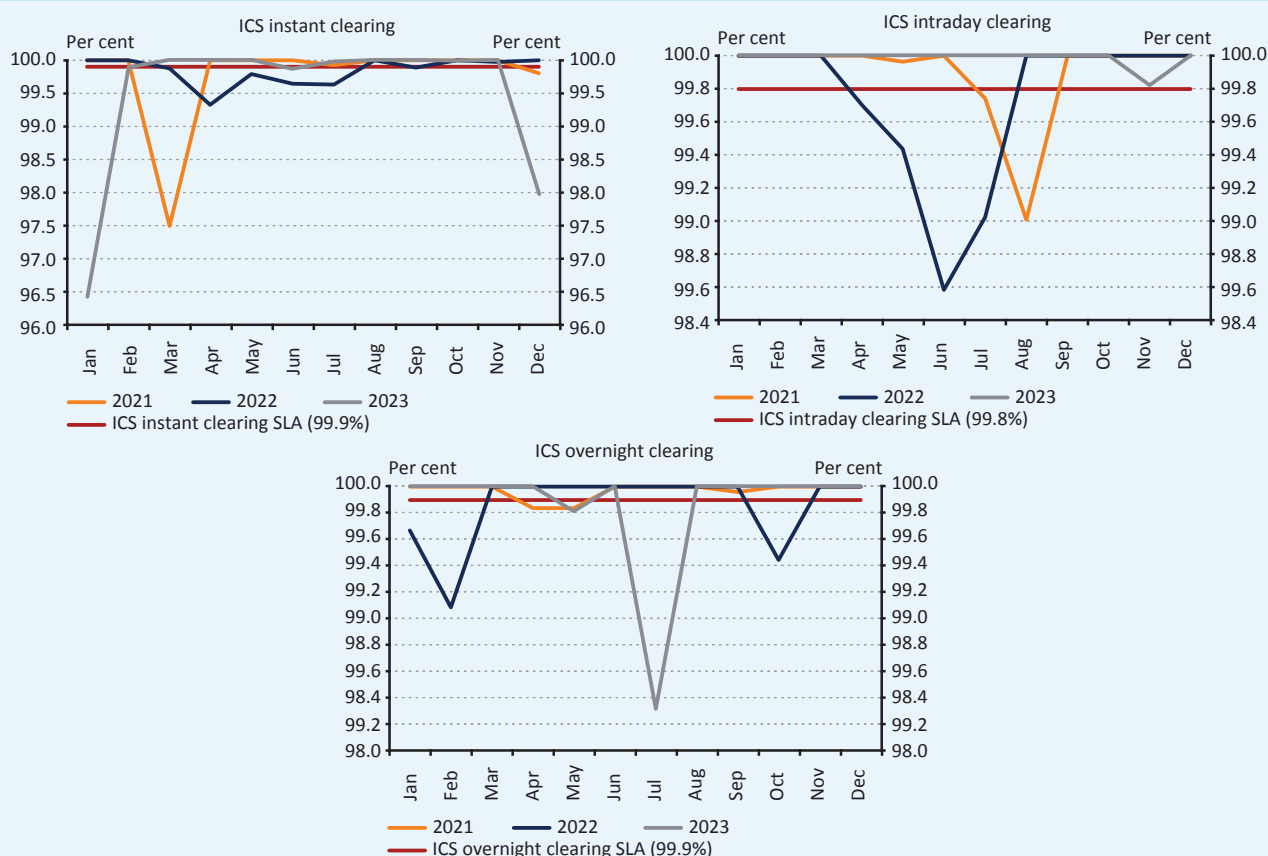
Chart 57
Distribution of turnover on each ICS platform (2021–2023)



In 2023, the operation of ICS instant, intraday and overnight clearing was reliable and secure. The availability of all three platforms met the 99.9% and 99.95% levels committed in the ICS Business Rules in most months of 2023. ICS participants experienced irregular operation, such

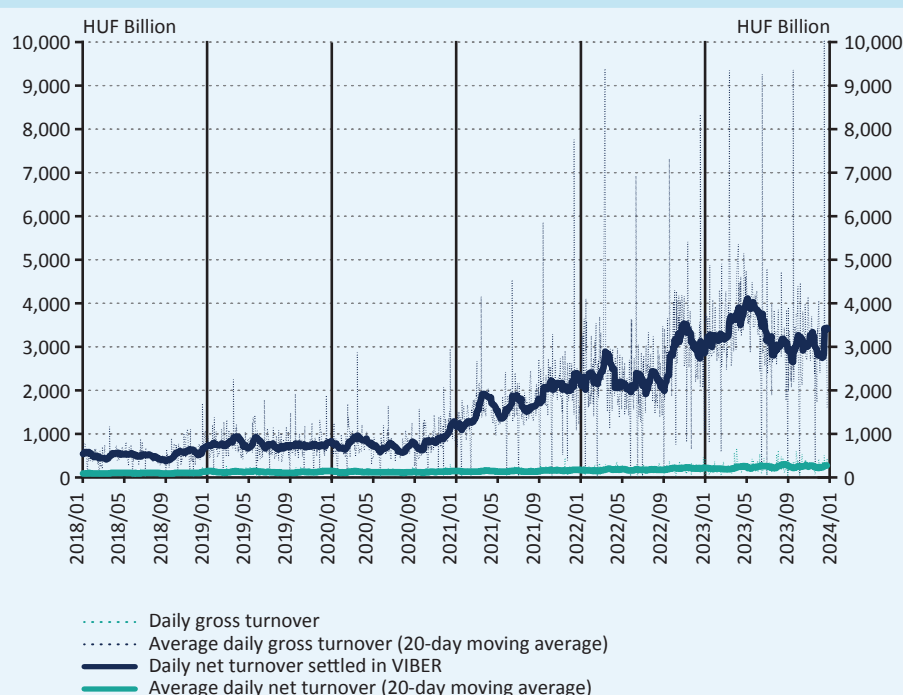
as delays in running some cycles in intraday or night-time clearing or transactions rejected due to time-out in instant clearing, on a few business days and for a short periods of time (Chart 58).

Chart 58
Availability of ICS (2021–2023)



3.3 CLS

Chart 59
CLS turnover



In 2023, forint turnover in the CLS foreign exchange settlement system increased by 29%. Annual turnover increased from HUF 636 thousand billion to HUF 822 thousand billion. In particular, the first half of the year saw a very high level of activity from those participating in the settlement, whereas by the second half of the year, turnover was at a lower level, but still significantly higher than last year. The average daily turnover thus exceeded HUF 3,275 billion. The number of those participating in the settlement remained at 32, and since the end of 2022, they have the possibility of managing the HUF account required for the settlement at one of 6 Hungarian banks.

CLS transactions in HUF took place along with stable operations, and CLS rendered its service with 100 per cent availability throughout the year. The 6 Hungarian banks managing nostro accounts in Hungary and providing forint liquidity for the settlement of transactions experienced late payment only on 5 days during the morning processes of the 251 settlement days of the year. In two of these cases, the incidents resulted in a delay in the CLS's performance for the day. VIBER incident in 2023 did not delay the CLS payment schedule.

3.4 LIQUIDITY IN PAYMENT SYSTEMS

Liquidity in the VIBER and ICS is essentially determined by the same factors; any changes in these factors equally

affect both systems and their participants. The settlement of ICS intraday and overnight clearing takes place directly in the VIBER. Accordingly, for the payment transactions the participants use the same liquidity – i.e. the account balance on their payment account held with the MNB and the credit line received in exchange for the securities holdings pledged to the MNB – in VIBER as well as in the ICS overnight and intraday clearing. In the case of the ICS instant clearing, settlement takes place by including a further step. For instant clearing, participants have to pre-finance the funds on the technical collecting account maintained by the MNB. In line with that, on behalf of the MNB, GIRO manages the instant settlement accounts for participant. In addition to the turnover, the balance can be increased or reduced to the debit or credit of the liquidity in the VIBER through instant internal transfer. Outside of VIBER operating hours the liquidity can be expanded through central bank lending, i.e. by instant credit provided on the basis of securities holdings pledged to the MNB.

3.4.1. Factors affecting liquidity

The extended liquidity of VIBER participants increased significantly in the first three quarters of the year, before falling back to the level at the beginning of the year by the last quarter, mainly due to the increased account balance and the change in monetary policy instruments. Liquidity remained sufficient for executing increased and

more volatile payment transactions. A major change in the central bank instruments affected the participants' liquidity in 2023. The level of extended liquidity (closing account balance + overnight deposits + intraday credit line) in VIBER remained relatively stable in the first 3 quarters of 2023, averaging around HUF 13,500 billion. However, by the end of September, the level of extended liquidity for VIBER participants fell significantly due to the termination of the quick deposit tender where participants had been depositing between HUF 7–8,000 billion per day prior to its termination. The value of extended liquidity thus decreased from HUF 13,500 billion in early October to HUF 11,500 billion by the end of December as only part of the holdings in the quick deposit tender was channelled into assets available for payment purposes, such as the VIBER account balance or the liquidity-absorbing deposit, after the phase-out. The reserve requirement ratio was raised from the previous minimum of 5% to 10% as of 1 April

2023, resulting in the closing level of the payment account balance held in the VIBER increasing from a range of HUF 2,150 billion to 3,428 billion to a peak of HUF 4,546 billion by 5 April. (Chart 60) In addition to the phase-out of the quick deposit tender, the decline in extended liquidity was also driven by a change in the intraday credit line, which fell from HUF 4,000 billion at the beginning of the year to HUF 2,000 billion at the end of the year, mainly due to a decline in the liquidity-absorbing deposit and government securities. The composition of the pledged collateral behind the intraday credit line also changed in 2023. While the share of government bonds increased by almost 20 percentage points during 2023, the share of liquidity-absorbing deposits fell significantly in the second half of 2023. (Chart 61) A sufficient proportion (54%) of VIBER participants' potential liquidity comprises securities on the balance sheets of the participants that may be optionally pledged. (Chart 61)

Box 2

Change in the methodology for the calculation of liquidity for VIBER participants

Due to the significant growth in overnight (O/N) deposit holdings, the MNB has made a change to the methodology for showing the calculation and evolution of liquidity, replacing the liquidity shown in previous years with the evolution of extended liquidity supplemented by overnight (O/N) deposits. Although it has been noted that the balance of overnight central bank deposits should not be used as collateral for central bank credit under the MNB's Business Terms and Conditions, since short-term deposits are typically fixed in the hours immediately preceding the closing of VIBER and are released following the opening of VIBER on the next day, the liquidity is available to VIBER participants during the day. Consequently, in order to show the actual account balance, the closing balances are presented in conjunction with short-term deposit holdings.

Chart 60
VIBER liquidity and turnover (2021–2023)

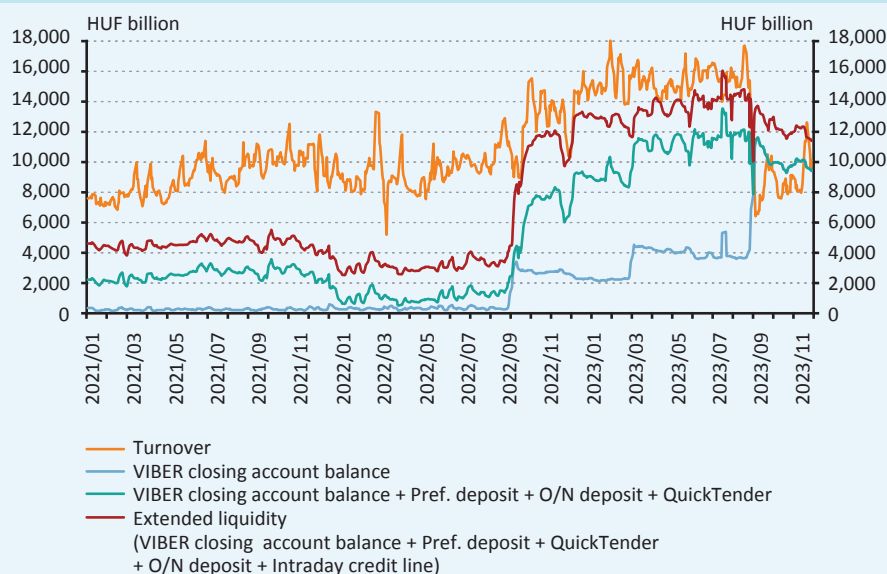
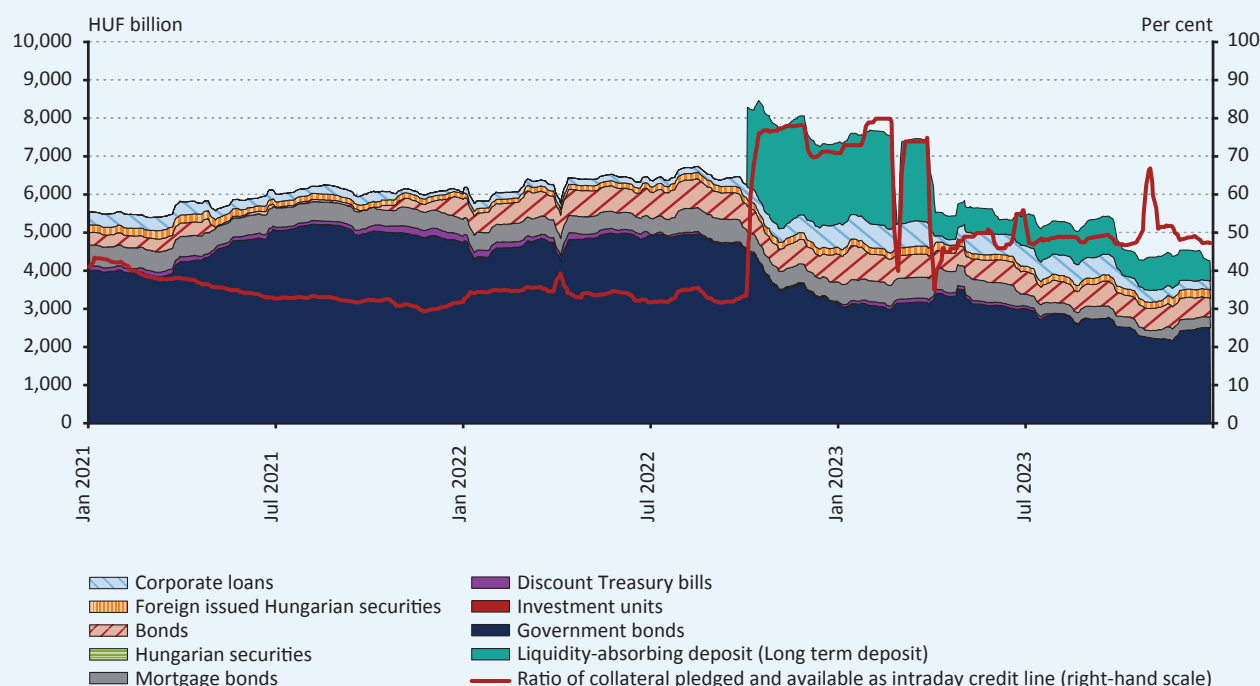


Chart 61
Share of pledged collateral portfolio to credit line²⁶



3.4.2. Liquidity management for VIBER and ICS participants

VIBER

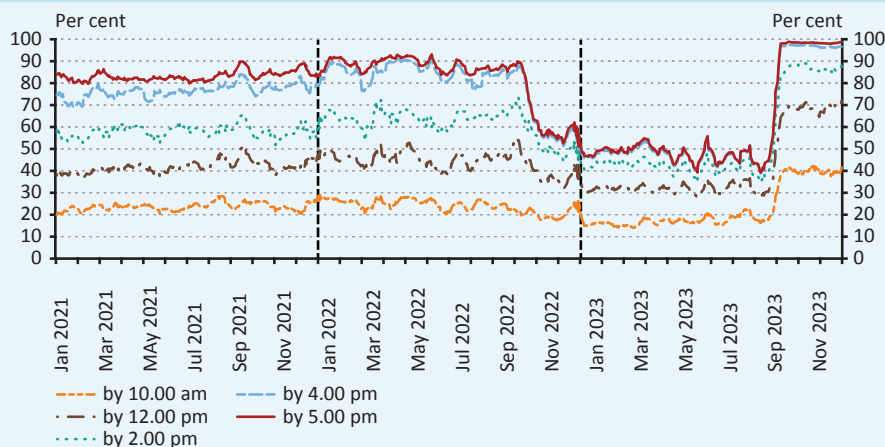
Participants in the payment system managed their liquidity in the VIBER efficiently, despite the volatility in turnover caused by changes in monetary policy instruments during 2023. Growth in the intraday value of VIBER turnover is observed in most time bands; it was lower than the figures for 2022 only between 12:00 p.m. and 1:00 p.m. and between 3:00 p.m. and 5:00 p.m. While over 50 per cent of VIBER turnover was initiated by 2:00 p.m., in terms of their number, transactions were already launched by 10:00 a.m. The higher value transactions of VIBER participants, similarly to the previous years, were still settled in the late afternoon and evening hours, whereas a major part of

the daily VIBER turnover was still settled in the last hour preceding the closing of VIBER. These transactions were fundamentally related to transactions with the MNB, interbank transactions and securities settlement as well as to the provision of cover for instant clearing. It is interesting that the timing of VIBER turnover went through a significant change as a result of the amendment to the central bank toolkit. The quick deposit tender with an interest rate of 18% was launched on 14 October 2022, and VIBER participants already deposited HUF 3,500 billion by 21 October 2022 and HUF 5,300 billion by 7 November in it. Depositing in the quick tender typically started after 5:00 p.m. As a result, only 60 percent of VIBER transactions were executed by 5:00 p.m. after the launch of the quick tender compared to the 85–90% level prior to October 2022, an effect that persisted until the October 2023 phase-out. (Chart 62)

²⁶ Share of credit line available for payments as a percentage of total pledged collateral (excluding SME loans)

Chart 62

Timing of VIBER system turnover by value of transactions (percentage of value of turnover completed within a day by a given point in time) (2021–2023)



Note: Excluding MNB, KELER, Hungarian Treasury (HT), GIRO, Magyar Posta items.

As a result of ample liquidity in the system, still only a very low portion of VIBER transactions were queued due to shortage of liquidity. Their number declined by nearly 70% compared to the previous year. Overall, 0.01% of VIBER transactions were queued.

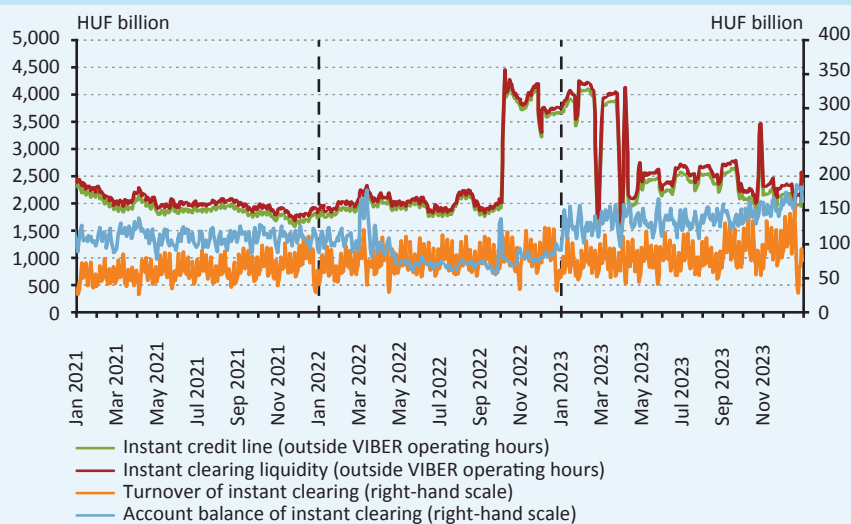
VIBER participants used their credit lines less than in the previous year. While VIBER participants made a higher than usual use of the credit line in their operations before noon, they used lower amounts in the afternoon hours. The majority of participants are able to settle their VIBER transactions relying on their account balances. The maximum utilisation of intraday credit line (MICL) at systemic level is still low (0.1–3.7%), the value of which decreased by more than 4 percentage points compared to 2022.

ICS instant, intraday and overnight clearing

The level of instant liquidity required for the ICS instant clearing and the level of VIBER liquidity required for ICS intraday and overnight clearing have been planned with sufficient safety to ensure the smooth execution of transactions during 2023. The turnover in intraday clearing cycles was balanced; sufficient liquidity was available both at the level of the system and at individual participants' level. No transaction was refused due to uncovered positions in overnight clearing. In 2023, participants' aggregate account balance in instant clearing was typically between HUF 80–190 billion, with no substantial change compared to the previous year. (Chart 63)

Chart 63

Turnover and liquidity of instant clearing (2021–2023)



Note: calculated on the basis of 5-day moving averages.

In 2023, a mere 0.1–1.1% of the total liquidity available in VIBER at any given moment was enough for the settlement of intraday clearing cycles where a cycle amounts to HUF 84 billion on average. However, a temporary shortage of collateral occurred in ICS intraday clearing in 2023 as well where the number of affected transactions declined compared to the previous year. If an ICS participant fails to provide sufficient collateral in VIBER for the settlement of the transactions submitted for the respective ICS cycle, the transactions left without funding are transferred to the next clearing cycle in the case of cycles 1–9, while the transactions uncovered in cycle 10 are rejected by the system. In 2023, due to a lack of liquidity, some ICS participants were unable to provide collateral for a total of 24 transactions worth HUF 31.87 billion, which were rolled over to the next cycle. Resulting from the way of the settlement of overnight clearing, there is no need for participants' continuous liquidity management.

CLS

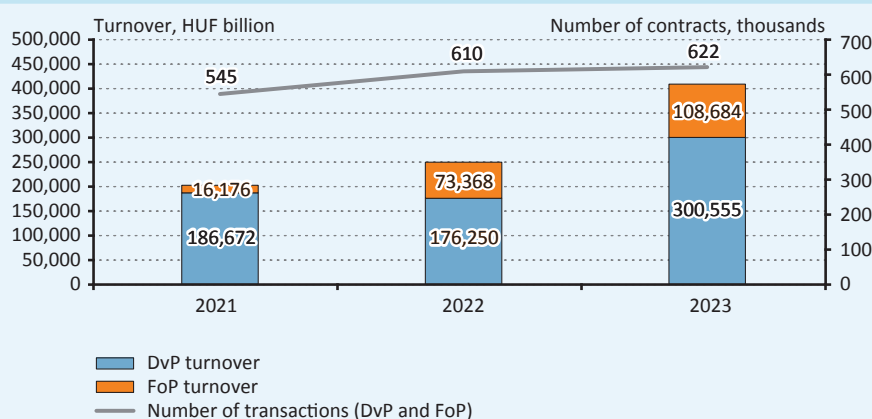
In 2023, payments to CLS did not cause any liquidity problems in VIBER, and thus the related clearing and settlement risk remains low. For the CLS settlement of their foreign exchange transactions with a forint leg, direct participants of CLS provided forint funding through 6

Hungarian VIBER participants as nostro account providers, since they themselves are not direct VIBER participants²⁹. Payments related to CLS-settlement will be completed in 2 time bands specified by CLS, i.e. between 7:00–8:00 a.m. and 8:00–9:00 a.m. In 2023, the daily average CLS pay-in turnover reached HUF 220 billion³⁰, which accounts for 0.1–6.8% of total VIBER turnover settled on the respective day. In 2023, in spite of the substantial turnover, nostro agents made their CLS-related payments mostly by drawing on their account balances, while credit lines were rarely used.

3.5 KELER

In 2023, the value of KELER's turnover showed significant growth, with a slight increase in volume. The value of last year's turnover exceeded the previous year's turnover by HUF 159 thousand billion, but in terms of the volume of transactions, 12,000 more transactions were settled. As for turnover, the upward trend in the total number of transactions also continued last year, with 622,000 transactions worth HUF 409 trillion settled. In terms of value, the increase is considered significant for the previous year's figures, but only a slight increase was observed in 2023 when considering the number of transactions. This considerable growth in turnover is attributable to the Magyar Nemzeti Bank issuing a significant volume of bonds.

Chart 64
Evolution of KELER's turnover



²⁹ VIBER participants with nostro accounts linked to CLS: CIB Bank, K&H Bank, OTP Bank, Raiffeisen Bank, UniCredit Bank and Citibank from November 2022.

³⁰ Taking into account both payments to CLS and payments initiated by CLS, the daily average transaction volume doubled, i.e. increased to some HUF 335 billion. This equals to 0.2–9% of the average VIBER turnover.

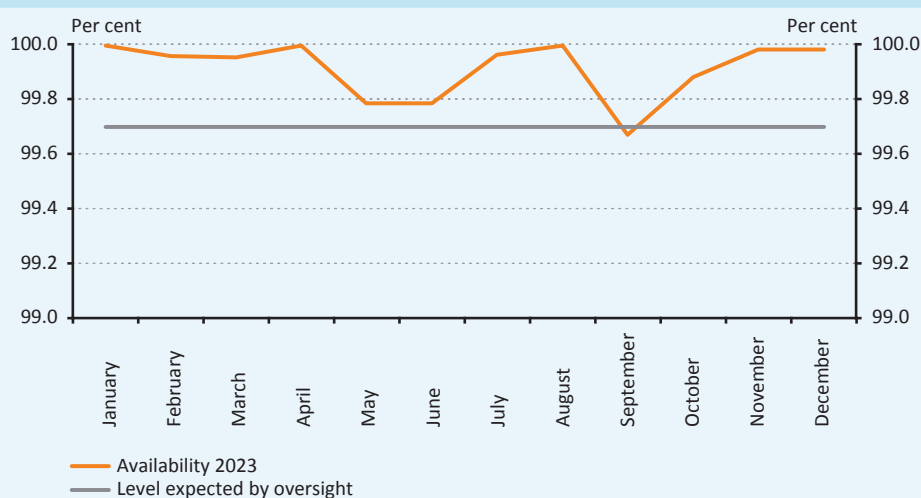
Settlement risks reduced as the share of DvP transactions increased compared to the previous year. In 2023, 73% of the total value of transactions was of the delivery-versus-payment (DvP) type, with free-of-payment (FoP) type³¹ transactions at 27%. The value of DvP transactions increased by 70%, with their number up by 4%, while the value of FoP transactions grew by 48%, with their number down 0.03%, in 2023 compared to 2022. In terms of cleared instruments, the most settled instruments for both types of transactions were government bond, which is typical for the Hungarian capital market, as historically reflected by KELER's turnover³². The share of settlements in central bank money remains high, accounting for 98% of the value of all DvP transactions, significantly reducing settlement risk.

There has been a significant reduction in the number and value of settlement fails in 2023, presumably due to the SDR³³ regime. In 2023, of all transactions settled by KELER, 3% by value and 2% by number failed³⁴, a significant decrease compared to 2022. During the settlement of transactions, KELER executes funds transfers (cash)³⁵ and securities transfers of the parties to the transaction on

the scheduled settlement date of the securities³⁶. With the introduction of the new regime, the value of fails on the cash side has been significantly reduced as, under the new reporting regime, if a settlement fails due to a lack of securities, there is no need to check whether the cash side of the transaction is available. In these cases, only fails on the securities side should be reported, even if the cash side was not available. Another reason may be that the strict penalty mechanism under the SDR has strengthened settlement discipline in the market. It should be noted, however, that data were available from February for the 2022 analysis. In 2023, fails on the securities side accounted for 82% of the total number and value of all failed transactions, i.e. on both the securities and the cash side, with this trend also observed in 2022, while the overall fail rate on both the securities and the cash side decreased significantly compared to 2022.

Systems of the KELER Group have ensured reliable and safe operations. The KELER Group met the 99.7% external availability target set as the oversight expectation in 11 months. (Chart 65)

Chart 65
Availability by month (2023)



Source: MNB analysis based on KELER reporting

³¹ Transactions can be classified into two main types, the important difference being whether buyers and sellers execute settlement on the cash side through or outside the central securities depository.

³² Turnover includes the transactions settled by KELER's securities settlement system, analysed by the MNB primarily in terms of value and number, considering the type of transaction.

³³ Commission Delegated Regulation (EU) 2018/1229 of 25 May 2018 supplementing Regulation (EU) No 909/2014 of the European Parliament and of the Council with regard to regulatory technical standards on settlement discipline.

³⁴ Settlement fails when a securities transaction is not settled at the intended time of the settlement date.

³⁵ If the transaction has a cash leg, this is not applicable for the FoP transaction type.

³⁶ Typically SD+2, or T+2, intended settlement date (ISD) when using SDR terminology.

3.6 KELER CCP

In 2023, the turnover of the markets cleared by KELER CCP decreased by 46% in total compared to 2022. KELER CCP clears, as a central counterparty, financial instruments traded on the Budapest Stock Exchange (BÉT), on the MTF markets, and the domestic gas markets, and it provides general clearing membership services for its energy market non-clearing members for spot and derivatives electricity, natural gas and emission quota products traded on the markets cleared by the German ECC. In 2023, the total value of capital market transactions cleared by the central counterparty was around HUF 6.4 trillion in price terms, representing a 30% decrease compared to the previous year. Compared to 2022, the total annual turnover of spot capital market transactions decreased by 13%, corresponding to a decline of around HUF 669 billion, while derivative markets were down 50%, or HUF 2,056 billion. Gas markets cleared

as a central counterparty also saw a decrease in turnover, both in spot and futures trading. The ECC-related service provided as a general clearing member followed a trend similar to capital markets, with a 64% fall in spot energy markets and a 38% decline in futures markets compared to the previous year. The unprecedented, turbulent price increase in energy markets in 2022 significantly decelerated by 2023, which also led to a decline in nominal turnover due to high base prices. (Chart 66)

In 2023, the functioning of KELER CCP was highly reliable and secure, with a significantly reduced risk of business continuity compared to the previous year. Availability met the 99.7% availability target set as oversight expectation each month.

Chart 66
Turnover figures for the KELER CCP

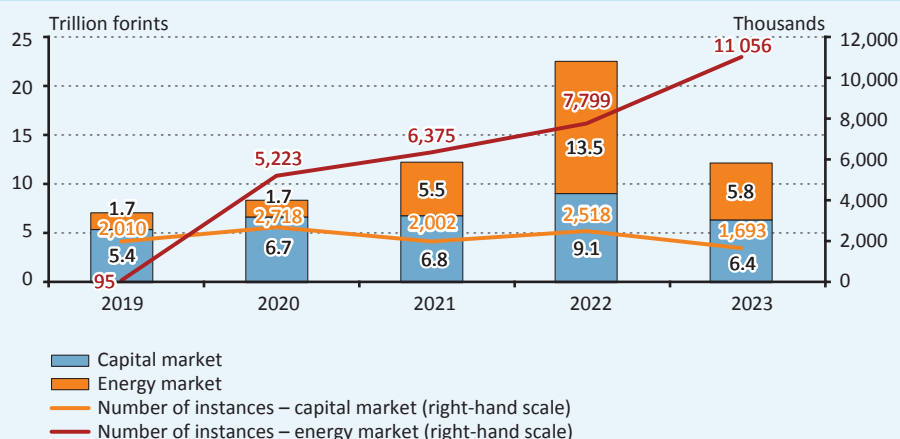
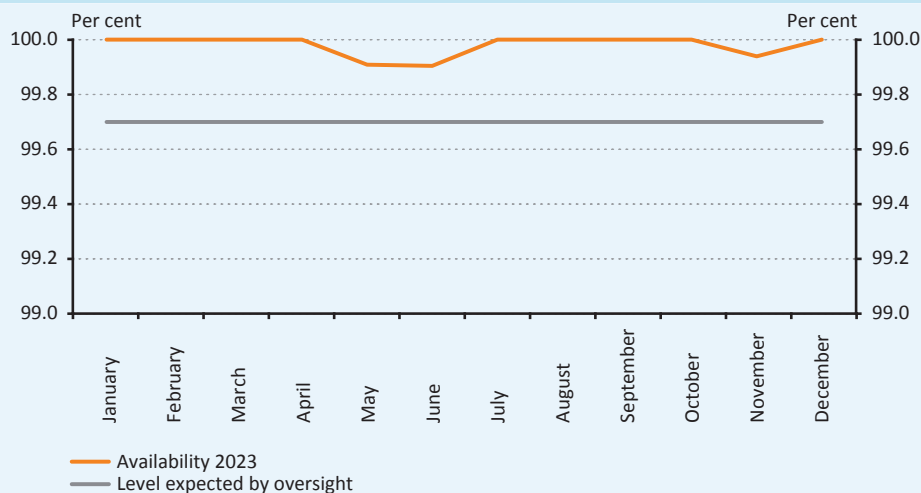


Chart 67
Availability of the KELER CCP



KELER CCP's annual Supervisory College meeting as per EMIR took place in 2023 as well. As a result, the College found the MNB's supervisory and oversight activities as well as the compliance of KELER CCP's functioning with the regulations adequate. The College, consisting of international supervisory authorities and ESMA, held its meeting on 10 October. In the first part of the meeting, supervisory and oversight activities carried out by the MNB in 2023, the comprehensive supervisory inspection completed in 2023, the compliance of KELER CCP's risk management and IT operations as well as the supervisory and oversight tasks envisaged for 2024 were presented and discussed in detail. The results of the work and consultations carried out jointly with the College during the year were also summarised. In the second part of the meeting, the most important events of the previous year at KELER CCP and KELER CCP's most important strategic objectives and plans for the future were presented. During the meeting, the members of the College found both the MNB's supervisory and oversight activity as well as KELER CCP's functioning according to the EMIR adequate, so the meeting was successfully concluded.

KELER CCP's risk management system development project was completed, resulting in significantly reduced operational risks for KELER CCP and making the previously approved advanced risk management methodologies fully available for use. After going live on 1 November 2023, the new risk management system, together with the systems involved in the integration, was placed in a live operational environment, making KELER CCP's risk management operations highly modernised and automated. This marks the end of a multi-year project that has enabled KELER CCP to securely use comprehensive and complex risk management models.

In 2023, both the number and value of defaults decreased compared to 2022, resulting in reduced credit risks for KELER CCP. In capital markets, KELER CCP provides guarantees for the settlement of transactions on both the cash and securities side, while in the energy markets, only financial side guarantee is undertaken. KELER CCP's Business Rules set out by what time the cash or securities leg of transactions and the collateral required based on open positions must be made available to customers on the settlement date. Failure to do so by the deadline is considered a clearing member default. However, this does not automatically trigger an enforcement action as

the KELER CCP Business Rules allow for a grace period of up to 4 settlement days in the capital market under SDR rules. As regards defaults in the capital markets, settlement took place within 4 settlement days in all cases and most transactions were settled intraday, i.e. only intraday delays occurred in settlement. No enforcement action was needed in 2023. Last year, on the securities side, there were 63 defaults related to capital markets, with a total value of HUF 16.6 billion. This is a 9% decrease by number compared to the previous period of 2022 and a 17% decline in the value of defaults. There were no defaults resulting in the initiation of multi-stage loss treatment during the year.

3.7 CURRENT TOPICS IN FINANCIAL INFRASTRUCTURES

3.7.1 Regulatory developments concerning infrastructures

The review (REFIT) of the CSDR has been completed, with the amended Regulation having entered into force on 16 January 2024. Key changes to the CSDR regulation are: (1) passporting for cross-border services is subject to notification by the home member state to the host member state; (2) supervisory colleges must be established for materiality and group-holding central securities depositories (CSDs); (3) CSDs providing banking ancillary services may provide certain banking-type ancillary services to CSDs that are not licensed for such activities; (4) the rules on settlement discipline are further modified, in particular regarding fines and mandatory buy-ins; (5) the rules on third-country CSDs are modified by removing the grandfathering clause; (6) the minimum frequency of comprehensive supervisory reviews under the CSDR is set at three years instead of at least once a year. ESMA was mandated by the European Commission to work out the details of the main changes, most of which should enter into force within a year. The MNB is also involved in the cross-border work related to the amendment of delegated/ implementing regulations at the expert level through the ESMA Post-Trading Working Group³⁷.

The review of the EMIR Regulation (EMIR 3) continued in 2023 and may lead to significant changes in the supervisory practices of KELER CCP once the proposed changes come into force. Following the amendments, authorisation and validation procedures would change and be significantly accelerated, the co-chairmanship responsibilities of

³⁷ The work of the ESMA Post-Trading Standing Committee was taken over by the Post-Trading Working Group (hereinafter: PTWG) as of 1 January 2023, which was essentially an organisational restructuring, with no change in the scope of tasks. The PTWG is part of the ESMA Markets Standing Committee: <https://www.esma.europa.eu/about-esma/governance-structure/standing-committees>

the Supervisory College would lie with ESMA and ESMA members would be involved in supervisory examinations related to KELER CCP. Considerably less time, only 3 months, would be available to carry out annual comprehensive reviews. Proposed amendments include the prohibition of GCM³⁸ activity by regulation, the development of additional participation requirements for non-financial clearing members and the relaxation of conditions for the acceptance of bank guarantees. The adoption of EMIR 3 is projected for spring 2024, in which case it should be applicable from 2024. The regulatory changes would greatly increase ESMA's control over national central counterparties (CCPs).

3.7.2 Findings from the cyber resilience survey by the ECB

The cyber resilience survey administered by the ECB showed that both national institutions and the EU average are close to the expected level, i.e. the level of preparedness of infrastructures is fundamentally adequate. Applied as part of the PFMI, CROE³⁹ principles help financial market infrastructures prepare for cyber resilience and supervisors measure its level. The European Central Bank conducted the cyber resilience survey covering of systemically important financial infrastructures for the fourth time with the aim of monitoring the development of cyber resilience in the sector. The survey in Hungary was coordinated by the Magyar Nemzeti Bank. Based on the lessons learned from the previous three surveys and taking into account the maturity levels achieved so far, the ECB has updated the survey methodology. The new version aligns as far as possible with the ECB's CROE expectations, but cannot be considered a comprehensive CROE assessment as it did not cover all expectations, but it has highlighted the work that needs to be done on cyber resilience for the overseen systems. 81 EU financial market infrastructure (FMI) institutions participated in the survey, categorised as follows: 11 central counterparties (CCPs), 26 depositories (CSDs) and 44 payment system (PS) operators. All 4 Hungarian financial market infrastructures were represented in the survey.

3.7.3 Transition to a T+1 settlement cycle for transactions executed on trading venues

In 2023, EU institutions started looking at the possibility of reducing the settlement cycle from the second business day after the trading to the first day (T+1) for transactions executed on trading venues. The US, together with Mexico and Canada, introduced the T+1 settlement cycle in May 2024⁴⁰, which may be followed by the UK's transition, and the European Commission considers harmonisation inevitable. Although it was regularly expressed during stakeholder consultations that it should also be examined whether it would be feasible to operate an initial dual model⁴¹ in the longer term, without the mandatory reduction to T+1, given that the time-frame in the CSDR already allows for shorter settlement cycles. However, a dual model could also be complex in operational terms for those concerned. Infrastructures may also be affected by the transition, but challenges are not associated with technological preparedness. ESMA will submit its cost-benefit analysis on the reduction of the settlement cycle, mandated by the European Commission as part of the CSDR REFIT, to supervisory authorities by the third quarter of 2024 at the latest. Regulatory work on the reduction of the settlement cycle may start after the report, in regular consultation with market stakeholders. At the European Commission's roundtable discussion on 25 January 2024, stakeholders considered that the European Union could move to a shorter settlement cycle around 2027 or 2028 at the earliest.

3.7.4 Impact of changes in monetary policy instruments

Changes in monetary policy instruments had a significant impact on payment liquidity in 2022 and 2023 as monetary policy changes in response to the economic challenges of recent years led to a fundamental transformation in deposit instruments and the set of conditions for the reserve requirement ratio. In its study published in 2023⁴², the MNB analysed the impact of changes in monetary policy instruments on payment systems in detail. The analysis resulted in the introduction of a new, extended liquidity

³⁸ GCM activity is one the business of KELER CCP's businesses where KELER CCP delivers general clearing services as a general clearing member of the German clearing house European Commodity Clearing, providing access to the largest European energy markets.

³⁹ Cyber Resilience Oversight Expectations.

⁴⁰ They were not the first, as India introduced it earlier.

⁴¹ The dual model is inevitable as the European Union is not ready for the introduction of the T+1 settlement cycle and currently ongoing discussions are still laying the groundwork for the direction that the legislative process should take.

⁴² Adrián Kollár (2024), "Payment Liquidity in the Light of Changes in the Central Bank Toolkit", Hítelintézet Szemle, Vol. 23, No. 1, March 2024, pp. 76–105. <https://en-hitelintezetiszemle.mnb.hu/letoltes/fer-23-1-st3-kollar.pdf>

measure representing the amount of cash available to system members during the business hours of the VIBER, mainly due to one-week deposit holdings being channelled into a short O/N deposit instrument (quick deposit tender) in the last quarter of 2022. Experiences were confirmed by changes to the reserve requirement ratio having a direct impact on the liquidity of the payments system, such as its increase to 10% from 1 April 2023, which almost doubled the level of the VIBER closing account balance, as it is directly linked to bank account balance. Other changes to the central bank's instruments with a significant impact include measures extending interbank liquidity, the transfer of one-week deposit holdings to overnight central-bank deposit instruments in the second half of 2022 and changes to eligible collateral. It is important to stress that even at a significantly lower liquidity level than the one at the time of the analysis, payment transactions would be smoothly processed in payment systems in Hungary, i.e. the available liquidity is ample for the management of electronic payment processes in the Hungarian economy.

3.7.5 Platform consolidation in the GIRO clearing system

In order to enhance the efficiency of payments and in line with the responsibilities set out in the MNB Act, the MNB is continuously exploring possibilities of improving current clearing systems. With the launch of the payment system for the clearing and settlement of instant transfer orders in Hungary in March 2020, GIRO now operates three clearing platforms that provide payment service providers with services that are available partially in parallel in terms of business processes. In addition to the newest, IPS, the overnight clearing system (IG1) of the Interbank Clearing System was introduced 30 years ago in 1994 and the multi-cycle intraday settlement system (IG2) was launched over 10 years ago in 2012. The use of partly identical services provided on different platforms and the different associated communication channels and messaging standards may require additional operational resources and connection

to the three platforms also makes it difficult for new operators to enter the market. In order to boost efficiency and competition, the MNB, in cooperation with GIRO, has been working on a concept for the consolidation of clearing platforms in Hungary in recent years and, as a further step in the development of payments in Hungary, the MNB launched consultations with representatives of the banking sector in summer 2023 on the consolidation of overnight, intraday and instant platforms operating in GIRO.

As a result of the broad consultations that have taken place, the MNB adopted the vision of consolidating the platforms in order to replace the current three clearing platforms with the state-of-the-art IPS. Analyses and market consultations carried out by the MNB and GIRO have shown that the most efficient solution for payments in Hungary in the medium term is to have a single platform, the state-of-the-art Instant Payment, process all transactions instead of the current three clearing platforms operating in parallel. As regards the timeline of the project, it is important that the concept for platform consolidation was developed in line with the implementation of the Central Fraud Detection System which, due to reduced development needs resulting from synergies, could benefit GIRO and payments in Hungary as a whole. This means that it is key for timing to ensure that GIRO and payment service providers implement platform consolidation before the entry into operation of the Central Fraud Detection System for non-instant transfers and direct debit on 1 July 2026 in order to avoid the duplication of development efforts.

Ensuring the business continuity of the Interbank Clearing System (ICS) as a payment system considered critical infrastructure is key to platform consolidation. The operation of a secure clearing system is not compromised by a single-platform system, as overnight, intraday and instant clearing systems are not interchangeable, fallback systems for each other, meaning that transactions could never be moved from one platform to another in case of an issue.

King Louis I ('the Great')

(5 March 1326, Visegrád – 10 September 1382, Nagyszombat)

King of Hungary (1342–1382) and Poland (1370–1382) from the House of Anjou.

His reign is considered to be one of the golden eras in the history of the Medieval Hungarian Kingdom: peace at home and dynastic relationships abroad facilitated social, economic and cultural development and narrowed the gap between Hungary and Western Europe. Louis' active diplomacy and military campaigns also elevated Hungary to become one of the great European powers. The personal qualities and victorious battles of the 'knight king' inspired even the poets of 19th century Hungarian romanticism.

Louis was the son of Charles I of Hungary and Princess Elizabeth Łokietek of Poland. His versatile education matched his status as crown prince. In addition to law, history and politics, his tutors from the ranks of the clergy also introduced him to theology and the seven liberal arts (grammar, dialectic, rhetoric, arithmetic, geometry, astronomy and music) as well as knightly skills. Following his father's death, he was crowned at Székesfehérvár on 21 July 1342, with uniform approval of the aristocracy.

Louis inherited a healthy state treasury, a stable and seamlessly operating state administration and also enjoyed the backing of talented and loyal aristocrats, who were ready to help the young monarch realise the foreign policy objectives he set out in his pledge made at Nagyvárad. He was deeply religious and a fine example of a knight, and he used an iron hand to govern his empire. He was a devout Christian and a champion of the Church even though the clergy did not always serve the king's interests.

Basically, Louis ruled the land in harmony with the aristocracy; yet, he also tried to win the support of the lesser nobility. His laws codified in 1351 remained in force until 1848 and served as the backbone of the nobility-based constitutional system. One of such laws was the confirmation of the Golden Bull of 1222, which, one and a half centuries after it was issued, had become a fundamental law of noble privileges. Among others, this piece of legislation declared that all nobles enjoyed 'one and the same liberty' (in Latin: 'unus eademque libertas'), thereby granting equal rights to all members of the noble class. Another key piece of legislation was the Law of Entail, which, among other provisions, ruled that if the family line died out completely, the estate reverted to the Crown. (Even though the Golden Bull permitted free inheritance, it never became general practice; thus, the king only documented the status quo.) In the latter years of his reign, King Louis implemented a number of reforms in the state administrative and the judicial systems.

At the request of the pope, Louis often led his army 'to protect the one true faith' against pagan Lithuanians, heretics (the Bogumil) or orthodox Christian South Slavs. His reign was also marked by a number of campaigns to Italy, Dalmatia, Lithuania and the Balkans. These wars took a heavy toll on the country's political, financial and military capacities but the state government stabilised by Louis' father successfully passed all these tests. The Kingdom of Hungary had become a true European great power ('Magyar Archiregnum') during Louis' reign. In addition to his immediate interests, Louis the Great's diplomatic efforts also targeted a number of European states; no Hungarian ruler before or after him had ever practised such an active foreign policy. Spared from domestic struggles and foreign attacks, Louis' reign enabled the country's development both in terms of politics and economics.

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