PAYMENT SYSTEMS REPORT

2021

'Remember to set an example
in everything you do.'

King Louis I. ('The Great')

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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 performance 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 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 8 July 2021. Contributors: Gergely Balla, Zita Bárdits, László Bodnár, Beáta Csapó, Péter Császár, Árpád Cseh (editor-in-chief), Vivien Deák, Beáta Felföldi, Attila Hodován, Bence Illés, Marianna Kárpátiné-Vereczki, Milán Kiss, Eszter Kozma, Miklós Luspay (Head of Department), István Nemecskó, Cecília Pintér (editor), Dániel Rácz, Miklós Sallai, Gábor Sin, Ádám Szepesi, Kristóf Takács, Lóránt Varga (Head of Department), Márton Zsigó.

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 20 April 2021 and 8 July 2021, and at the Monetary Council meeting on 6 July 2021.

The MNB staff relied primarily on information relevant to 2020, although looking forward the Report also analyses ongoing developments observed in the course of 2021.

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1 Executive Summary

PAYMENT SERVICE DEVELOPMENTS

Electronic payments developed considerably in 2020 as well, although the outbreak of the coronavirus pandemic had a significant impact on the developments. Improvement in the infrastructure was primarily characterised by the wider availability of electronic payment options as a result of the change in consumer habits in view of the coronavirus pandemic and the introduction of the instant payment service. Looking at the taxpayers obliged to use online cash registers it is seen that the increase in the card acceptance ratio was more than twice faster than in 2019, a major contributor to which at the end of 2020 may also have been the preparation for the amendment to the Act on Trade entering into force on 1 January 2021. The pandemic had a major impact on payment service developments as well, although major differences are seen across payment methods and situations. In parallel with the introduced restrictions, the general cautiousness and the deceleration in economic developments, the growth rate of the turnover of the main payment methods typically declined. However, while in the case of the growth rate of the number of payment card purchase transactions there was a decrease of more than 10 percentage points, the decline in terms of credit transfer transactions was only minimal, which was also a result of the fact that the instant payment service became available. Nevertheless, it is an important development that the number of payment card purchases still exceeded 1 billion, and the number of cash withdrawals fell by more than 10 per cent. Moreover, the value of payment card purchases exceeded that of cash withdrawals for the first time.

In spite of the outbreak of the coronavirus pandemic, the efficiency of domestic payments improved in 2020. Hungary continues to be among the leaders in the European Union in terms of the total value of credit transfers as a percentage of GDP. Moreover, this indicator even improved last year, which is mainly attributable to the fall in GDP due to the coronavirus pandemic and to the expanding possibilities of the use of credit transfers, as the instant payment service became available. In addition, last year there was a previously unseen, nearly 5 percentage points increase in the card purchases to household consumption ratio, which was greatly attributable to the change in payment habits. Consumers opted for contactless card payments much more often than before. As a result, the value of payment card purchases accounted for more than one third of the total household consumption in 2020. A positive trend is observed in the case of bill payments as well. More than two thirds of them were conducted by using some type of electronic payment method.

Notwithstanding the favourable developments, banks' unfavourable pricing structure concerning credit transfers is still a general obstacle to the further spreading of electronic transactions. Data of bank statements of fees reveal that customers still initiate very few transactions electronically, and at the same time they pay high monthly fees in spite of the moderate number of electronic transactions conducted. Looking at domestic actors' incomes from payment services it is clear that the pricing of credit transfers is still unfavourable from a customer point of view due to the items burdening the transactions. At the same time, in order to support electronic payments, and within that the services relying upon the instant payment system, it is essential to widely introduce account products built on package-based pricing that – similarly to payment cards – do not apply direct transaction fees in the case of credit transfer transactions either. Nevertheless, even in the case of the currently available bank products relatively many customers could reduce their respective payment costs by choosing their account package in a prudent manner. Therefore, providing adequate information to customers, making payment products and their related costs as transparent as possible and the strengthening of financial awareness are also important factors in terms of facilitating the spreading of electronic payments.

According to the payment inspections conducted in 2020, the operation of the payment service providers under review is satisfactory in general. Nevertheless, deficiencies were found by the majority of the inspections completed. According to the findings of the payment inspections, payment service providers typically violated the rules concerning the immediate crediting of the amount of incoming payment transactions. In addition, different violations of the rules related to the format and content requirements, amendment to and termination of framework contracts as well as to the provision of information prior to concluding the framework contract were also found. At the same time, according to the examination of the sector related to instant credit transfers, there were no significant problems in the period following the launch of the system in March 2020.

The ratio of frauds to turnover is insignificant in the case of both payment cards and other electronic payment methods. Moreover, a wider application of strong customer authentication may entail further positive developments. Although on the card issuer side the value of losses actually written off increased, the legislative background still favours consumers, whereas losses on the acquiring side declined considerably. In spite of a greater increase compared to the previous year, the number and value of successful frauds identified in electronic payments not related to payment cards are still negligible compared to the total credit transfer turnover. Moreover, the ratio is even more favourable than in the case of payment cards. In addition, the number of payment malfunctions declined further in the banking sector during 2020, and thus their number continues to be low compared to the number of payment service providers and the complexity of the financial infrastructure.

PAYMENT AND SECURITIES INFRASTRUCTURES

Compared to the previous year, there was an overall increase in turnover in the Hungarian payment systems in 2020. Nevertheless, their operations remained highly reliable and safe. The value of VIBER turnover was 11 per cent up, while the number of transactions remained practically unchanged, and the system operated with high availability. In parallel with the expansion in turnover, due to shorter incident times of service outages there was also a slight decline in service continuity risk in 2020 compared to the previous year. Moreover, remote operation introduced in view of the pandemic did not cause problems either. Compared to the previous year, the total turnover value and number of transactions on the three platforms of the ICS increased by 7 per cent and 3 per cent, respectively, although the distribution of transactions across the platforms changed, because instant clearing became available for the clients of ICS participants as well starting from 2 March 2020. In parallel with the expansion in turnover and the choice of services the ICS operated with high availability and safely. Remote operating and shared operation between sites due to the pandemic did not cause any problems in the provision of services here either. In 2020 the forint turnover of CLS also grew, and during the year under review the number of CLS members that settle their international forint transactions through CLS rose from 26, registered at the beginning of the year, to 31. The turnover expanded in parallel with stable operational security in the case of the CLS as well.

In 2020, supported by the expansion of the monetary policy instruments **as well, participants of the payment system adequately managed their liquidity for performing their payment turnover, which increased considerably and became more volatile due to the pandemic.** On the whole, participants of the payment system provided sufficient liquidity for performing their increased turnover, but at the same time, in order to control the market turbulence caused by the coronavirus pandemic and to increase liquidity, the MNB expanded the scope of eligible collateral with corporate loans. As a result, the intraday credit line available at banking sector level grew from HUF 2000–2100 billion early in the year to HUF 2800–3100 billion by 2020 Q2, stabilising at HUF 2400–2500 by the end of the year. In addition, participants used their credit line available in VIBER to a similar degree, but for a shorter time compared to the previous year. As a result of the ample liquidity in VIBER, still only a very low portion of transactions were queued due to shortage of liquidity. Neither the pandemic, nor the launching of the instant clearing platform of the Interbank Clearing System caused any disruptions in terms of liquidity management in the payment systems, and thus the clearing and settlement risk remained low. In the ICS instant clearing, participants' liquidity management is supported by the MNB with providing a new credit instrument (instant credit) outside of VIBER operation hours, although it was needed only rarely. Participants made sufficient instant settlement account balances available for nights, weekends and bank holidays as well in 2020, which is corroborated by the fact that, apart from the first month following the launch in March, instant credit was used only 1–3 times a month. Apart from this the number of transactions affected by liquidity shortage in the ICS intraday clearing grew to nearly one and a half times higher compared to the previous year. The lack of funds was significantly attributable to liquidity management issues or erroneous bank practice. In parallel with the growth in CLS turnover, the efficiency of the netting of forint transactions also improved; namely, in 2020, the CLS members had to pay in less forint on average to settle one unit of foreign exchange transaction. Payments to CLS did not cause any liquidity problems in VIBER, and thus the related clearing and settlement risk remains low.

On 16 December 2020, KELER received its CSDR licence needed for its central securities depository activity, valid on the territory of the European Union. Obtaining the licence is an important development. As a result, pursuant to the CSDR, KELER is entitled to provide basic central securities depository as well as non-banking-type, banking-type ancillary services

and also custody services under the Credit Institutions Act[1] not specified in the CSDR but specifically approved in its licence. During last year, mainly as a result of the pandemic, the value of transactions settled in KELER declined by 26 per cent, while their number increased by 8 per cent. Although the level of availability of business activities was somewhat down compared to the previous year, no impact of the remote working applied during the pandemic was perceived. Settlement risk was low in 2020 as well, although compared to the previous year it increased slightly with the expansion in the turnover of certain types of transactions in terms of value and with the increase in failed settlements.

The outbreak of the coronavirus pandemic had a major impact on the operation of KELER CCP as well, since it faced greater risks in terms of both the markets it serves and the reorganisation of the operation entirely to teleworking. In spite of all that, services continued to be provided with high reliability. In March 2020, the worldwide spread of the coronavirus led to one of the highest market volatilities of the past 30 years. As a result, major shifts in prices and surges in turnover were observed in the capital and energy markets. The ensuing risks were successfully managed by KELER CCP. In 2020, the number of defaults declined by 40 per cent compared to 2019, but their total value exceeded the previous year's level by 6 per cent, which concerned mainly the capital markets. In addition, KELER CCP successfully passed the ESMA default stress test as well that is designed to assess the adequacy of processes operated in teleworking. Last year, ESMA's third stress test exercise regarding central counterparties was also completed, where the guarantee system of KELER CCP also proved to be suitable in the management of simulated market shocks. As for last year, a foreign gas trading company's default with a value of EUR 730 thousand in the balancing gas market needs to be highlighted, where KELER CCP had to honour the liabilities by activating the relevant elements of the guarantee system, the dedicated common equity Tier 1 of KELER CCP and the guarantee fund dedicated to the balancing market. At the end of the procedure to handle the default, KELER CCP succeeded in collecting all of its receivables, and thus the guarantee fund as well as the Tier 1 capital of KELER CCP were replenished.

CURRENT ISSUES OF PAYMENTS AND FINANCIAL INFRASTRUCTURES

On 2 March 2020 the instant payment service successfully became available in Hungary, placing domestic payments in a new dimension. Moreover, successes similar to those achieved in a year in Hungary required several years in other countries with developed payment ecosystems. Nevertheless, the actors concerned still have a number of tasks to complete. Starting from the launch of the new service until the end of the first quarter of 2021 nearly 152 million instant payment transactions were executed in a total value of some HUF 29 thousand billion, including intrabank items. The central infrastructure processed nearly 114 million transactions already in the first full year of operation in a total value of HUF 17 thousand billion. Thus, more than 40 per cent of the credit transfers processed on the intraday clearing platform of the ICS was directed to the instant clearing platform right after the start, and this ratio reached 50 per cent at the beginning of 2021. Clients quickly got used to and came to like the continuously available service, which allows an extremely fast execution of transactions and provides relevant alternatives in an increasing number of payment situations. In addition, the mandatory provision of the option of electronic payment in shops that have an online cash register may give further momentum to the spreading of electronic payments, including instant credit transfers, and to the development of the services that allow it. Nevertheless, payment service providers, merchants and bill issuer service providers with high transaction turnover alike should make further efforts for the wide-ranging possibility of using electronic payment in every payment situation, building on the opportunities of instant payments. Developing an adequate pricing structure that is free from transaction fees and wide-ranging recourse to it among customers, as well as the implementation of the possibility of the request-to-pay service and of payment initiation based on the Hungarian QR code standard into mobile banking applications are of utmost importance.

In 2020, acceleration took place in supporting the financial sector of the European Union and the related innovative pan-European development initiatives, as well as in creating an agile regulatory framework, the backbone of which is constituted by the digital finance package of the European Commission. The Commission's package contains, inter alia, a digital finance strategy and a retail payments strategy, as well as various draft legislation, primarily related to crypto-assets, distributed ledger technology and to increasing the operational security of financial infrastructures. The main objective is to strengthen the competitiveness of the financial sector of the European Union primarily through adapting a regulatory framework that can best adjust to the continuously changing environment and by facilitating cross-border access to innovative financial products. Within that, the addressing

[1] Section 3(1)j) of Act CCXXXVII of 2013 on Credit Institutions and Financial Enterprises

of market fragmentation, the wide-ranging enforcement of the principle 'same activity, same risk, same rules', the supporting of the further spreading of euro based instant payments and allowing non-bank actors' access to critical financial infrastructures are key aspects. In addition to the Commission's package, there are various ongoing projects in other areas initiated by market participants striving to provide wide-ranging support to the development of pan-European services.

At international level, the issue of making central bank digital currency widely available is surrounded by increasing attention as a response, inter alia, to the spreading of crypto-assets, which fall partly or completely outside the regulatory and supervisory framework, and to the expansion of FinTech and BigTech actors in payments. While due to technological possibilities earlier only cash meant the widely available central bank money, with the termination of barriers the possibility arose to make receivables from the central bank available in digital form for companies and households as well. At the same time, it should be taken into account that with the wide-ranging introduction of central bank digital currency the central bank could intervene in the operation of the financial sector and of the economy as a whole in a wider sense more directly and to a greater degree than now, which may entail innumerable effects. Nevertheless, in terms of the central bank digital currency the payments implication appears in some form everywhere, which needs to be examined in particular. Based on the characteristics of electronic payments in Hungary, making the central bank digital currency widely available may theoretically contribute to the development of payments in various aspects. At the same time, it also needs to be considered that the development objectives may be achieved by other means as well, and therefore, this issue requires further examination.

In parallel with the rapid spread of digitalisation and the increasingly fast rise in the number of electronic payments, it is becoming more and more important to strengthen the defence against fraud attempts that affect electronic payments. In connection with phishing aimed at obtaining sensitive payment data and with the ensuing unauthorised payment transactions the most important thing is prevention, which allows a reduction of losses through providing adequate and understandable information to customers, the application of real-time fraud monitoring systems and the strengthening of cooperation between service providers. Nevertheless, concerning credit transfers, in addition to the major role played by fraud attempts built on phishing, dynamic rearrangement towards methods that are typically not payments related and are based on deception is observed. In addition to the restructuring, it is also an important development that fraudsters use increasingly sophisticated solutions in order to hide their attempts, and therefore in addition to applying real-time fraud monitoring systems, there seems to be growing need to strengthen consumers' financial awareness as well.

The MNB expects a decline in the number of frauds as a result of the application of strong customer authentication in all payment situations. Following 31 December 2020, the application of strong customer authentication, which serves the protection of customers, is mandatory not only in the case of electronically initiated credit transfers and physical payment card transactions, but also in the case of online payment card purchases. In practice this change is good for customers because it ensures that only the authorised card holder can authenticate a transaction, as knowing only the data on the card is insufficient for performing it. Based on the non-regular reporting conducted after the change entering into force, the Hungarian payment service providers concerned are adequately prepared in an EU comparison as well. During its inspections within the framework of continuous supervision, to date the MNB has only found minor deficiencies, at the same time, during its comprehensive payment inspections it will continue to examine, inter alia, the lawful application of the exception rules.

So far, the great innovation of the PSD2, i.e. open banking has been able to spread in Hungary only to a limited degree, as the international regulation is not specific enough in terms of the application programming interfaces to be implemented, on the one hand, and banks may hinder new actors in various ways, on the other hand. The most frequent method of hindering is that banks design the application programming interfaces in a way to cause inconvenience to customers who use them and to third-party providers. Therefore, the MNB worked out a complex action plan to support the spreading of open banking and to remove the obstacles, also issuing an MNB recommendation about hindrance and conducting sector-level inspection. Nevertheless, further, mainly standardisation steps may also be necessary to completely exploit the potential inherent in open banking.

2 Payment service developments

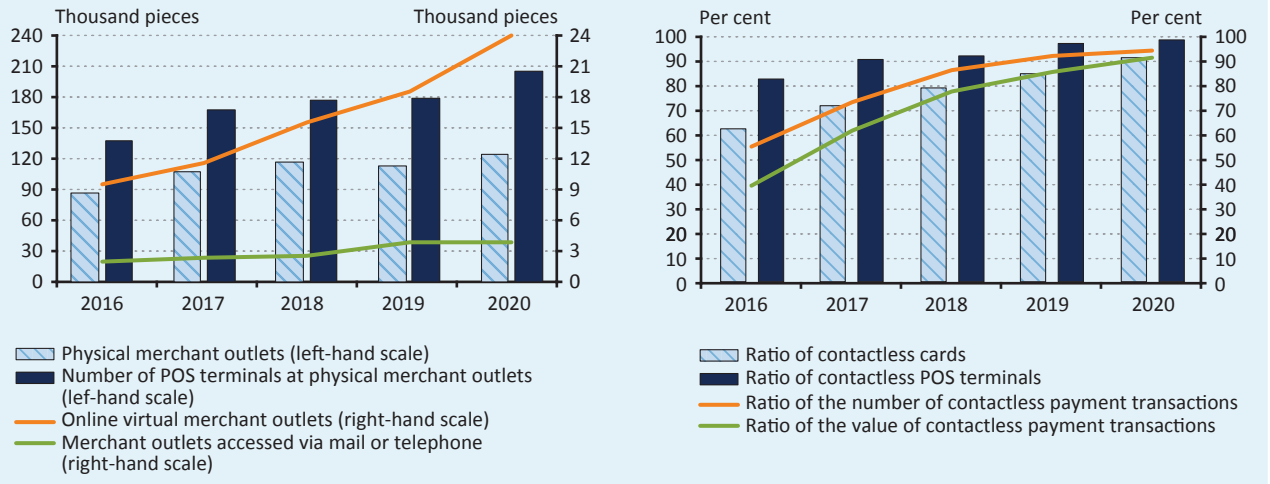
2.1 DEVELOPMENT OF ELECTRONIC PAYMENTS

2.1.1 Improvements in the electronic payment infrastructure

The electronic payment infrastructure in Hungary developed considerably in 2020 as well, which was primarily characterised by the spreading of electronic payment options as a result of the changes in consumer habits in view of the coronavirus pandemic as well as the introduction of the instant payment service and also by the contactless technology gaining further ground. The spreading of the contactless technology entailed significant progress in the area of the payment card infrastructure. At the end of 2020, nearly 92 per cent of the 9.9 million cards issued in Hungary and more than 98 per cent of the operating 203 thousand POS terminals supported contactless payment, representing increases of 7 percentage points and 1 percentage point, respectively, compared to the previous year. Increases in the number of physical merchant acceptance points and virtual merchant outlets by 10 and 29 per cent, respectively, resulted in further improvement in payment card acceptance. At the end of 2020, payment transactions conducted by card was possible at 123 thousand physical acceptance points and 24 thousand virtual merchant outlets in the network of Hungarian payment service providers. Dynamic growth in the number of virtual merchant outlets was already observed in the previous years as well. Last year, however, this increase was further accelerated by the changing consumer habits in view of the coronavirus pandemic and, in parallel with that, by the spreading of various webshops and home delivery services. In the case of physical merchant acceptance points the preparation for the provision of the Act on Trade[2] can already be seen. Pursuant to that, as of 1 January 2021, all taxpayers obliged to use online cash registers have to provide the possibility of electronic payment. In addition to payment cards, the latter is already possible through the acceptance of instant payments as well, which may be a simpler and more efficient solution for smaller retailers in many respects. (Chart 1)

In addition to the infrastructure that supports the acceptance of electronic payments, the spreading of digitalisation was reflected in end-user services as well.

Chart 1
Development of the payment card acceptance network and the contactless card technology in Hungary



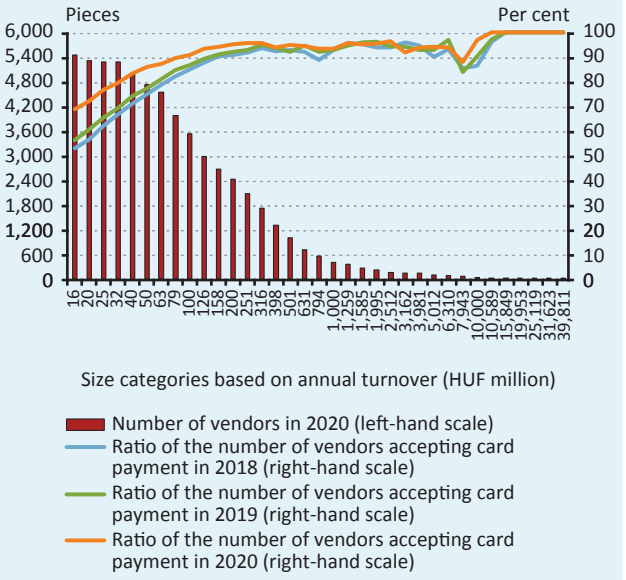
Note: The scope of data presented regarding the payment card acceptance infrastructure does not show the expansion of foreign service providers in Hungary that were not obliged to report data to the MNB until the beginning of 2021, at the same time, the number of card-acquiring merchants may even be several thousands more due to the cross-border service provided by them. More precise information about them is expected to become available starting from this year.

[2] Act CLXIV of 2005 on Trade

Within that, the number of cards registered in mobile wallets increased considerably, indicating consumers' openness to innovative solutions. At the end of 2020, the number of cards registered in mobile wallets exceeded 815 thousand, and thus their share within all payment cards exceeded 8 per cent. Nevertheless, it is important to note that neither the card issuing institutions and thus nor the MNB have comprehensive data in this area due to the complexity of the related services. In addition, the increase in the ratio of payment accounts accessible on the Internet or through a dedicated software is also accelerating. While expansion in 2018 and 2019 compared to the previous year amounted to 1.7 percentage points and 0.9 percentage point, respectively, the ratio was up by 2.2 percentage points in 2020, which is a favourable impact in connection with the instant payment service, which revolutionised the electronically initiated credit transfers and thus domestic payments entirely. As a result, the number of electronically accessible accounts, i.e. the ones that allow the initiation of credit transfers from Internet banking or mobile banking applications, exceeded 7.8 million at the end of the year. In addition, until the end of the year, at least one mobile number, email address, tax identification code or tax number was already assigned to more than 61 thousand accounts within the framework of the service that offers a pioneering solution in terms of the initiation of credit transfers and allows the use of secondary account identifiers.

Looking at the vendors[3] obliged to use online cash registers it is seen that the card acceptance ratio grew even faster than in the previous years, for example more than twice faster than in 2019, a major contributor to which at the end of 2020 may also have been the preparation for the amendment to the Act on Trade entering into force on 1 January 2021. The rise in the ratio of payment card acceptance is well visible on the basis of the examination according to turnover value categories as well. At the same time, the trend according to which the higher the turnover of a shop, the greater the chance of acquiring is still perceived. Nevertheless, differences across vendors are declining. While less than 60 per cent of vendors with annual revenues of HUF 16 million accepted cards in 2019, this ratio was already close to 70 per cent in 2020, and it is above 90 per cent almost without exception where annual revenues are above HUF 100 million. Moreover, in parallel with the increase in sales, 100 per cent is being dynamically approached, or even kept at a stable level in the segment above HUF 10 billion (Chart 2). In addition to card acceptance, instant payment is also a possible payment method at some vendors, although its penetration is still low. It is also presumed that card acceptance will remain the main solution in the retail sector in the medium term. At the same time, some of the vendors, typically the ones whose turnover is lower and who are more cost sensitive, will choose the credit transfer-based alternative, which is more advantageous for them, to comply with the provisions of the Act on Trade. In order to support the acceptance of instant payments, cooperating with the MNB, the National Tax and Customs Administration worked out a recommendation[4] that contains information regarding the recording of transactions carried out using payment solutions that rely upon the instant payment system in online cash registers.

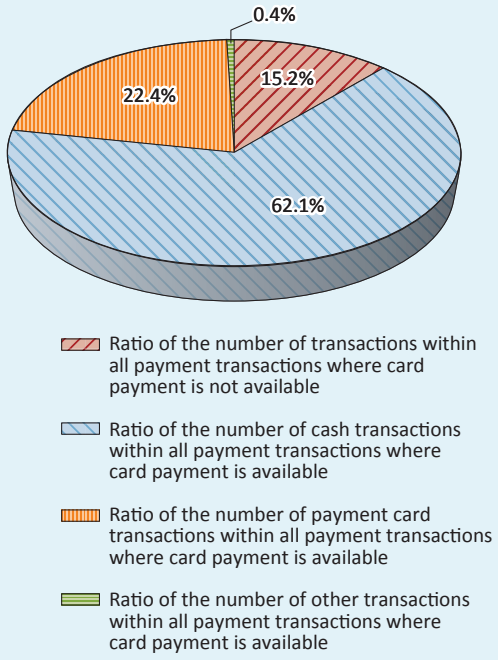
Chart 2
Number of vendors with online cash register on a logarithmic scale based on turnover size categories and ratio of payment card acceptance in the individual categories



As a result of the legislation entering into force on 1 January 2021, the ratio of transactions conducted in payment situations where card payment is available increased significantly already during 2020. The effect of the mandatory acceptance can be better discussed if the distribution of transactions conducted in shops belonging to taxpayers that accept cards and taxpayers that do not accept cards are examined separately. In 2020, nearly 60 per cent of some 120 thousand taxpayers obliged to use online cash registers provided card acceptance for their customers, which is a roughly 10 percentage point increase compared to the previous year. A significant contributor to this was that the preparation to comply with the legislation entering into

[3] Vendors include not only the physical merchant units, but also other units, belonging to the service sector, obliged to use an online cash register (e.g. catering units, accommodation service units, service stations, taxi).
[4] Information on recording the payments carried out in the instant payment system in online cash registers

Chart 3
Card acceptance statistics based on the database of online cash registers (2020)

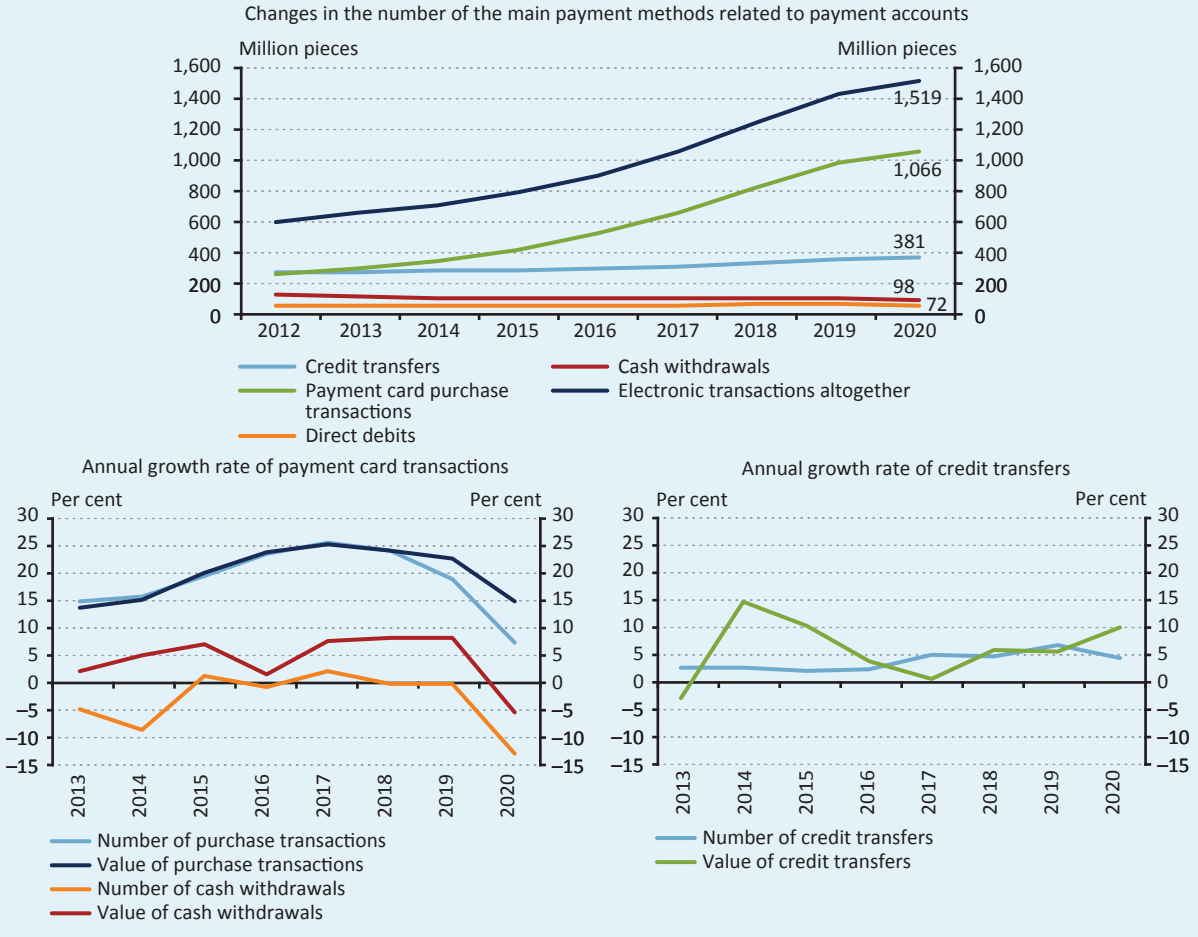


force on 1 January 2021 already started at the end of 2020. As a result, 85 per cent of transactions were carried out in retail outlets that accepted card payment as well in addition to cash, i.e. compliance with the change in legislation concerns another 15 per cent of the transactions. (Chart 3)

2.1.2 Penetration of electronic payment transactions

The outbreak of the coronavirus pandemic had a major impact on the domestic payment service developments in 2020. While there are significant differences across payment methods, an important development is that the number of payment card purchase transactions exceeded 1 billion, and the value of payment card purchase transactions exceeded that of cash withdrawals for the first time. The dynamic growth in the number of payment card purchase transactions, which had been the driving force behind the expansion in electronic payments, decelerated significantly in 2020, in parallel with the general decline in the number of retail transactions. The previous annual growth rates of around or above 20 per cent fell to 7 per cent, although it was still enough for the number

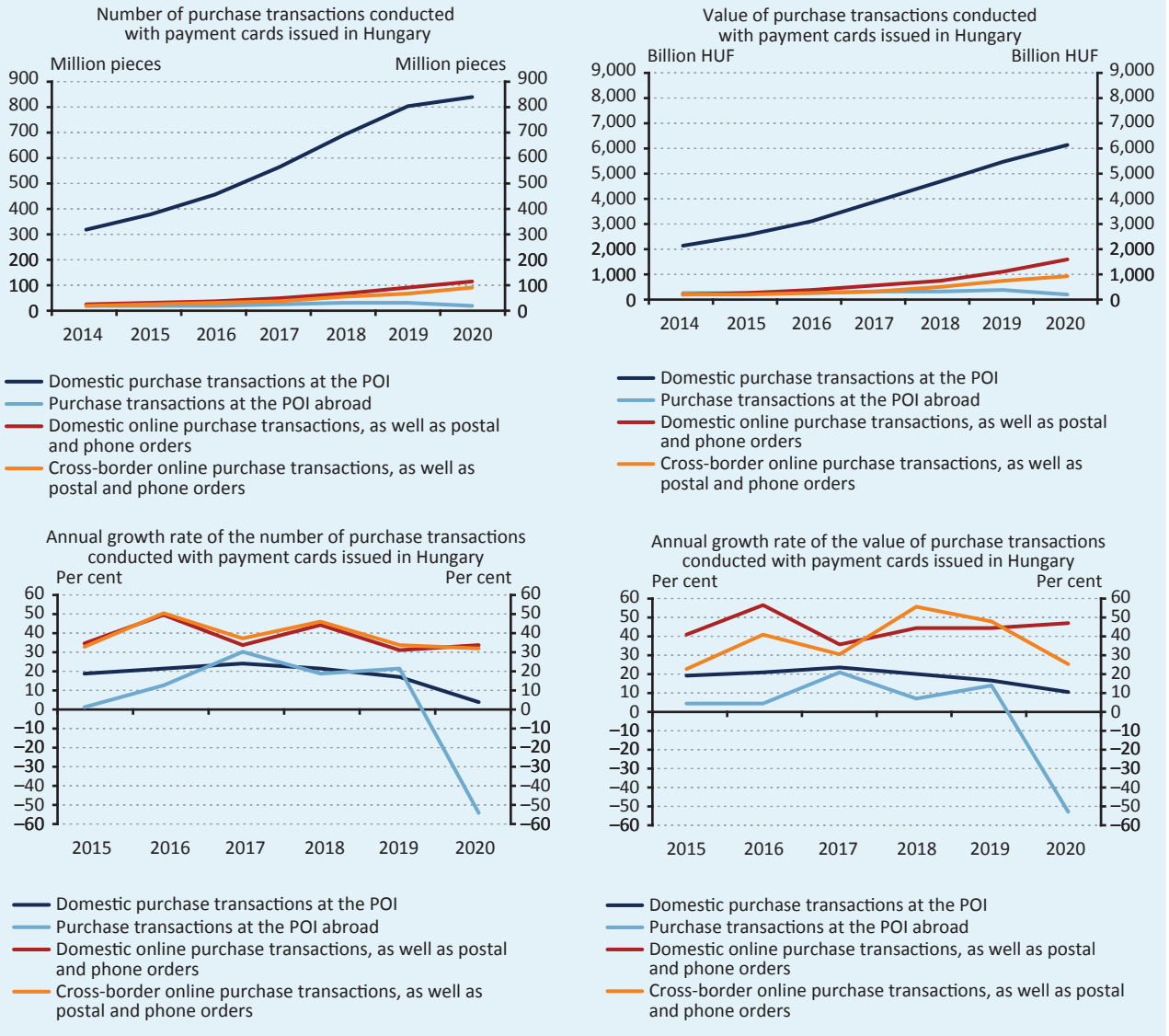
Chart 4
Turnover and annual change in turnover of the main payment methods



of transactions carried out to exceed 1 billion (Chart 4). In connection with payment card purchases it is important to emphasise that in the case of contactless transactions the raising of the limit for the mandatory use of PIN codes to HUF 15 thousand was an extremely successful step initiated by the MNB. This measure also contributed to the fact that nearly 95 per cent of the purchase transactions conducted at POS terminals belonging to the acquiring network of domestic actors was carried out using the contactless technology (Chart 1). And – considering all the relevant factors – the limit raised due to the pandemic situation will permanently remain in place. In addition, following the previously observed slight decline, last year the number of cash withdrawals fell by 14 per cent, which is a degree not seen before (Chart 4). As a result of this, the value of purchase transactions (HUF 8.8 thousand billion) conducted with payment cards issued in Hungary exceeded that of cash withdrawals (HUF 8.2 thousand billion) for the first time.

In addition to card transactions, deceleration was observed in the growth rate of the number of credit transfers as well. At the same time, the go-live of the instant payment service also contributed to the fact that the degree of this deceleration was minimal. Following growth rates of around 5-6 per cent seen in previous years, growth was just below 5 per cent in 2020 (Chart 4). Moreover, the picture is further refined by the fact that within credit transfers the number of individual forint transactions increased by more than 6 per cent, restrained by a below 1 per cent increase in batch transactions and a nearly 7 per cent drop in foreign currency items. The changes affecting the turnover of various payment transactions are mainly attributable to the outbreak of the coronavirus pandemic

Chart 5
Turnover and annual change in turnover of payment card purchase transactions by payment situation

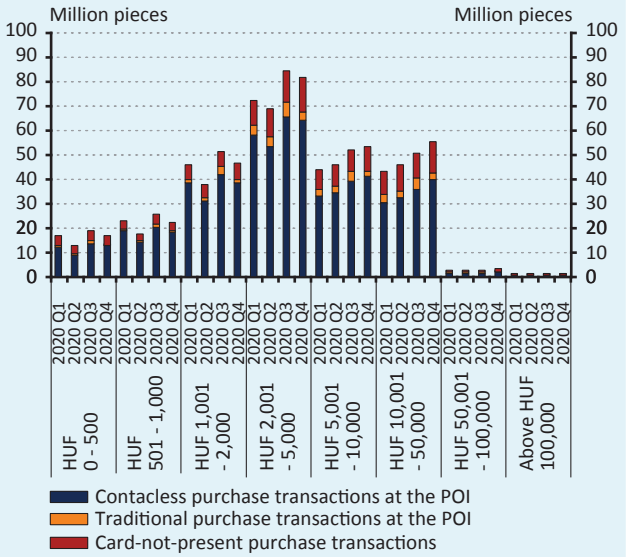


and the negative economic effects in parallel with that, as well as to the restrictions applied and the ensuing change in consumer habits.

The outbreak of the coronavirus pandemic resulted in major changes not only regarding the individual payment methods but also the different payment situations. The differences across payment situations are well-illustrated by payment card purchase transactions. While the number of transactions at physical merchants increased by 4 per cent, purchases that do not required the physical presence of the card (mainly online purchases) were 34 per cent up. Compared to the previous year, the above represents a 13 percentage point decline and a 2 percentage point expansion in growth rates, respectively, with contributions from the changes in consumer habits as a result of the coronavirus pandemic and, in parallel with that, from the rapid development and expansion of home delivery services, where cash payment is often not even an option. In addition to all that, transactions at physical merchants abroad fell by 53 per cent, which is attributable to the restrictions on travelling and to consumers' general precautionary considerations, especially as far as trips planned for the summer holidays are concerned. Nevertheless, less significant changes are seen in the case of cross-border online shopping as well as ordering by post or phone; similarly to the previous year, the number of these transactions rose by more than 30 per cent last year as well. As a result of all this, last year more than 18 per cent of all purchase transactions were related to forms that do not require the physical presence of the card, which corresponded to an increase of nearly 4 percentage points compared to 2019. (Chart 5).

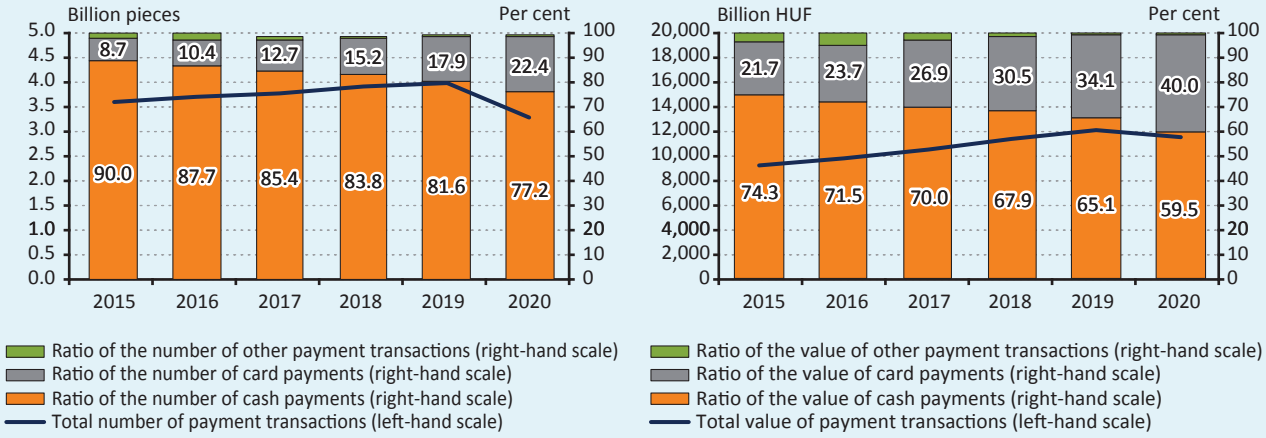
A significant portion of payment card purchases is still concentrated in the value categories below HUF 50 thousand, where in the cases requiring the physical presence of the card the ratio of the use of the contactless technology is – almost without exception – above 90 per cent. In a breakdown of card purchases by value categories, 61 per cent of the transactions (i.e. 653 million transactions) was below HUF 5 thousand and 80 per cent of them (i.e. 850 million transactions) was below HUF 10 thousand in 2020. In addition, most of the turnover, i.e. 98 per cent, concentrated in the segments below HUF 50 thousand, and only a mere 18 million transactions exceeded HUF 50 thousand. Although the ratio of contactless purchases slightly decreases in proportion to the increase in transaction value in the case of card-present physical purchases, this ratio in the categories below HUF 2 thousand is typically above 95 per cent, and – almost without exception – it exceeds 90 per cent in the segments between HUF 2 thousand and HUF 50 thousand as well. This is a major step forward compared to the situation one year earlier, and it is attributable to the outbreak of the coronavirus pandemic and the changes in payment habits in parallel with that, as well as to the aforementioned raising of the limit related to the mandatory use of the PIN code in terms of contactless transactions (Chart 6).

Chart 6
Purchase transactions conducted with payment cards issued in Hungary in a quarterly breakdown by value categories (2020)



According to the database of online cash registers, last year, as a result of the coronavirus pandemic, the ratio of card payments increased to an even greater degree, i.e. more than twice faster than in the previous years. It is observed in general that fewer purchases but with higher average values took place in 2020 than before, and customers opted for card payment more often according to the data of online cash registers. On the whole, compared to the previous year, the number of transactions dropped from 4 billion to 3.3 billion, while their value declined from HUF 12.1 thousand billion to HUF 11.5 thousand billion in 2020. In addition, while the ratio of the number of card payments increased by some 2 percentage points on average in the previous years, it rose by nearly 5 percentage points in 2020. Nevertheless, it is still true that cash is the most popular payment method in Hungary, as 77 per cent of the transactions were still carried out in cash. The picture is more favourable in terms of the value of transactions, where the share of card payments already reached 40 per cent. In parallel with that, other payment methods, such as the various loyalty cards, account for an insignificant portion of payments. (Chart 7)

Chart 7
Ratio of the number and value of payment transactions included in the database of online cash registers by payment methods (2015-2020)

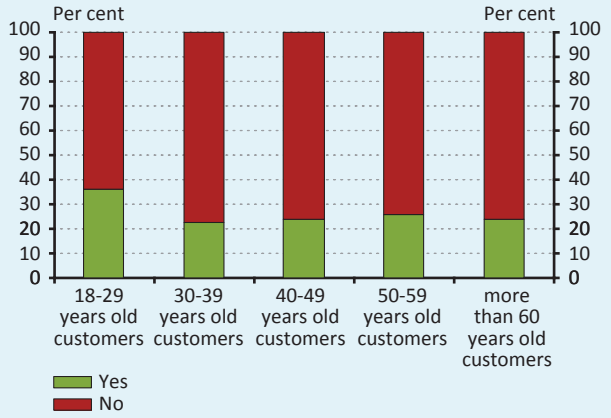


Box 1
Impacts of the coronavirus pandemic on consumers' payment habits

The coronavirus pandemic had a major impact on the changes in households' payment habits, which is corroborated by the MNB's latest survey as well. As a result of the pandemic, many households reduced the frequency but typically increased the value of their shopping compared to the past, and more and more often opted for contactless alternatives, such as payment cards or credit transfers, instead of cash. This effect was strengthened by the various restrictions that affected physical shopping situations as well as by the spreading of online ordering and the rapid development of home delivery services as well.

In the autumn of 2020, the MNB conducted a questionnaire survey among households about their payment habits, also assessing the impact of the coronavirus pandemic. 25 per cent of the respondents indicated that they did their shopping less frequently because of the risks entailed by the virus (Chart 8). The ratio of those who indicated lower frequency was higher among the younger generations and those with higher income, which leads to the conclusion that they were more affected by the containment measures. Several services and free time activities preferred by typically young people (e.g. free time sports activities, going to the cinema, spending time in restaurants and places of entertainment, shopping in shopping centres) were temporarily limited, in parallel with this the number of purchases also declined.

Chart 8
Less frequent shopping than before

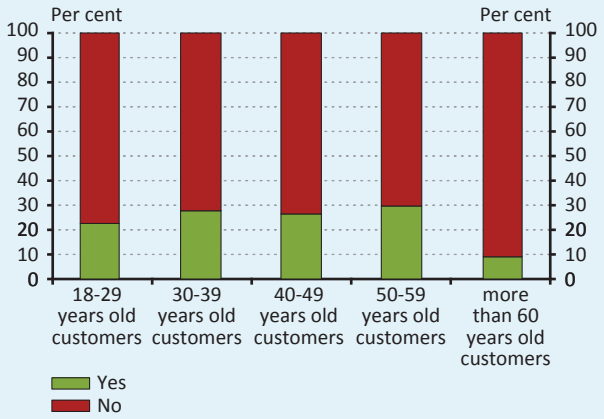


About one fifth of the respondents used electronic payment methods more frequently as a result of the coronavirus pandemic. This ratio is slightly higher in the case of those below the age of 60, but 10 per cent of those older than 60 also opted for electronic alternatives more often (Chart 9). The findings of the questionnaire survey are in line with the MNB's previous analyses as well, based on which the share of electronic transactions increased considerably. Nearly one third of the respondents indicated that wherever it is possible they pay with card, and

some 15 per cent of those who had not preferred card payment before responded that they used their cards more often in view of the pandemic. It means that as a result of the pandemic, presumably even those customers opted for electronic payment who had not preferred it before.

Only 20-25 per cent of those below the age of 60 responded that they would continue to pay with cash, and at the same time more than one quarter of the respondents (half of those with higher income) indicated that they had paid electronically wherever it had been possible previously as well. As a result of the pandemic, 37 per cent of the respondents under the age of 60 said that they would use some kind of electronic payment method more frequently, and about 10 per cent of them responded that they would exclusively opt for an electronic alternative if possible. Electronic transactions are less popular among those older than 60, but even in their case only 63 per cent said that they would continue to pay only with cash (Chart 10).

Chart 9
More frequent use of electronic payment methods instead of cash compared to previous habits



Overall, it can be said that, in terms of the proportion of payment methods, the need for electronic payments was amplified by the pandemic situation, but only in the longer term will it be possible to determine how much of the growth in proportion will be lasting. Nevertheless, further growth is presumed on the basis of various factors, including the aforementioned legislation on online cash registers, which allows customers in tens of thousands of new shops to use some kind of electronic payment method in addition to cash. 41 per cent of those who completed the questionnaire indicated that they had already heard that as of 1 January 2021 it would be mandatory to provide the possibility of some kind of electronic payment in retail outlets that have online cash registers. Moreover, since the go-live of the instant payment service in March 2020, in addition to card payment, credit transfer may also be a real alternative to cash payments in the majority of payment situations. 15 per cent of the respondents said that they already use credit transfers more frequently as a result of the introduction of the instant payment system.

Chart 10
Has the emergency declared because of the coronavirus pandemic had a permanent impact on payment habits?

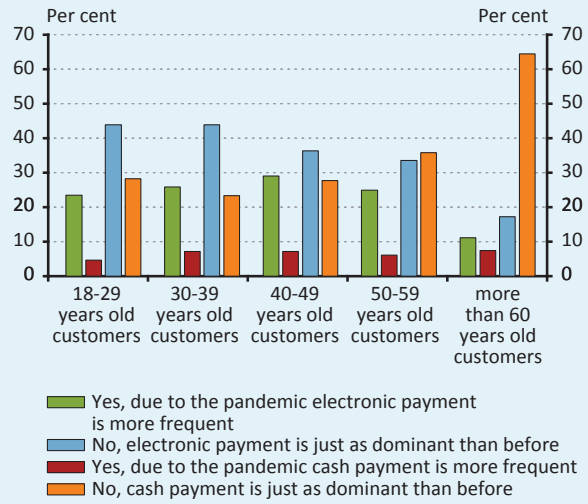
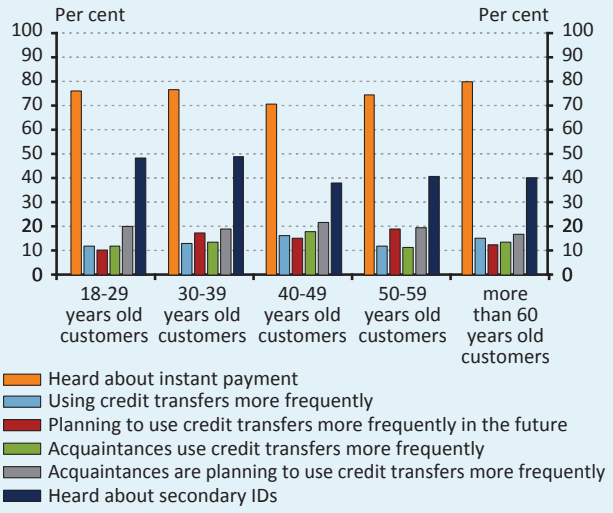


Chart 11
Possible effects of the introduction of instant payment

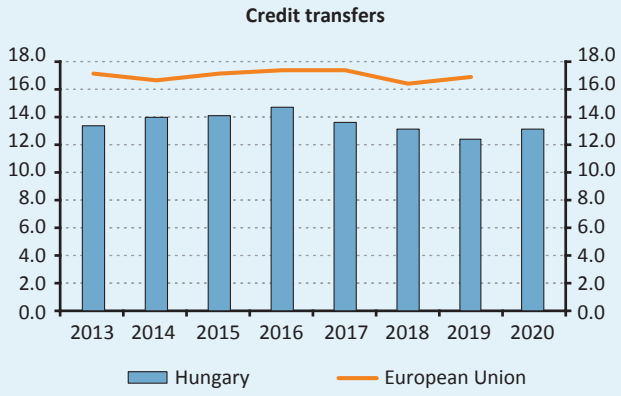


2.1.3 Efficiency of payments in Hungary in a European comparison

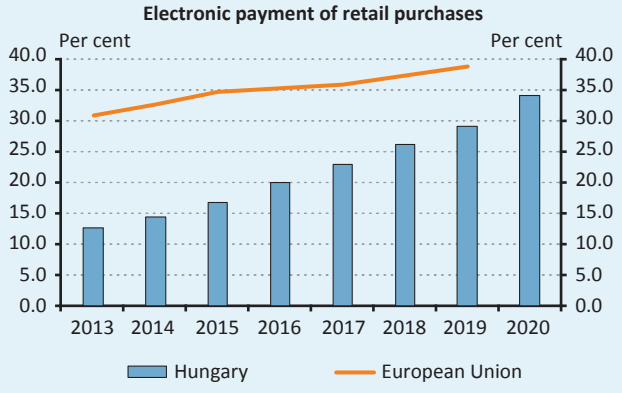
The efficiency of domestic payments improved in 2020 in spite of the outbreak of the coronavirus pandemic. As a result of the pandemic and the ensuing changes in payment habits, electronic payment services gained further ground, while the use of cash declined in parallel with that, which also had a benign impact on the developments in the indicators that measure the efficiency of domestic payments. Changes in the ratio of credit transfers to GDP were favourable, and in 2020 significant progress was also observed in the area of the two indicators that reflect the efficiency of retail payments, namely the electronic payment of purchases as well as utility bills and other service charges. (Chart 12)

In terms of the ratio of the total value of credit transfers to GDP Hungary is still among the leaders in the European Union. Moreover, this indicator even improved last year. Breaking the previous years' negative trend, the ratio of the annual value of credit transfers to GDP improved slightly in 2020, which is mainly attributable to the fall in GDP as a result of the pandemic and to the expanding possibilities of the use of credit transfers consequently to the newly available instant payment service (Chart 12). In terms of this indicator, Hungary continues to occupy a distinguished position in the ranking of EU member states. Moreover, Hungary is also expected to exceed the EU average as a result of the Brexit (Chart 13). The favourable value of the indicator is also attributable to the fact that most of the corporate sector's payments – especially the high-value transactions of large companies – are conducted through

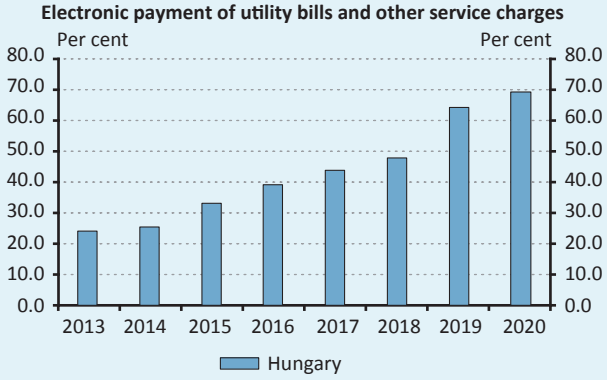
Chart 12
Changes in indicators measuring the level of development of Hungarian payments (2013-2020)



Annual value of credit transfers / GDP



Total annual value of payment card purchase transactions / Annual household consumption



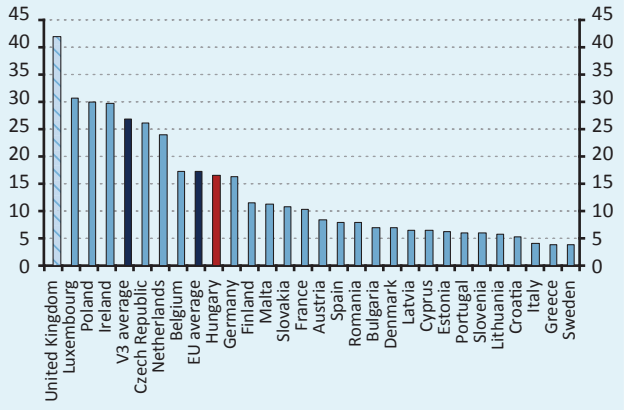
Estimated annual number of direct debits and other electronic bill payments / Estimated annual number of bill payments

The Hungarian bill payment data before 2019 do not include the bill payments made not through postal money orders or direct debits (e.g. card payment online or in the service provider's local office, credit transfer), while the continuously increasing payments of postal money orders conducted with payment cards in the post offices have formed integral part of this indicator all the time.
No European bill payment data are available for the purpose of EU comparison.

Source: MNB, HCSO, ECB, Eurostat

Note: There can be deviations from previously published data due to reporting modifications.

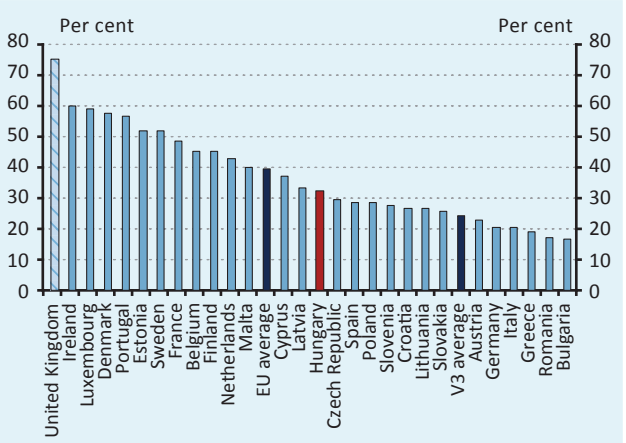
Chart 13
Annual value of credit transfers to GDP ratio in the member states of the European Union (2019)



Source: MNB compilation based on ECB and Eurostat data

Note: The United Kingdom is still included in the average of the European Union. In addition, due to methodological differences and factors related to exchange rate changes the figure for Hungary is different from the one in Chart 12.

Chart 14
Ratio of payment card purchases to annual household consumption in the member states of the European Union (2019)



Source: MNB compilation based on ECB and Eurostat data

Note: The United Kingdom is still included in the average of the European Union. In addition, due to methodological differences and factors related to exchange rate changes the figure for Hungary is different from the one in Chart 12.

credit transfers, resulting in a higher indicator. Nevertheless, as a result of the availability of the instant payment service, credit transfer is an option for more and more retail and corporate payment situations, which projects further development.

In terms of electronic payment of retail purchases, Hungary is still in the mid-range of the European Union, although major improvement was attained in this area in 2020. In 2020, a previously unseen, nearly 5 percentage points increase took place in electronic payments of retail purchases, which is significantly attributable to the changes in payment habits as a result of the outbreak of the coronavirus pandemic (Chart 12). It is observed in general that out of precautionary considerations consumers opted for contactless card payments more often. As a result, the value of payment card purchases accounted for more than one third of the total household consumption in 2020 (Chart 12). Hungary is in a favourable position in the ranking of EU member states as well in terms of the electronic payment of retail purchases (Chart 14). Moreover, Hungary is dynamically approaching the level observed in the most developed countries, and it will exceed the EU average in this area as well with the exit of the United Kingdom from the European Union.

More than two thirds of bill payments are already conducted using some kind of electronic payment method, which is attributable to the increasingly wide range of the payment methods accepted by various bill issuers as well as to the changes in consumer habits due to the outbreak of the coronavirus pandemic. Although the effect of the availability of instant payment was not yet perceived significantly in terms of bill payments in 2020, more and more actors are examining the opportunities inherent in innovative solutions relying upon the new service, including in the payment initiation based on the Hungarian QR code standard and in the request-to-pay service. The application of QR codes suitable for initiating instant payments may be especially advantageous for the more cost sensitive bill issuers, as the receipt of credit transfer transactions is typically free of charge on the basis of bank conditions, as opposed to, for example, the receipt of card payments or to the solution based on postal money orders, where fees as a proportion of the turnover are usually charged. Moreover, the implementation of the solution does not necessarily require major improvements either in the majority of cases. Bill issuer service providers can place QR codes containing bill payment data on electronic or paper-based invoices without having any payment related licence or without the involvement of other partners. As a result,

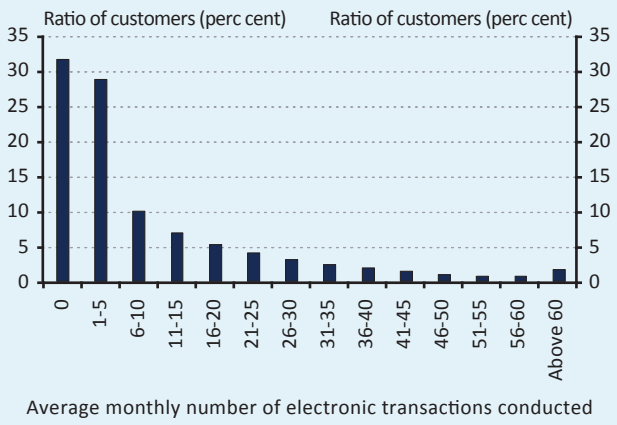
customers can simply and comfortably initiate instant payment transactions, for example in their mobile banking application, by scanning the QR code. Taking the MNB's standard[5] as a basis, even without the involvement of banks or any other service providers, any bill issuer may generate a QR code that contains all the payment data necessary for the initiation of an instant payment transaction and allows simple identification of the transaction. At the same time, the request-to-pay service may provide valuable support in terms of the automation of processes in the more complex cases. The viability of these solutions is also confirmed by the fact that in parallel with the penetration of digitalisation, consumers tend to give preference to electronic payment solutions in the area of bill payments as well, which results in the suppression of cash transactions. It was already seen in the previous years as well that in parallel with direct debits and postal money orders conducted with payment cards, other forms of electronic payments are also spreading rapidly, especially the solutions based on online card purchases, and last year the trend was further accelerated by the outbreak of the coronavirus pandemic.

2.2 COST OF ELECTRONIC PAYMENTS

2.2.1 Pricing trends

The wide-ranging spread of package-based pricing is indispensable for the further development of electronic payments. The spreading of new and innovative electronic payment methods, including end-user services based on instant payment, especially requires, in line with international practices, package-based pricing of credit transfers. It is important to ensure that all banks offer account packages that are available for a moderate price for anybody, facilitating the initiation of instant payments without separate transaction fees. The MNB emphasised the importance of this objective to the payments sector in an executive circular as well in 2020, and in 2021 it is going to prepare a comprehensive analysis on the basis of bank statements of fees sent to customers. This will provide a detailed and comprehensive picture of the fees that affect customers, especially in terms of their types and distribution, as well as of the payment habits in parallel with that. The results of the analysis will reveal the possible areas where additional interventions may be necessary in order to achieve the intended objective.

Chart 15
Retail customers according to the frequency of using electronic transactions



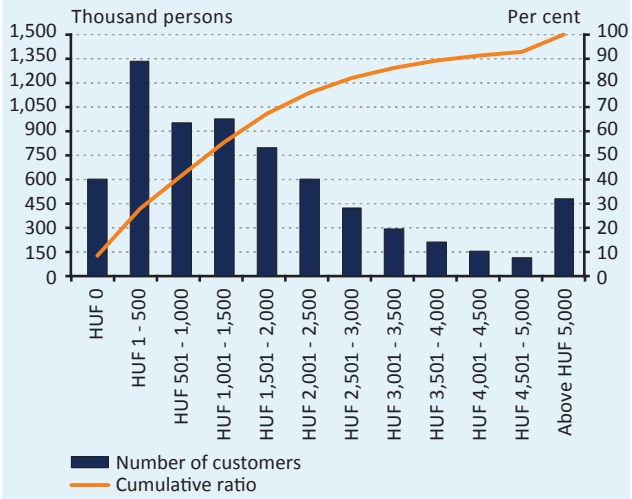
The data for the last 5 months of 2019 of bank statements of fees show that the majority of customers still initiate very few electronic transactions, so there is ample room for development. Nearly two thirds of the customers with payment accounts initiate less than 6 electronic transactions a month, including card payments and credit transfers as well. A mere 22 per cent of customers can be deemed active in this respect, i.e. in terms of electronic transactions, as they are the only ones initiating more than 15 electronic transactions a month. For further development of electronic payments in Hungary it would be desirable if the active status was achieved in the case of at least half of the customers. At the same time, the pricing structure of payment services plays a major role in this matter, which, for the time being, provides wide-ranging support only to payment card transactions (Chart 15).

At present, customers pay high monthly fees, in spite of the low number of electronic transactions conducted. The introduction of the instant payment system as well as the innovative services relying upon it may greatly contribute to the further increase in the number of electronic transactions. At the same time, according to the MNB's surveys, in addition to the continuous availability, the speed in terms of processing the transactions and security, the pricing of new services built on the basis of the basic service is also extremely important. In 2019, even with the current low number of transactions, 60 per cent of the

[5] Guidelines on the QR code data entry solution applicable in the instant payment system

customers paid more than HUF 1000 a month for account management and electronic payment services. Moreover, the average monthly cost of nearly half a million customers – the most active ones in terms of electronic transactions – reaches HUF 5 thousand, which already corresponds to HUF 60 thousand a year. In 2019, the average cost of all the customers amounted to HUF 1600, while the average cost of those customers who carried out at least one credit transfer was around HUF 2 thousand. (Chart 16)

Chart 16
Breakdown of customers by their average monthly payment costs

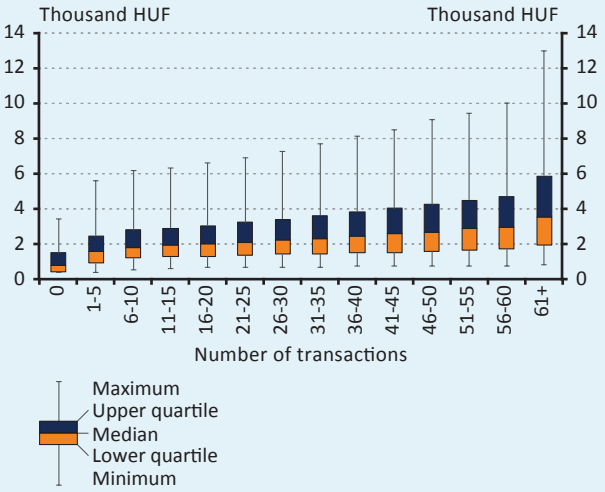


In order to support electronic payments and within that especially the services relying upon the instant payment system, it is essential to widely introduce and spread account products built on package-based pricing that – similarly to payment cards – do not apply direct transaction fees in the case of credit transfer transactions either. While extra costs would not arise on the customers' side in the case of account products relying upon package-based pricing even if the number of electronic transactions increased significantly, the fees paid may even multiply in the case of the account packages widely used at present. Therefore, it is indispensable to promote package-based pricing at the level of the entire banking sector and to direct as many customers to these account packages as possible. Moreover, in view of the degree to which cash transactions may potentially be turned into electronic ones, the above serves the interest of banks as well. In addition, in the case of credit transfers below HUF 20 thousand even the financial transaction tax cannot be an obstacle any longer, as with its termination banks do not have to incur extra costs proportionate to the value of the transactions in the case of such credit transfers.

Improving the awareness of customers and careful choosing of account packages could reduce the payment costs of some of the retail customers already in the short run. Making payment products and their related costs as transparent as possible and the strengthening of financial awareness are also important factors in terms of facilitating the spreading of electronic payments. In addition to the importance of creating pricing solutions on the supply side that do not apply high transaction fees to hinder the further spread of electronic payments, other factors also need to be considered. In this respect, it is a crucial element to create transparency in pricing and to adequately inform customers, as already in the current pricing structure many customers would be able to reduce their respective payment costs by the changing of account packages, even within the same bank, or by switching to an account product offered by another bank. Looking at the distribution of average monthly costs depending on the number of electronic transactions conducted it is clear that there are customers who pay nearly sixteen times higher monthly costs than another customer with similar transaction habits. It is true for any of the groups according to the number of transactions conducted that there is at least one customer in them whose average monthly cost is nine times higher than that of another customer belonging to the same group. Even taking the median of the groups as a base of comparison, in each group there is at least one customer whose cost is three times higher than the median value of the group (Chart 17). Besides, a large-scale changeover to package-based pricing would be favourable in terms of the strengthening of transparency as well, as in the current framework, in view of the significantly different cost structures, customers are often in a difficult situation in connection with the comparison even if they use the MNB's bank account selector programme[6] or study the fee information document that must be prepared pursuant to the Payment Accounts Directive[7]. The annually sent statement of fees is a step forward, although it is often complicated to access and difficult to interpret for customers.

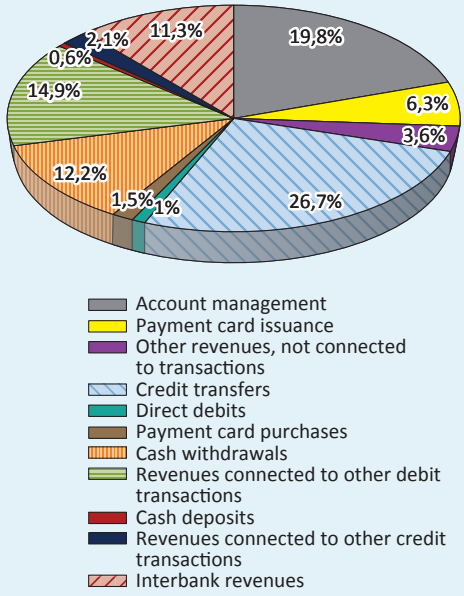
[6] https://alk.mnb.hu/fogyasztoknak/alkalmazasok/szvp
[7] Directive 2014/92/EU of the European Parliament and of the Council of 23 July 2014 on the comparability of fees related to payment accounts, payment account switching and access to payment accounts with basic features

Chart 17
Distribution of customers' average monthly costs depending on the number of electronic transactions conducted



Note: Outliers have been excluded, and the minimum and maximum of average monthly costs in terms of the average monthly number of transactions in the chart indicate the 5 per cent and 95 per cent percentiles, respectively.

Chart 18
Breakdown of revenues related to payment services (2020)



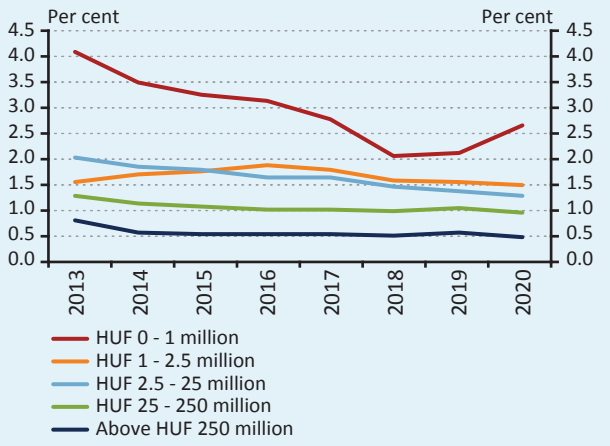
2.2.2 Revenues related to payment services

As a result of the extraordinary circumstances, domestic actors' revenues from payment services dropped in 2020 compared to the previous year. At the same time, it is also seen that the pricing of credit transfers is still unfavourable for customers because of the items burdening the transactions directly. In 2020, payment service providers in Hungary realised revenues amounting to HUF 554 billion, which is 3.5 per cent, i.e. HUF 20 billion less than in the previous year. The decline was attributable to a great degree to the outbreak of the coronavirus pandemic and, in parallel with that, to the drop in the turnover of various payment methods, including cash withdrawals, inter alia. Revenues related to cash withdrawals decreased by nearly HUF 9 billion. At the same time, it is still typical that a large part (nearly 27 per cent) of the revenues is constituted by items related to credit transfers (Chart 18), and these items – contrary to other payment methods – even increased, although slightly, by 1.5 per cent compared to 2019. It also corroborates that pricing practices of payment service providers are still inadequate, as they mostly continue to burden credit transfer transactions with direct transaction fees, which is unfavourable for customers and does not encourage the use.

On the whole, Hungarian payment service providers' revenues from card acquiring also declined. At the same time, an unfavourable effect within that was an increase in terms of smaller retailers' burdens as a proportion of turnover. Hungarian payment service providers' revenues from card acquiring, which represent costs on the retailers' side, somewhat declined compared to 2019. In 2020, as a result of the decline of slightly less than 1 per cent compared to the previous year they realised HUF 50 billion. Considering that on the whole the total payment card purchase turnover of the retailers concerned expanded by nearly 12 per cent, the decline in income from fees may significantly contribute to the further development of electronic payments. At the same time, it is an unfavourable development that in the case of retailers with the lowest quarterly card turnover (i.e. below HUF 1 million) the ratio of payment service providers' revenues to the card payment turnover of the retailers concerned increased considerably, from 2.1 to 2.7 per cent, which means a significant step back (Chart 19). Nevertheless, it was also attributable to the fact that the revenues collected in relation to POS terminals increased by 93 per cent in this category, a major portion of which is a reaction in the form of a one-off fee to the change in consumers' payment habits as a result of the coronavirus pandemic, and may have been related to the procurement and installation of new devices because of the preparation

for the change in legislation affecting the Act on Trade. In addition, in spite of the fact that compared to the end of the previous year at the end of 2020 there were 7 thousand more retailers with a turnover not exceeding HUF 1 million, their annual turnover decreased by 8.3 per cent.

Chart 19
Ratio of revenues compared to payment card purchase turnover in merchant categories according to quarterly payment card turnover (2013-2020)



2.3 RELIABILITY OF ELECTRONIC PAYMENTS

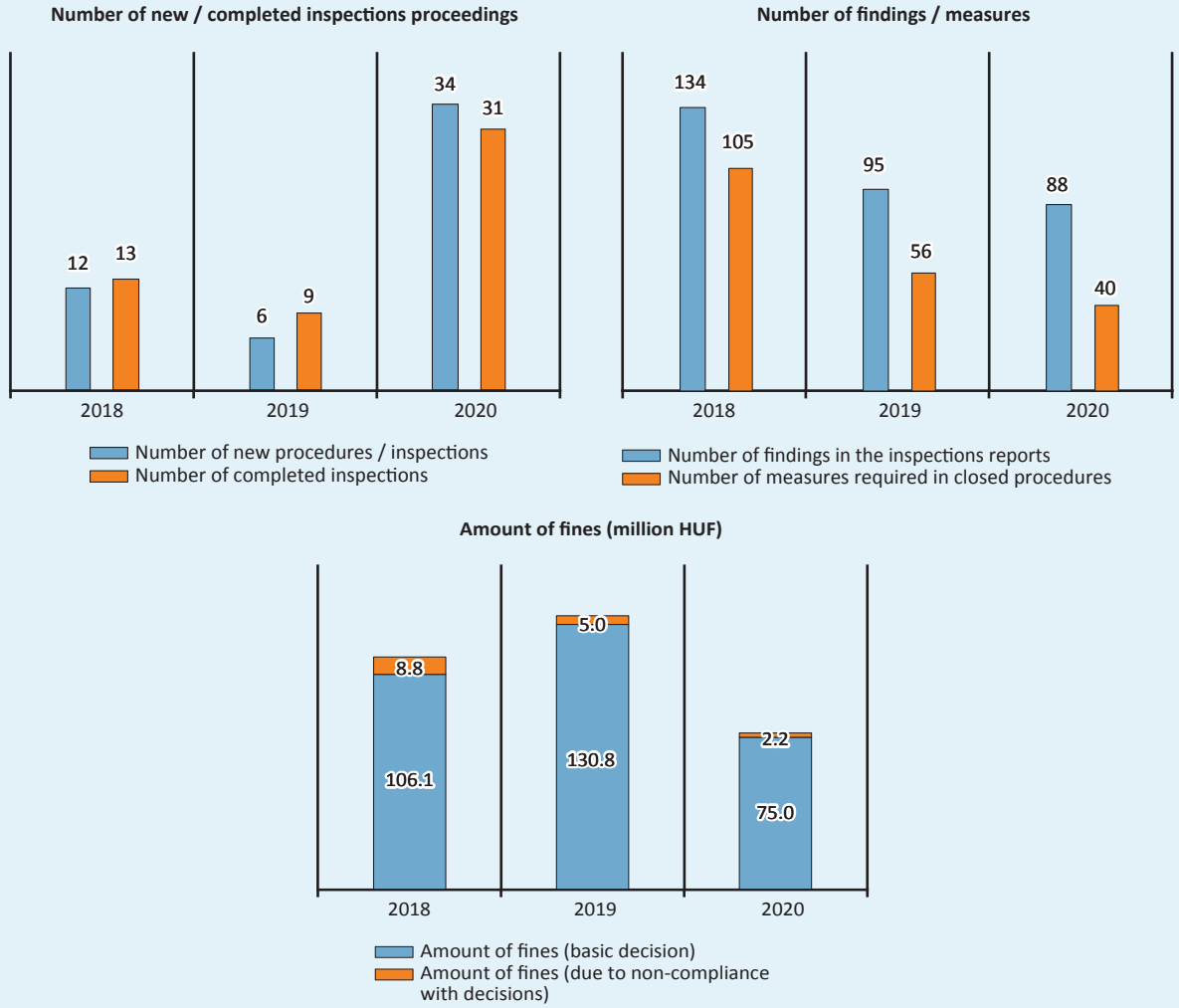
2.3.1 Compliance with the payment legislation

According to the payment inspections in 2020, the operation of the payment service providers under review is satisfactory in general. Nevertheless, deficiencies were found by the majority of the inspections. In 2020, 34 payment inspection procedures were launched, and 31 were closed. The inspection reports sent out during the year indicated the violations of 88 provisions of law, while the decisions of authorities included in resolutions or letters required 40 measures to be taken. In the MNB's resolutions, penalties amounting to a total HUF 75 million were imposed on two payment service providers, and in another case a fine of HUF 2.2 million was imposed for failing to implement a measure required in a previous year's resolution. (Chart 20)

According to the findings of the payment inspections, the rules concerning the immediate crediting of the amounts of incoming payment transactions were the most often violated ones. In 2020, 28 per cent of the findings were related to the provision concerning the immediate crediting of payment transactions of the MNB Decree on the execution of payment transactions[8] (Chart 21). As a result of this infringement, customers cannot immediately dispose of the amounts transferred to them, which may lead to liquidity problems as well. Although payment orders executed with a delay or incorrectly sometimes disrupted the predictability of customers' payment transactions, overall, they did not jeopardise it. In 2020, failures to credit transactions immediately primarily affected foreign currency payment transactions. This infringement was mostly attributable to payment service providers' failure to quote exchange rates continuously during their opening hours, and thus waiting for the exchange rate resulted in a delay in crediting the payment transaction. The MNB continues to assess strictly the violation of the immediate crediting of the amount of transaction, as the development level of the information technology allows much faster processing in the payment service providers' systems since the publication of the relevant legislation. Accordingly, in order to support the banking sector's compliance with the law, during the year the MNB issued a recommendation concerning its expectations related to immediate crediting.

[8] MNB Decree No 35/2017 (XII. 14.) on the Execution of payment transactions

Chart 20
Key data of the payment inspections conducted by the MNB* (2018-2020)



Note: The data in the chart are for information only and may not be regarded as time series data reflecting statutory compliance, suitable for the analysis of trends. The number of findings related to the individual years significantly depends on e.g. number of payment inspections, while the average number of findings per inspection depends on the type of the inspected institution (the potential number of legal provisions that may be inspected in the respective proceeding).

** The chart presents the data of the results of the payment inspections taking into consideration the inspections carried over from previous year, where under the respective year the findings included in the inspections report sent out in the reporting year and the procedures completed in reporting year are shown, irrespective of the year of launching the inspection.*

Box 2
MNB recommendation on immediate crediting

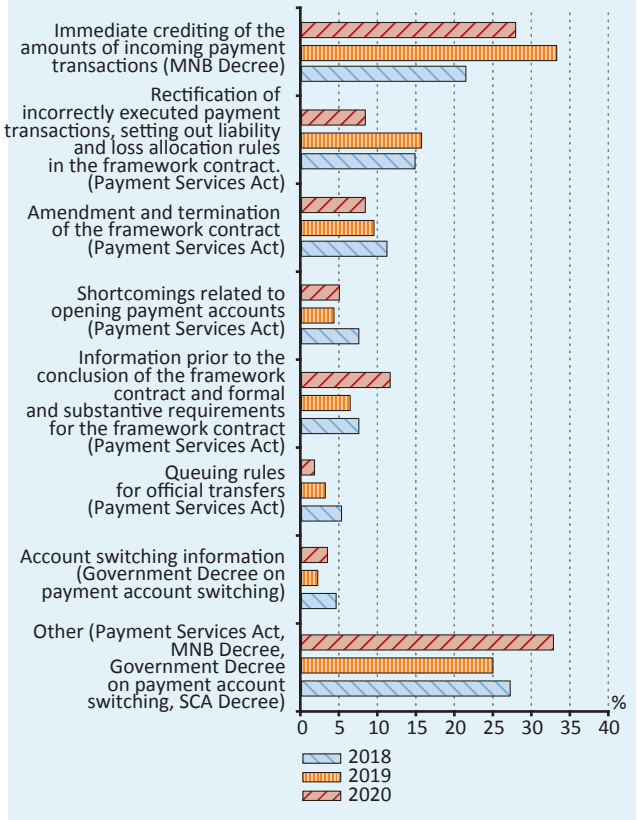
An MNB recommendation on the immediate crediting of the amounts of payment transactions to payees' payment accounts was published. It ensures that customers can dispose of the amounts credited to their own account in line with the MNB's expectation, contributing to the predictability and management of liquidity at all times. The provisions of the new Payment Services Directive (PSD2) concerning the execution of payment transactions (regarding, for example, the deadlines to be met or the application of value dates governing in terms of interest rate calculations) were transposed by the MNB Decree. Based on the provision of the PSD2, the MNB Decree on the execution of payment transactions requires that following the amount of the payment transaction has been credited to its own account (a so-called nostro account held, for example, with a central bank or another payment service provider), the payee's payment service provider must immediately credit the amount of the payment transaction to the payee's account so that it is immediately at the payee's disposal.

At the same time, neither the PSD2, and thus nor the MNB Decree on the execution of payment transactions provide a definition of immediacy, i.e. a period that may reasonably be expected, within which the payee's payment service provider should make the amount of the payment transaction available on the payee's payment account for initiating further payment orders. Considering that, the MNB deemed it justified to formulate its expectations regarding the time period of immediate crediting in a recommendation. As a result of new solutions offered by technological development, the share of electronic payments within payment transactions is increasing. In addition, the introduction of instant credit transfers allows payment by transfer even in payment situations where the time factor is critical and where it is especially important that the amount of the transfer be credited to the payee's payment account within a determined maximum period of time. By issuing the recommendation, the MNB's expectations regarding immediate crediting to payment accounts are recorded in a clear and transparent manner, contributing by that as well to a uniform customer experience with each payment service provider.

In the recommendation, the expectations regarding the time period of completing the immediate crediting in the case of payment transactions other than instant credit transfers were formulated on the basis of the experience of past years' supervisory inspections, taking into account the crediting periods observed at individual payment service providers. Thus, for example, the payee's payment service provider has to credit the payment transactions fulfilled within the framework of the intraday clearing of the Interbank Clearing System (ICS) to the payee's payment account within 30 minutes from the occurrence of the conditions set forth in the recommendation. In the case of instant credit transfers, the 1 second allowed for immediate crediting was primarily determined taking into account time-critical payment situations. The MNB expects payment service providers to apply MNB Recommendation No. 10/2020 (VIII. 6.) on the immediate crediting of the amounts of payment transactions on the payee's payment account as of 31 October 2020.

Another major source of error was the violation of the rules concerning the form and content requirements of, amendment to and termination of framework contracts as well as related to the provision of information prior to concluding the framework contract. A large portion of the deficiencies found during the year were related to violating the Payment Services Act[9]. The infringements were mostly related to corrections of payment transactions as well as to laying down the liability and loss allocation rules in a framework contract (Chart 21). It is important for the MNB to act in that case as well when – compared to the provisions of the Payment Services Act – it finds an additional requirement in the framework contract with the stipulating of which the payment service provider can reject its customer's complaint regarding a payment transaction even in addition to the possibility granted by law. A typical case of the infringement related to the amendment to the framework contact is when the payment service provider does not allow at least two months for its customers to make their decision in respect of the unilateral amendment of the contract. The purpose of this period is to let consumers and micro enterprises learn about any unilateral amendment to the framework contract (e.g. fee increase) by the payment service provider in due course. Thus, they may have enough time to formulate a position in connection with the change (acceptance of the amendment or termination of the contract free of charge).

Chart 21
Ratio of the main types of errors identified during the payment inspections (2018-2020)



[9] Act LXXXV of 2009 on the Provision of Payment Services

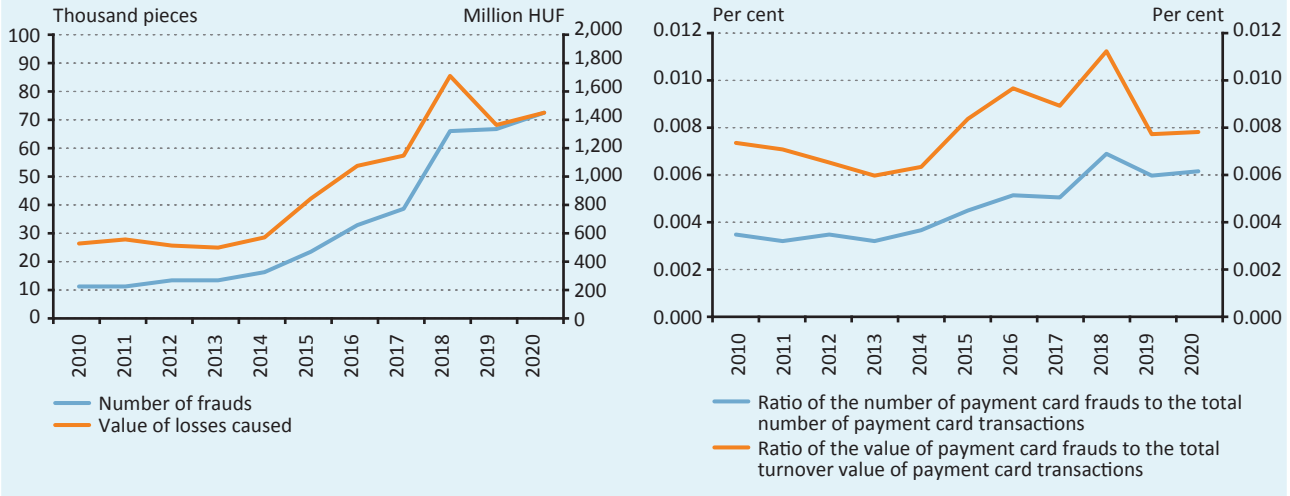
The range of other infringements widened further this year. A new element is the violation of the rules of strong customer authentication. Violations of the rules of strong customer authentication were first identified in the reports sent out in 2020. The majority of them related to the violation of the obligations and extraordinary measures regarding the application programming interface. With regard to strong customer authentication, the MNB found the violation of the Emergency Act[10], which directly concerns the provisions of the SCAr.[11], the most serious. A payment service provider did not omit to apply strong customer authentication in the case of contactless payments not exceeding HUF 15 thousand. Moreover, this affected a wide range of customers, so in addition to the obligation to cease the infringement, penalty was also imposed.

According to the examination of the sector related to instant credit transfers there were no significant problems in the period following the launching. When the instant payment system became available, the MNB conducted a targeted inspection that concerned the entire sector. The inspection focused on the most important rules of the functioning of the instant payment system, and the data of some 3.6 million instant payment orders were examined. Within that, on the side of the payer's payment service provider the MNB inspected whether the institution ensures the fulfilment of payment orders in 5 seconds. On the side of the payee's payment service provider the MNB checked whether the provider sends the information about the fulfilment or rejection of the payment transaction immediately and in a way to ensure its receipt by the payer's payment service provider within 5 seconds. Out of the 26 inspections conducted there were 24 findings in total in 10 cases, but fine was not imposed in any of them. Partly as a result of the inspections, partly independent of them, in view of the proactively implemented improvements, the ratio of incorrectly or unlawfully executed payment orders declined further by the end of the year from a level that was not too high upon the start either.

2.3.2 Frauds related to electronic payments

The ratio of frauds to turnover is still insignificant on the card issuer side. Moreover, a wider application of strong customer authentication may entail further positive developments. Although on the issuer side the number and value of payment card frauds slightly increased compared to the previous year, their ratio to the turnover remained unchanged, i.e. insignificant. The 72 thousand frauds in 2020 and the HUF 1.5 billion loss caused by them does not even amount to 1 hundredth per cent of the total card turnover (Chart 22). Nevertheless, it is still typical that the majority of frauds (some 90 per cent) affected card-not-present, mainly online purchase transactions, and most of them (nearly 91 per cent) were still linked to cross-border transactions. It may result in a major step forward that

Chart 22
Changes in the number of frauds and in the related losses caused as well as their ratio on the card issuing banks' side to the total payment card turnover (2010-2020)



[10] Act LVIII of 2020 on the Transitional Provisions related to the Termination of the State of Danger and on Epidemiological Preparedness

[11] 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

strong customer authentication has to be applied already in the case of online transactions as well, which can only be waived in the case of an exception rule laid down by the respective regulation is applied. It means that in terms of payment transactions initiated online, giving only the data of the card or them and a confirmation code received in a text message cannot be accepted as of 1 January 2021. Successful customer authentication requires the application of at least two of the following categories: knowledge, possession, biological attribute. Exemption from this, applying the exception rules may only be gained along a well-defined, secure framework.

Although on the card issuer side the value of losses actually written off increased, the legislative background still favours consumers, whereas losses on the acquiring side declined considerably. In 2020, the value of losses actually written off[12] on the card issuer side increased by 44 per cent, exceeding HUF 2.2 billion. At the same time, as a result of the legislative background, which is favourable for consumers, a mere 10 per cent of the total loss written off on the card issuer side had to be borne by cardholders (Chart 23). On the card acquirer side the value of losses actually written off[13] dropped by nearly 44 per cent compared to the previous year, thus remaining below HUF 243 million.

In spite of a major increase compared to the previous year, the number and value of successful frauds identified in electronic payments not related to payment cards are still negligible compared to the total credit transfer turnover. Although a considerable increase took place in the case of electronic frauds not related to payment cards, it arises from an expressly low base, and its ratio to the total credit transfer turnover shows an even more favourable picture (i.e. with a place value) than the ratio seen in the case of payment cards (Chart 24). Moreover, a major group of electronic frauds not related to payment cards is not even of payments origin primarily, i.e. they are related to psychological manipulation and deception rather than to acquiring customers' sensitive payment data or gaining access to their accounts. This is also in line with international trends, with various factors as contributors,

Chart 23
Losses written off in relation to payment card fraud on both the payment card issuer and acquirer sides (2020)

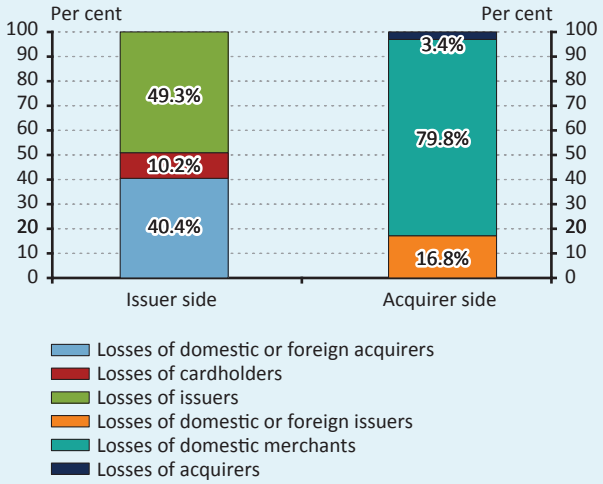
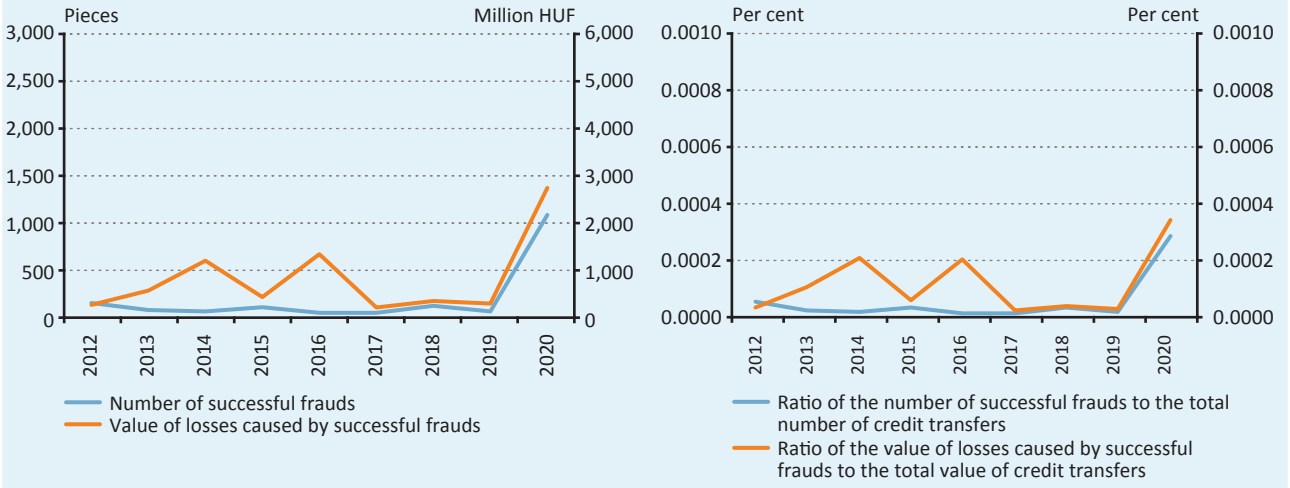


Chart 24
Changes in the number of other electronic frauds and the value of the losses caused, and their ratio to the total credit transfer turnover (2012-2020)



[12] The value of losses written off on the issuer side may differ from the value of the total losses incurred due to the delay in terms of the settlement of certain cases.

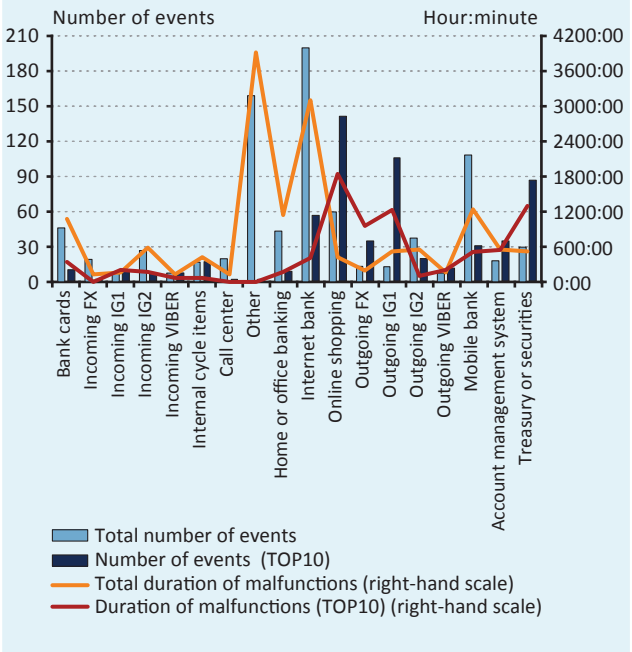
[13] The value of losses written off on the acquirer side may differ from the value of the total losses incurred due to the delay in terms of the settlement of certain cases.

including, inter alia, the rapid spread of digitalisation. Accordingly, in connection with the developments in Hungary it is to be emphasised that these factors cannot be directly linked to the launch of the instant payment service.

2.3.3 Payment incidents at payment service providers

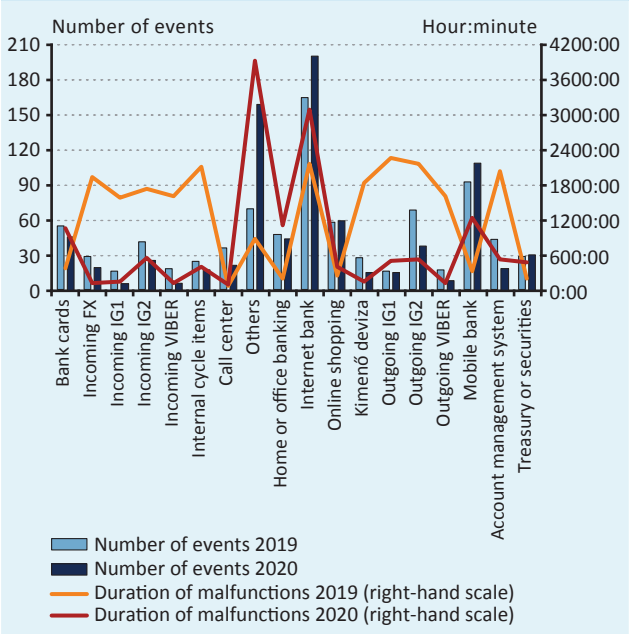
In 2020, the number of payment incidents has been decreasing slightly in the banking sector. Considering the number of payment service providers and the complexity of the financial infrastructure, the number of cases is still low. The favourable trend of the previous year continued, and the number of incidents reported by credit institutions declined again. In 2020, the MNB received information on 490 incidents of 29 credit institutions in total. During the year, the average duration measured from the occurrence of the incidents until their resumption was 18 hours and 23 minutes, which is nearly 6 hours longer than the one measured in 2019. Based on the incident reports sent to the MNB, banks noticed the large majority of incidents before they were reported by the customers; on the other hand, the time between the occurrence and detection of the incident increased by almost 8 hours compared to the previous year, amounting to 11.5 hours on average. Considering the duration of incidents, it seems that the 10 banks that are the most important on the basis of their role in payments have managed the incidents better than the other actors in the sector. (Chart 25)

Chart 25
Number and duration of payment service providers' malfunctions by activity, highlighting the data of the ten most significant payment service providers (2020)



The fall in the number of reported incidents can be observed for most banking services. Continuing the trends of previous periods, the number of incidents reported in connection with interbank forint and foreign currency transfers continued to decline, which is generally true for ICS and VIBER items as well as for foreign currency transactions. A significant portion of errors were still caused by various network failures, which is in line with the fact that the adequate functioning of business processes related to payment cards and ATMs requires the coordinated activity of various actors that are independent of one another (e.g. card companies, retailers, credit institutions, telecommunication companies). Against this background, in 2020 the number of incidents exceeding 100 hours rose back to the level seen in 2018. At the same time, unlike in the previous periods, the errors cannot be typified. In 2018, 2019 and 2020 the number of malfunctions exceeding 100 hours was 13, 7 and 15, respectively. (Chart 26)

Chart 26
Number and duration of payment service providers' malfunctions, and changes in distribution by activity (2019-2020)



Similarly to the previous years, the largest number of payment incidents related to the internet banking systems in 2020 as well. The incidents affecting electronic banking channels, i.e. internet banking, home or office banking, mobile banking or call centre, accounted for nearly 50 per cent of all incidents. Moreover, their number even increased compared to the previous year, although to a relatively lower degree. While the number of incidents in this category was 201 in 2019, it amounted to 240 in 2020. These incidents hindered customers mostly in the

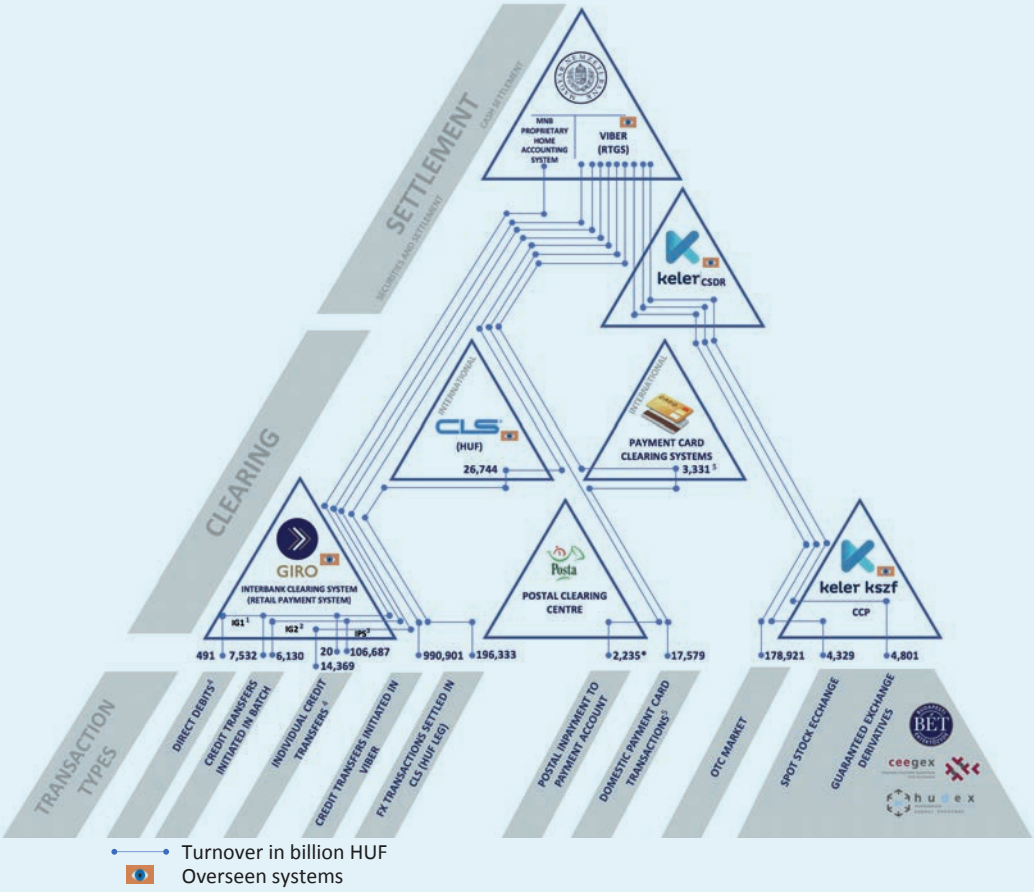
initiation of credit transfers, in account history query as well as in using other mobile banking services. Most of the reported errors were related to operations, maintenance not performed properly and to external service providers.

Incidents affecting the instant payment system appeared as new elements in 2020; the number of incidents in this category was 31. The underlying reasons for the incidents experienced in connection with instant payment were attributable to teething troubles typical of the starting of new systems. Nevertheless, they declined to some extent during the year as a whole. Errors in the handling of special characters, problems feeding through from other processes, stoppages due to unexpected consequences of data centre maintenance as well as the updating of disaster recovery plans resulted in the typical sources of errors.

3 Payment and securities infrastructures

Smooth execution of payments and the reliable, efficient operation of financial market infrastructures are essential for the execution of real economic and financial transactions. Payments in central bank or commercial bank money and transactions performed 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 (ICS, KELER Group, 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. The clearing of card transactions is performed in the systems of international card companies (Visa, MasterCard), while postal payment instruments are typically cleared in the Postal Clearing Centre (PCC). 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. (Chart 27)

Chart 27
Overview of Hungarian financial market infrastructures (2020)



[1] Transactions settled in the overnight clearing
[2] Transactions settled in the intraday clearing
[3] Transactions settled in the instant clearing
[4] On-us transactions are not included
[5] Only the interbank part of total payment card transactions is cleared in the payment card clearing systems
**https://www.posta.hu/static/internet/download/MP_Eves_jelentes_2019_1202.pdf*

PAYMENT SYSTEMS

3.1 VIBER

Data sheet

Chart 28
Number and value of transactions settled in VIBER (2016-2020)

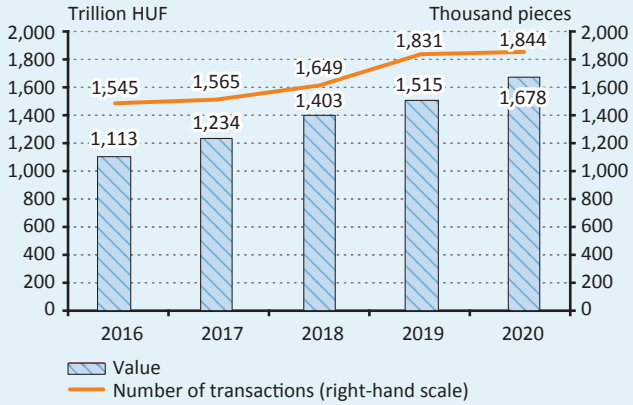
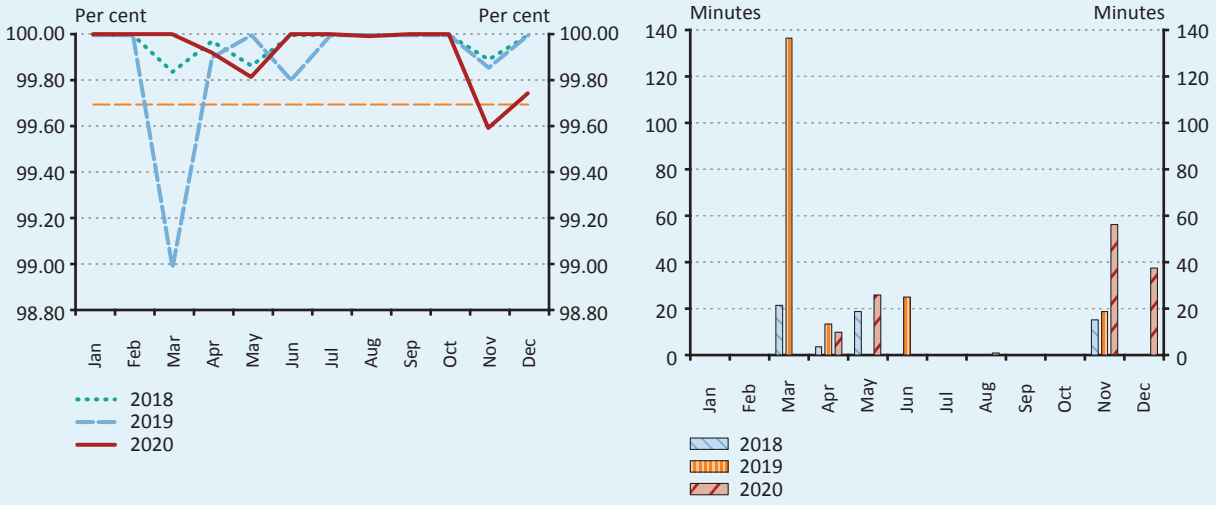


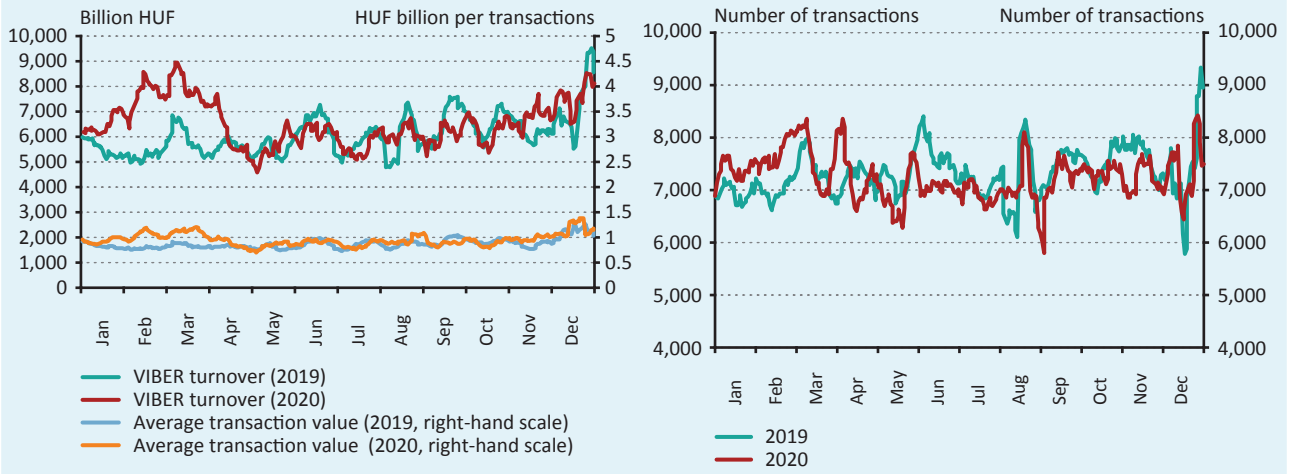
Chart 29
Monthly availability ratio of the VIBER (left-hand chart), and aggregate duration of outages of the core settlement services (right-hand chart) (2018-2020)



3.1.1 Current events

In 2020, the value of VIBER turnover increased by 11 per cent, while the number of transactions remained practically unchanged compared to 2019. In 2020, the turnover exceeded HUF 1,600,000 billion, which was the highest annual turnover in the past decade. Comparing it in seasonal terms to last year, the expansion in the value and number of transactions was particularly significant in the first four months of 2020, with the increase in market volatility as a result of the coronavirus pandemic as a possible contributor. The rise in value was mainly attributable to (one-week) central bank and preferential deposits as well as to interbank transactions. As a result of the major increase in the value of transactions, the average value of a VIBER transaction increased by some HUF 83 million in one year, which primarily affected the transactions exceeding HUF 10 billion. (Chart 30)

Chart 30
Changes in the value and average transaction value of the VIBER turnover (left-hand chart) and number of transactions (right-hand chart) in an annual comparison (2019-2020)



3.1.2 Risks

In 2020, VIBER operated with high reliability, service continuity risk declined slightly compared to the previous year as a result of the shortening of the incident time of complete service outages[14], and the remote operation introduced in view of the pandemic also did not cause problems in the service. The operation of VIBER was stable during the whole year, and VIBER participants faced short-time complete service outages lasting 130 minutes in total only on a few days. VIBER availability ratio fell to below 100 per cent in 5 months, out of which – as in the previous year – there was only one month when the 99.7 per cent stipulated as an overseer's expectation was not reached. It is positive that the aggregate incident time of complete outages decreased by 35 percentage points compared to the previous year, exceeding a quarter of an hour on three occasions, and the longest outage lasted for 56 minutes. Nearly half of the incident time of complete service outages was caused by network faults. Telecommunication and software faults were also among the more frequent problems. During the year, the MNB requested 60-minute extensions of VIBER's interbank operating hours on two occasions due to incidents affecting VIBER as well. (Chart 29)

Clearing and settlement risk was low in VIBER in 2020[15]. Due to the potential pass-through of the liquidity effect to other participants, which may increase the clearing and settlement risk in the system, it is essential to monitor the incidents related to VIBER participants. Namely, when there is an incident, the affected participant cannot send transaction to others and thus the funding effect of incoming items may decrease at those. In spite of the pandemic, the clearing and settlement risk caused by participants did not increase in 2020, as the number of participant incidents related to VIBER declined by nearly one quarter compared to the previous year. In 2020, 7 participants reported problems on 14 occasions, but workaround solutions were needed only in half of the cases, when payment orders were submitted through GIROHáló instead of SWIFT. 70 per cent of the participant incidents were caused by SWIFT issues, while in the rest of the cases technical problems occurred in the participants' internal systems. In 2020,[16] participant problems did not result in extensions of VIBER operating hours.

[14] complete service outage: an incident that took place at the MNB reduces VIBER availability
[15] For the detailed analysis related to liquidity management see the section entitled *3.4 Liquidity in the payment systems.*
[16] Excluding KELER and GIRO as system operators.

3.2 ICS

Data sheet

Chart 31
Number and value of transactions cleared in ICS (2016–2020)

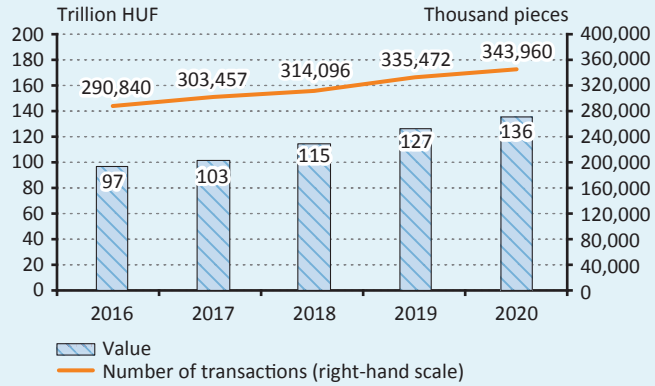


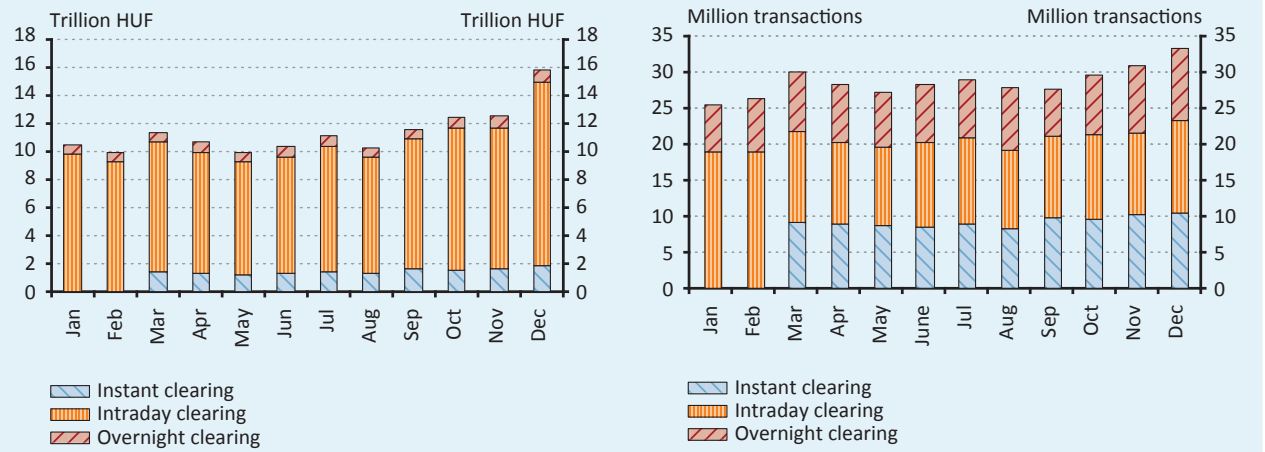
Chart 32
Impact of overnight (left-hand chart), intraday (right-hand chart) and instant (lower chart) clearing incidents on availability (2018–2020)

3.2.1 Current events

The value of the total turnover[17] on the three platforms of ICS increased by 7 per cent, while the number of transactions was 3 per cent up compared to the previous year. The distribution of transactions across platforms changed considerably with the launching of instant clearing as of 2 March 2020. With the introduction of instant clearing, i.e. as a result of the diversion of the vast majority of credit transfers below HUF 10 million, the number and value of transactions in the intraday clearing declined by 35 per cent and 5 per cent, respectively. The value of the overnight clearing turnover grew by 10 per cent, while the number of transactions remained almost unchanged. This latter increase in turnover is attributable to an expansion in the Hungarian State Treasury's transactions due to the rise in state transfers in view of the pandemic. In 2020, 45 per cent of the number of transactions of the ICS turnover were carried out in intraday clearing, while the remaining part was shared between the instant clearing and overnight clearing in similar proportions. In terms of value, a major portion (83 per cent) of the ICS turnover was executed in intraday clearing, 11 per cent in instant clearing and 6 per cent in overnight clearing. (Chart 33)

As of 1 September 2020 it became possible to send even those items into the instant clearing that do not fall under the obligation of instant processing. The widening of the service mostly affected corporate batched transactions. As a result, banks – depending on their business policy – may already opt for intraday as well as instant clearing for their execution. In order to avoid in the instant clearing the overwhelming of receiving participants (the beneficiary's side) by corporate batches, which often contain thousands of individual credit transfers, for the time being banks have to break up the batches, and shall forward only one transaction per receiving bank and per second to the central infrastructure. At the same time, the widest possible use of requests-to-pay messages is facilitated by the so-called GIROFix service introduced as of November 2020. Not only ICS participants, but other contracted customers may also submit batched requests to pay without splitting them into individual transactions. The GIROFix service takes the batches apart, transforms them into individual requests to pay, and submits them into the instant clearing depending on the load on (the reception capacity of) the receiving party.

Chart 33
Breakdown of the turnover on the ICS platforms (2020)



[17] In the case of the ICS, it is the clearing transactions that are shown among the turnover data.

3.2.2 Risks

In 2020, all the three clearing platform of the ICS operated with high reliability and safety. Remote operating and shared operation between sites introduced in view of the pandemic did not cause any problems in the provision of services. GIRO launched the central infrastructure of instant clearing on 1 July 2019, and it has been available for the processing of customer transactions and has been working reliably since March 2020. The system operated continuously, without stopping in 2020 as well; participants faced minor service provision problems only on two occasions and for a short time. Accordingly, the availability ratio of instant clearing remained below the 99.9 per cent undertaken by GIRO in the general terms and business conditions only in one month (Chart 32). The incidents were caused by known software fault within the scope of responsibility of a third party service provider (remedied within a short time) and by operating error. Based on the experiences of the first year of operation, GIRO and the MNB together identified some areas where efficiency should be improved, and an action plan related to them was also prepared. The operation of the intraday clearing of ICS is also stable, which is corroborated by the fact that in 2020 there were only 6 days when complete service outage occurred, causing delays in the clearing of only 15 cycles out of the annual 2543. As a result of the incidents, the availability ratio of the intraday clearing of ICS fell to below the 99.8 per cent that was stipulated as an overseer's expectation. Service continuity risk increased slightly compared to the previous year (Chart 32). In February 2020, the longest incident of the past years occurred, lasting for more than 7 hours and affecting the clearing of 8 cycles. Most of the incident time of complete service outages were caused by software fault within the scope of a third party service provider's responsibility. As in the previous years, service continuity risk in the overnight clearing of ICS continued to be low in 2020 as well, even declining slightly compared to 2019. Overnight clearing operates in a stable manner; participants faced a minor incident once during the year, as a result of which the availability ratio fell to below the undertaken service level in one month (Chart 32). The incident revealed the malfunctioning of the software of overnight clearing.

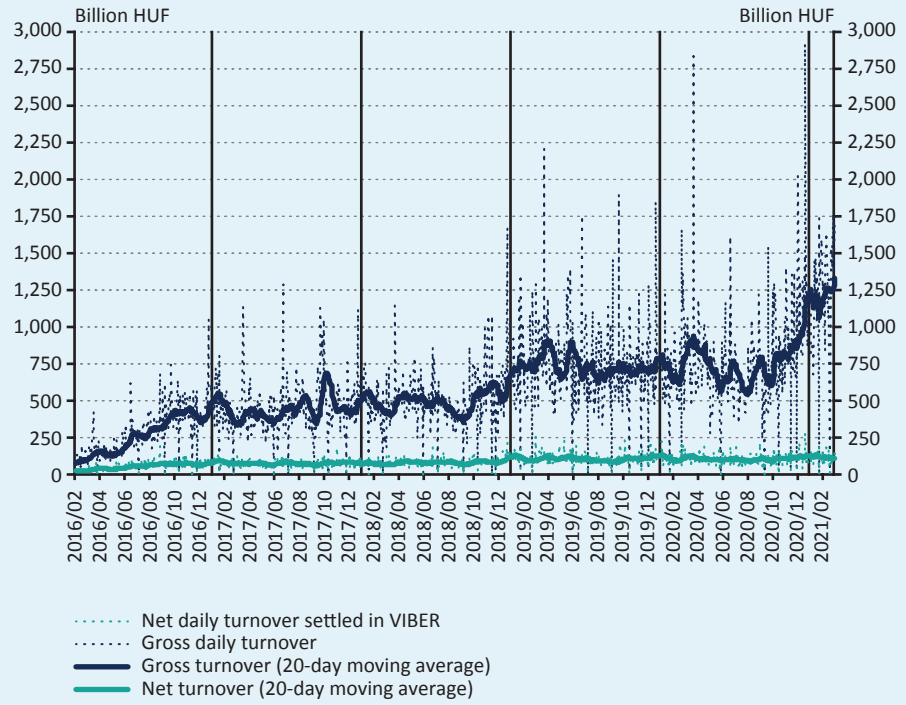
Box 3
Data-driven risk analysis

New business analytics solutions were introduced in the oversight of financial market infrastructures, allowing the development of efficient supervisory, monitoring and early warning models. The Oversight Monitoring System (OMS) fusion project, which started in 2018, was closed. Using the existing payments data asset, its objective was to prepare validation reports, create an interactive reporting interface (dashboard) and a forecasting model. The application created allows cross-checking the data reporting of banks required by the MNB on the basis of the turnover that took place in financial market infrastructures. In addition, the interactive reporting interface, which is capable of providing a breakdown by individual bank level, gives an immediate overview of a bank's role in the payment system. In addition to VIBER turnover and liquidity data, the reporting interface also shows indicators that focus on individual banks' securities collateral. This allows nearly real-time monitoring of payments. In addition, on the basis of data reporting by banks, the application was also complemented with indicators regarding frauds related to payments. Moreover, the first early warning system based on payments that is able to forecast bank turbulences was created. In the complex mathematical model, 7 indicator packages are automatically updated and signal if unusual behaviour of an actor is taking shape in terms of payments. Remaining tasks include the fine-tuning of the model and the collecting of experiences in connection with its functioning. In addition to the OMS, the launching of the instant payment system also brought many new analytical solutions, and thus the trends in liquidity may continuously be monitored using automated reports. With their help, for example, every evening preceding a bank holiday period an automated weekly report presents the size of individual system members' liquidity with which they are getting prepared for the given weekend in instant clearing.

3.3 CLS

Data sheet

Chart 34
Daily gross forint turnover settled in the CLS system and the related daily net forint turnover settled in VIBER (February 2016 – February 2021)



3.3.1 Current events

In 2020, forint turnover of CLS grew by 7 per cent, and during the year under review the number of CLS members that settle their international forint transactions through CLS rose from 26 to 31. While in 2019 the total volume of forint transactions carried out in CLS, established for the settlement of interbank foreign exchange transactions, amounted to approx. HUF 183,000 billion, it was approx. HUF 196,000 billion in 2020. This, broken down into HUF-settlement days, represents an average daily value of HUF 741 billion and HUF 779 billion in the past two years, respectively. Growth in total turnover was 7 per cent, while the rise in the average daily turnover amounted to 5 per cent due to the five more days in 2020 when forint transactions were executed. It was an important development in 2020 that another five of the direct CLS members decided to settle their interbank HUF foreign exchange transactions through CLS. The number of entities that joined CLS forint settlement rose to 31 by the end of the year, while the number of members in the CLS system was 74 at the end of the year. The impact of the growing number of HUF-settling members on CLS's forint turnover became robust by the fourth quarter of 2020. Looking ahead, the new entrants are going to generate significant growth in CLS's forint turnover; the growth rate in the first quarter of 2021 reached 85 per cent. (Chart 34).

3.3.2 Risks

Despite the pandemic, the growth in CLS turnover took place under stable operational security. CLS provided its service with 100 per cent availability during the whole year. The five Hungarian HUF-nostro-agent banks providing forint liquidity for the settlement of the transactions had to apply BCP procedure in VIBER merely on three occasions during

the morning processes of the 252 settlement days of the year. No VIBER incident posed any obstacle to payments to and from CLS. The procedures of the HUF-nostro-agent banks and of the MNB performed well also in 2020.

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 in 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 intraday 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 the settlement does not take place in VIBER. For the 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 that takes place, the balance can be increased or reduced to the debit or credit of the liquidity in 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 that influence liquidity

In 2020, the expansion of the monetary policy tools also supported the liquidity of payment system participants in performing their payment turnover, which increased and became more volatile due to the coronavirus pandemic as well. The liquidity level in VIBER increased by HUF 300 billion to HUF 2800 billion in 2020. The reserve requirement ratio remained unchanged, but the level of the payment account balance kept in VIBER declined by HUF 75 billion compared to 2019, which was channelled over to the instant settlement account balance of the ICS instant clearing. In order to control the market turbulence caused by the coronavirus pandemic and to increase liquidity, the MNB expanded the scope of eligible collateral with corporate loans. The intraday credit line expanded from HUF 2000–2100 billion early in the year to HUF 2800–3100 billion by 2020 Q2, stabilising at HUF 2400–2500 billion by the end of the year (Chart 35). The composition of securities pledged as collateral changed slightly. While the share of government securities remained at the level typical before (70 per cent), the aggregate share of mortgage bonds and the SME loans accepted in connection with the FGS declined (from 27 to 20 per cent) to the benefit of large corporate loans (Chart 36). Two-thirds of VIBER participants' potential liquidity comprises securities on the balance sheets of the participants that may be optionally pledged, and therefore participants have a large liquidity buffer to conduct their payments. The level of securities holdings that may be pledged rose from HUF 7200–7300 billion at end-2019 to some HUF 7800 billion by April 2020, before stabilising in the range of HUF 7000–7500 billion (Chart 35).

Chart 35
Changes in the account balance and liquidity, potential liquidity and turnover of VIBER participants (2018-2020)

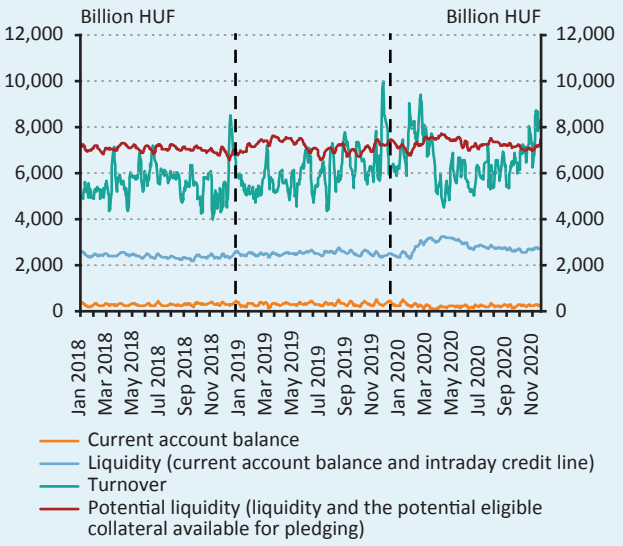
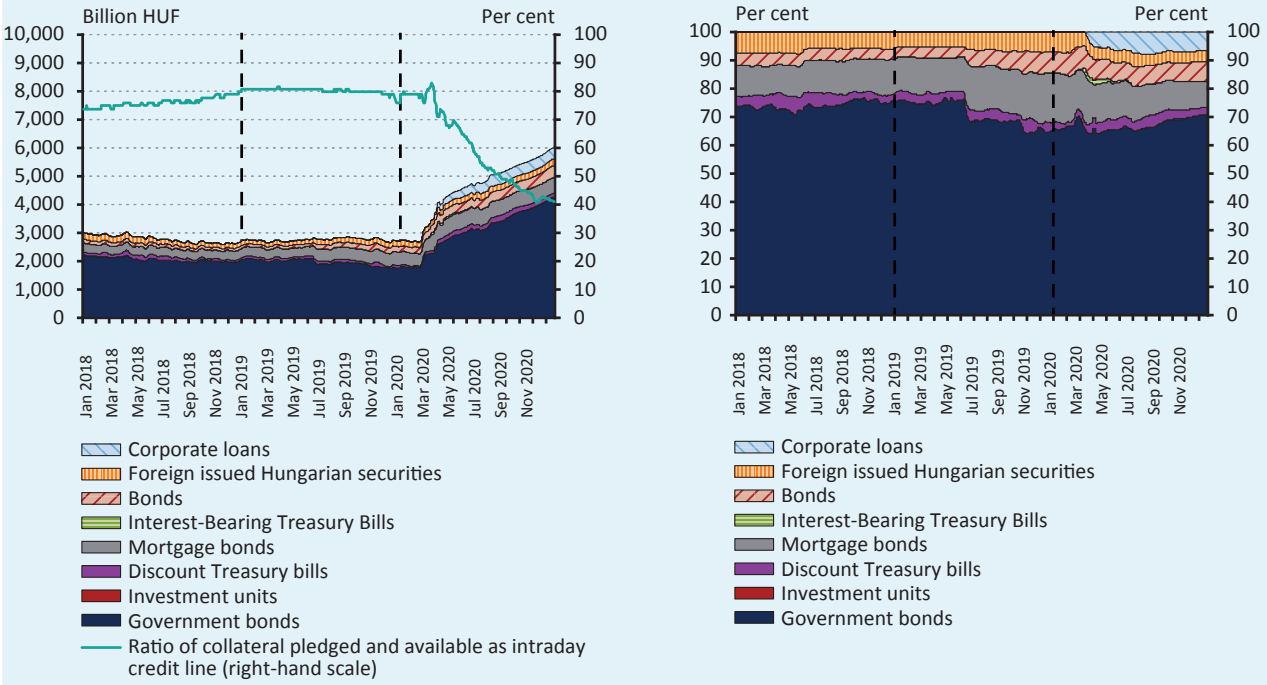


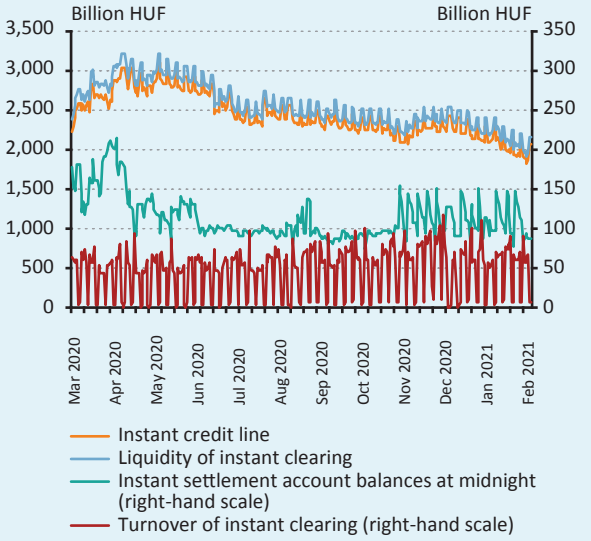
Chart 36
Amount of pledged collateral and the ratio of credit line* (left-hand chart); distribution of pledged collateral by type (right-hand chart) (2018-2020)



** Ratio of credit line that can be used for payments to the total pledged securities collateral (excluding SME loans)*

The launching of the ICS instant clearing did not cause problems for the participants in terms of liquidity management, and since then they have been managing the liquidity needed for the execution of the transactions well. Out of precautionary considerations, in March the participants set the account balance in the ICS instant clearing to a higher level (HUF 105–156 billion), which declined to HUF 89–95 billion on the basis of turnover experiences starting from the summer. Liquidity expansion outside of VIBER operating hours may take place through instant loan disbursement to the debit of the participants' instant credit line. On average, participants carry over 90 per cent of their intraday credit line to the instant credit line, using the remaining part in overnight clearing, and thus the level of the instant credit line follows the changes in the intraday credit line available in VIBER. The initial level of HUF 2500–3000 billion stabilised as of June, fluctuating around HUF 2000–2500 billion in 2020 H2. (Chart 37)

Chart 37
Turnover and liquidity of instant clearing (March 2020 – February 2021)

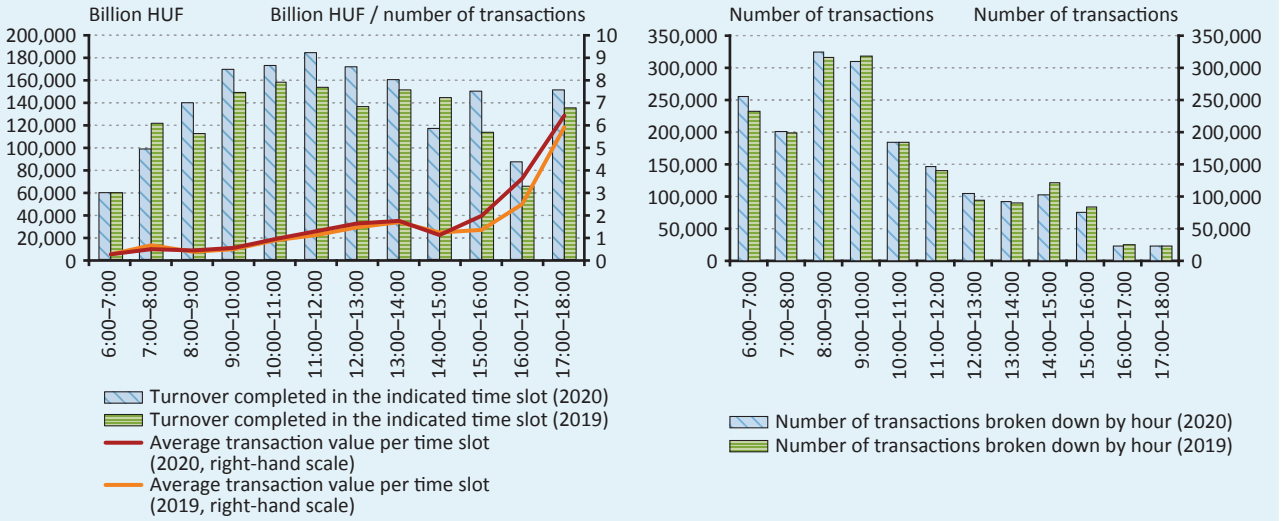


Note: In VIBER operating hours the liquidity of instant clearing is at an about 10 per cent higher level, as then the intraday credit line may be used (excluding the Hungarian State Treasury, the MNB, OFSZ (National Payment Service Provider) and TransferWise).

3.4.2 Liquidity management of VIBER and ICS participants

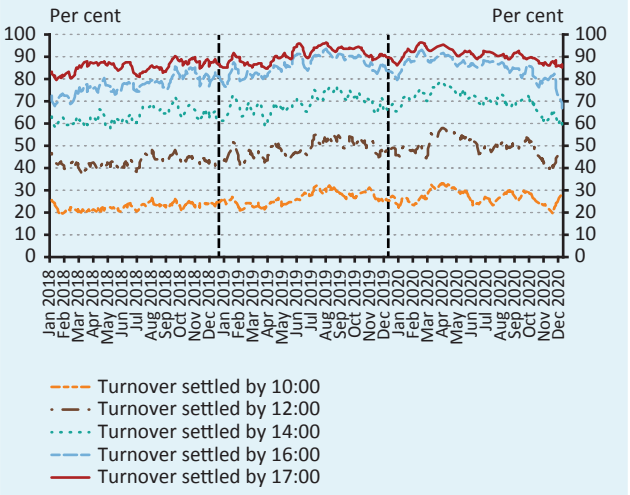
VIBER

Chart 38
Intraday trends in the value and average size of the VIBER transactions (left-hand chart), as well as the number (right-hand chart) broken down by hour (2020)



Payment system participants managed their liquidity in an efficient manner in 2020 as well, to settle their increased turnover. In 2020, the intraday VIBER turnover typically increased in every time band, and thus the average size of transactions was up in the majority of time bands. While 60 per cent of the value of the VIBER turnover was settled between 9:00 and 15:00, 70 per cent of the transactions in terms of their number were already launched by 11:00. 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. It is interesting that in the first months of the coronavirus pandemic participants initiated their transactions earlier and starting from May the initiation of payments shifted to a later time. In the last quarter, transactions were settled later and later; postponements of 10–15 per cent are observed in this period (Charts 38 and 39).

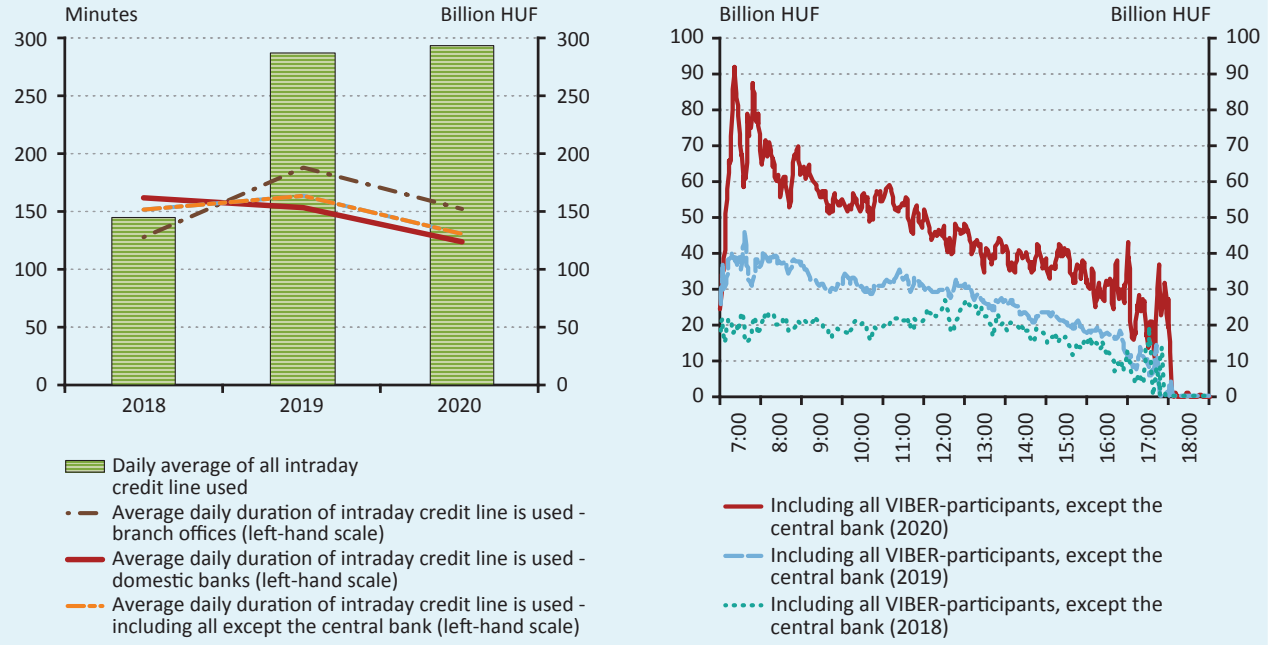
Chart 39
Timing of VIBER transactions (the portion of total value of daily transactions completed until a specific point in time) (2018-2020)



Note: Excluding the transactions of the MNB, KELER CSD, the Hungarian State Treasury, GIRO and the Hungarian Post.

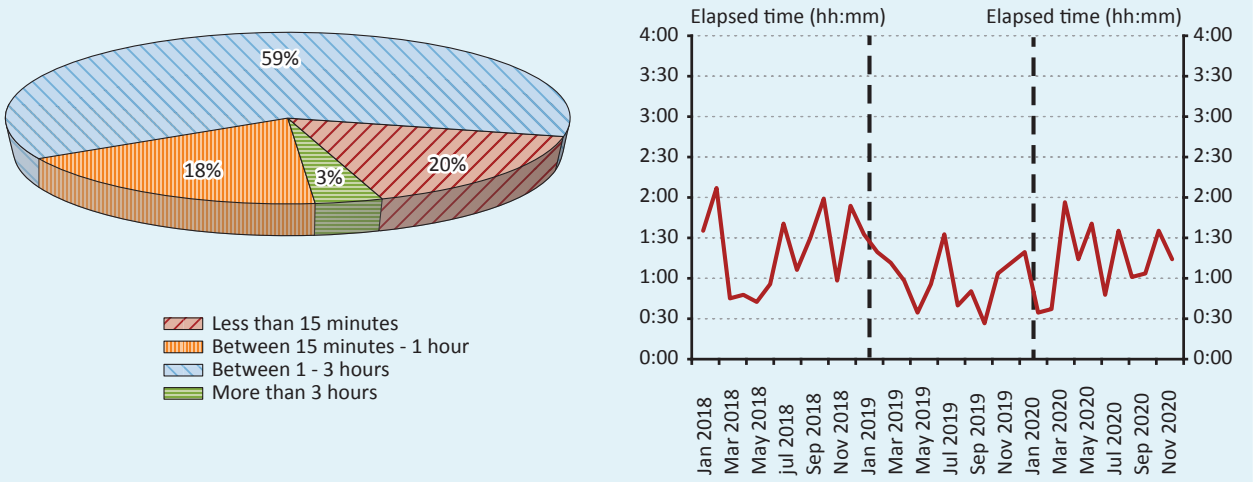
Payment system participants used their credit line in VIBER to a similar degree compared to the previous year, but for shorter times. The majority of participants are able to settle their VIBER transactions relying on their account balances, and thus the maximum utilisation of intraday credit line (MICL) at systemic level is still low (5–17 per cent) and did not change significantly compared to 2019. VIBER participants used 30 per cent of their credit line in an active manner, even for a couple of hours, but the rest only for relatively short periods (1–15 minutes). On the whole, compared to the previous year the use of the credit line became 30 minutes shorter on average, and thus the daily use of this facility was not much longer than 2 hours. The average value of the maximum utilisation of the credit line during the day increased slightly (by HUF 5 billion) compared to the previous year. Projecting the annual behaviour patterns to a one-day time window it is seen that, compared to the previous year, the intraday credit line utilisation increased during the opening hours, to the greatest degree from 7:00 to 10:00 (Chart 40).

Chart 40
Value of the intraday credit line utilisation during the day (left-hand chart) and its average daily duration in VIBER, and the average value of the maximum utilisation of the credit line during the day, broken down by domestic bank and branch office (right-hand chart) (2018-2020)



As a result of the ample liquidity in the system, still only very few of the VIBER transactions are queued due to shortage of funding. Their number declined considerably compared to the previous year, although the average time spent in the queue increased to a minimum degree. Continuing previous years' trends, the number of queued transactions decreased by 40 per cent, and on the whole less than one thousandth of VIBER transactions were queued (1411 in total). Most of the queuing is caused by participants that conduct active liquidity management and have high intraday credit line utilisation. Queuing occurred only on about half of the working days, which is also a major improvement compared to the 80–90 per cent typical of previous years. Transactions were queued for 1 hour and 15 minutes on average, i.e. only 8 minutes longer than in 2019. There were much longer queues as well, exceeding 3 hours, but the number of these cases is insignificant. Since the VIBER turnover of these participants is low, their longer queuing did not increase the clearing and settlement risk in the system. They did not cause liquidity issues for others. Within the day, queuing typically started in the first two or three hours after the opening of VIBER, and transactions were out of the queue by 13:00 the latest. (Chart 41)

Chart 41
Average daily duration of queuing (right-hand chart – 2018-2020) and its distribution (left-hand chart – 2020)



ICS intraday and overnight clearing

In 2020, the turnover of intraday clearing cycles was balanced, liquidity was ample both at systemic and individual participants' levels, and thus the clearing and settlement risk remained low. Compared to 2019, the aggregate turnover of almost all the cycles in terms of value was smaller (with the exception of the 2nd and 10th cycles) as a result of the introduction of instant clearing. The highest turnovers in terms of value are observed in cycles 1, 8 and 9 (Chart 42). In intraday clearing, usually more than 60 per cent of the value of the turnover is cleared by 14:00 hours; less than 10 per cent of the turnover is cleared in the last cycle (Chart 43). In 2020 for the settlement of intraday clearing in VIBER only 0.2-1.8 per cent of the total liquidity available at any moment in VIBER was necessary. As a result of the pandemic, higher liquidity demand was realised in 2020 H1 and Q4, following the trends in VIBER turnover. Compared to the previous year, the funds needed for the settlement of intraday clearing corresponded to a lower ratio of VIBER liquidity almost during the whole year.

Chart 42
ICS intraday clearing turnover by cycles (2019–2020)

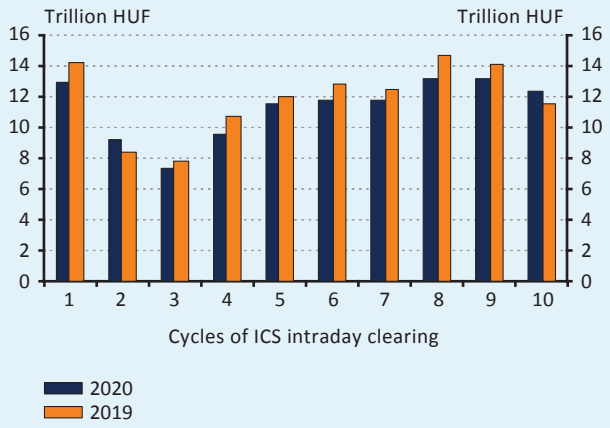
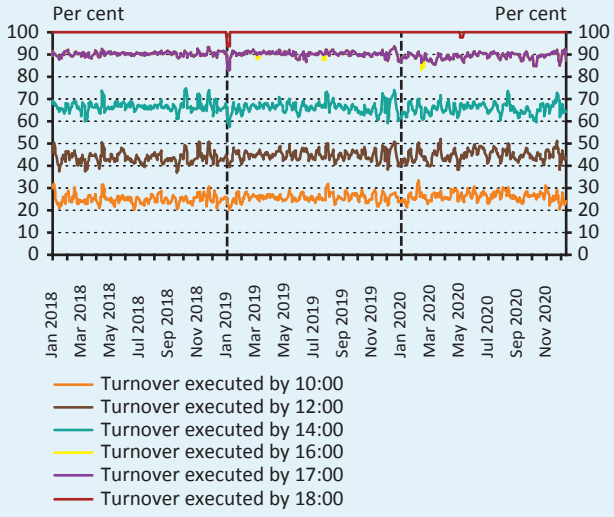
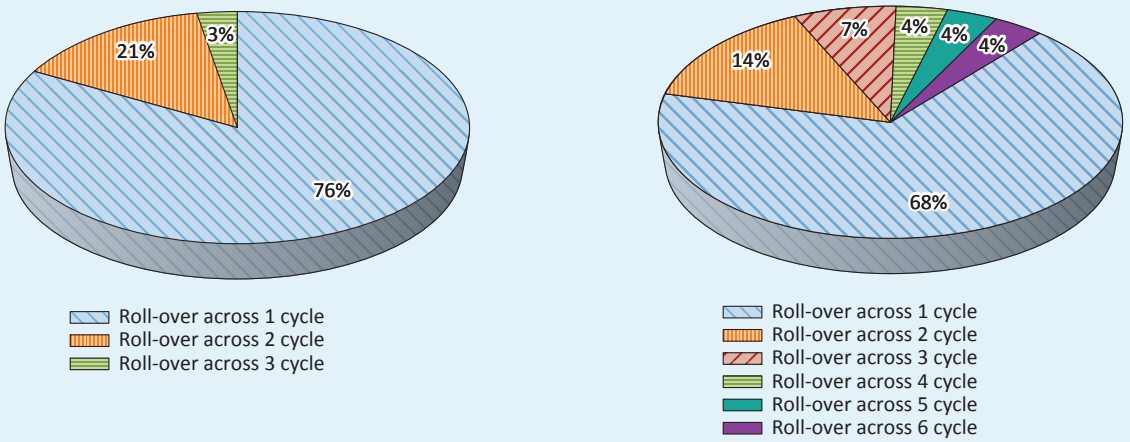


Chart 43
Timing of turnover in the ICS intraday clearing (the portion of total value of daily transactions completed until a specific point in time) (2018–2020)



The degree of the shortage of funding in the ICS intraday clearing was similar to that observed in the previous year, but the number of transactions involved by uncovered positions grew to nearly one and a half times higher. If an ICS participant fails to provide sufficient funding 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 2020, due to liquidity shortage, 7 ICS participants on 28 occasions in total were unable to provide cover for transactions worth HUF 52.6 billion, so they were rolled over to the next cycle. The lack of funds was greatly attributable to liquidity management issues or erroneous practice, since all the participants involved, except one, had sufficient securities holdings that may optionally be pledged. Pledging them as intraday credit line, the necessary amount of liquidity could have been provided. 68 per cent of roll-overs took place through one cycle, 14 per cent through two cycles, 7 per cent of them through three cycles and the remaining 11 per cent through more than three cycles. Due to the hourly cycle settlement, with roll-overs spanning three or more cycles, participants breach the so-called 4-hour rule of the MNB Decree on the execution of payment transactions. Similarly to the previous year, 54 per cent of the roll-overs belonged to an ICS participant with low turnover, and the same participant was also responsible for the roll-overs spanning two or more cycles. (Chart 44)

Chart 44
Ratio of roll-overs to total roll-overs (2019 (left-hand chart) – 2020 (right-hand chart))



As in the previous year, there was ample liquidity available in the ICS overnight clearing at system and individual bank levels alike in 2020. Only the direct credits of the Hungarian State Treasury and ICS participants' direct debits are cleared in overnight clearing. In their case, due to the one settlement window in the morning, or in the case of a lack of funds on one more occasion during VIBER operating hours, there is no need for participants' continuous liquidity management. In spite of the 9 per cent increase in the value of overnight clearing, queuing occurred only in the case of two participants on 3 clearing days. The value of transactions remaining in the queue was HUF 29 million, so they did not pose any clearing and settlement risk to other participants.

ICS instant clearing

According to the data of the first year, banks' customers exploit the possibility of transferring during the whole day on weekdays and at weekends alike, which requires continuous attention from ICS participants to provide sufficient liquidity for the settlement of transactions. Overall, apart from the interval between 1 and 4 a.m., customers initiate their instant credit transfers continuously. Turnover is the highest between 8 and 16 hours both in terms of the number and value of transactions. While 95 per cent of the turnover in terms of value takes place on weekdays, for the number of transfers this ratio is 89 per cent. The timing of initiating transactions on weekdays and at weekends is similar from midnight until noon, but instant credit transfer is used in a more active manner in the interval between 16:00 and 21:00 at weekends (Chart 45). In instant clearing, usually more than 55 per cent of the value of the daily turnover takes place by 14:00, while 10–15 per cent of the daily turnover remains for the time after 18:00 (Chart 46).

Participants made sufficient account balances available for nights, weekends and bank holidays as well in 2020, which is indicated by the fact that, apart from the first month

Chart 45
Intraday trends in the value (right-hand chart) and volume (left-hand chart) of the turnover in ICS instant clearing in a breakdown by hour (March 2020 – April 2021)

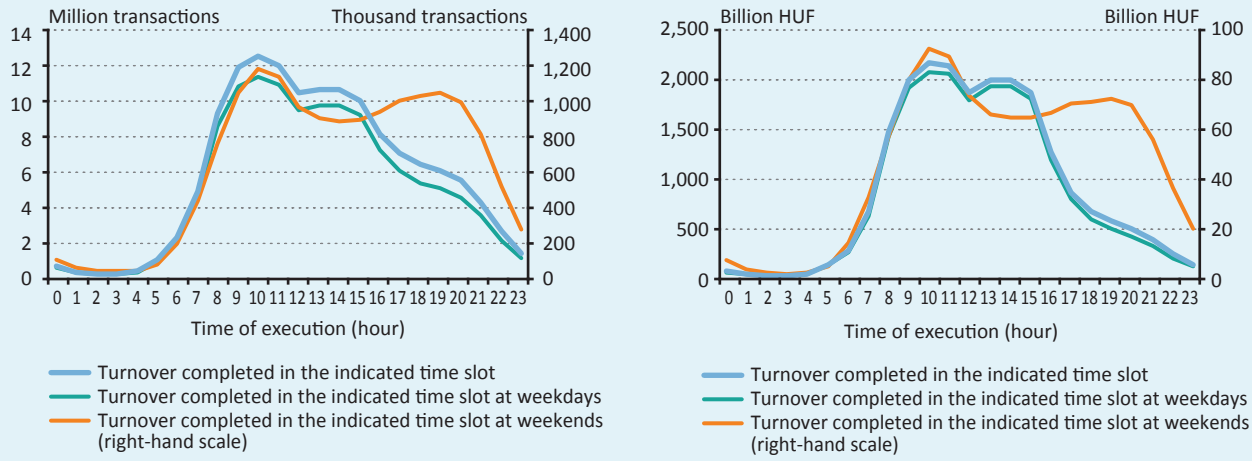
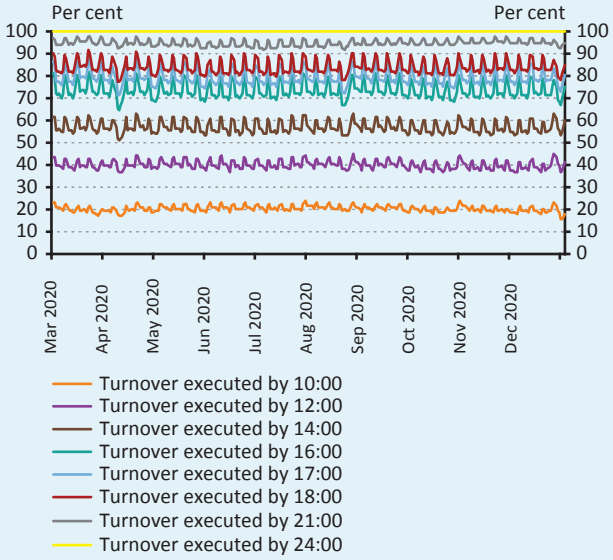


Chart 46
Timing of the turnover in ICS instant clearing (percentage of turnover settled during the day until a specific point in time) (March–December 2020)



following the launch in March, instant credit was used only 1-3 times a month. The participants' liquidity management in the instant clearing differs from that applied in the case of overnight or intraday clearing, but is also adequately used by system participants. An important difference is that if funds are not available on the instant settlement account for the settlement of the incoming instant credit transfer, the transaction is not put in a queue, but it is rejected immediately. Therefore, participants have to continuously maintain a sufficient account balance, as their customers are mandatorily informed about the rejections of transactions. In addition, sufficient funds have to be provided and liquidity has to be managed in two systems by participants: in the VIBER and in the instant clearing. GIRO automatically performs the liquidity top-up and allocation connected to the instant settlement accounts on behalf of the participants every 15 minutes, based on the liquidity parameters provided by the participants. Participants may set the level of their respective instant account balances by changing the liquidity parameters. In 2020, during the business hours of VIBER, participants actively used instant internal transfers for the moving of liquidity between their respective instant settlement accounts and payment accounts in VIBER. The intraday credit line can be used for this as well. Liquidity was transferred in and out in 160–250 cases and 1000–1500 cases a month, respectively. The instant credit line, with the exception of the short period after the closing and before the opening of VIBER, is available almost continuously, and thus the participants are able to bridge the unexpected liquidity shocks even during the night or on bank holidays, which significantly reduces their liquidity risk.

The stress tests conducted as of September 2020 also corroborate that banks allocated sufficient liquidity for instant clearing. Within the framework of stress tests, it was examined whether the instant settlement account balances would have been sufficient for the settlement of the 15-,

60-, 90- and 120-minute peaks[18] if the liquidity transfer from VIBER had not worked. In most cases, the monthly average of account balances would have provided cover for the highest monthly gross and net outflows[19] that took place in these time bands; on some occasions there would have been a lack of funds in the case of two banks. If the given month's minimum of the account balances had been available, there would have been a lack of funds already in the case of 9 banks, on 1–6 occasions a month. The anomalies that arose concentrated mostly around the days of tax payment. The cases of getting caught in the stress test are very extreme situations, and the probability of their occurrence is low. Moreover, while the gross peak turnover would not have been settled in several cases during the stress test, there would not have been any problem with the settlement of the net peak turnovers. Comparing the settlement account balances as at 18:00 hours on Friday with the liquidity demand arising during the next weekend it was found that the Friday evening pre-financed liquidity would have proven sufficient in many cases for an undisturbed settlement of the weekend turnovers. The Friday evening settlement account balance would have been insufficient on 1–2 occasions a month in the case of 3 banks, but the net turnover would have already been settled smoothly.

Box 4
The first year of the instant payment system from a financial stability aspect

Since its launching in March 2020 the instant payment system allows credit institutions and other payment service providers that join the system to offer state-of-the-art and competitive payment services to their customers within a technological framework open for innovations. By strengthening the competitiveness of deposit services, the continuous and predictable operation of the system contributes to the wide availability of bank deposit financing, the strengthening of customers' confidence and through them to the stability of the banking sector as well. Nevertheless, due to the real-time settlement of payment transactions expected every day of the week, 24 hours a day, it is also worth to complement the regular assessment of banks' liquidity risks in response to the features of the new system.

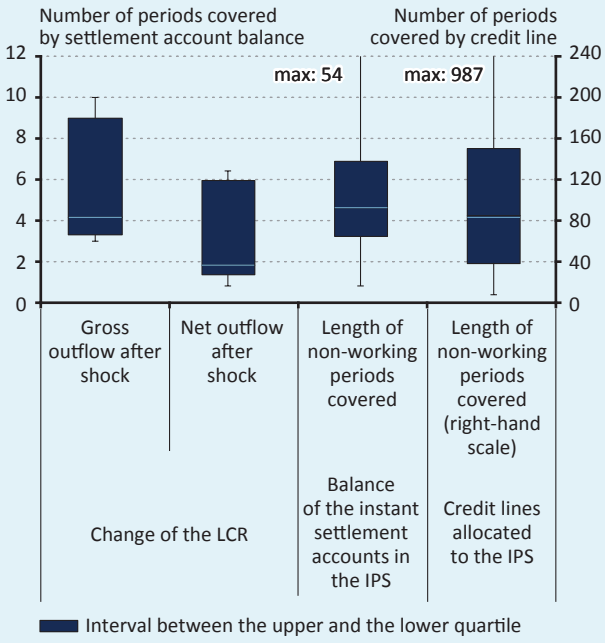
The depletion of liquidity provided for the instant payment system may amplify the risk of a mass deposit withdrawal (or bank run, in other words), which happens rarely, but potentially entails serious consequences, and may provide real-time indication of the starting of the bank run. With the high digitalisation of payment services, customers can withdraw their deposit savings more and more easily and at lower transaction costs from a bank.[20] Moreover, customers can perform outgoing transfers at any time even on bank holidays, when the possibility of expanding bank liquidity from external sources is limited due to the break in the operation of money markets, although the possibility of secured lending provided by the MNB in order to reduce risks is available. Considering all that, during its liquidity systemic risk monitoring the MNB also pays attention whether in the case of bank holidays (especially longer ones) banks are sufficiently prepared for extreme stress events such as a potential so-called 'one-click' bank run through digital channels. Thus, the MNB can learn about the strengthening or occurrence of these risks in a timely fashion.

In the instant payment system, the primary component of the existing liquidity buffer available for banks is the balance of the so-called instant settlement account. This balance changes as a result of the given bank's incoming and outgoing instant payment transactions, and during the business hours of VIBER it can be automatically topped up or reduced vis-à-vis system members' forint accounts in VIBER. During bank holidays and time periods outside VIBER operating hours, which are considered especially critical, the balance of the instant settlement account may also be raised from central bank loan on the basis of the collateralised credit lines provided by the MNB. Below is an examination of the changes in the liquidity buffer, which depends on these factors, and of its components experienced last year across systemically important large banks (nine large banks).

[18] The durations were induced by the following: 120 minutes – VIBER recovery requirement; 60–90 minutes – the credit line register module is not available after the closing and before the opening of VIBER.
[19] When calculation the highest gross outflow (gross peak turnover) only the debit turnover is taken into account, while in the case of the highest net outflow (net peak turnover) the debit turnover is reduced by the incoming transactions.
[20] According to previous experiences, non-personal, electronic or telecommunication devices played a major role already more than 10 years ago, on the eve of the 2008 global economic crisis, during the mass deposit withdrawals by Northern Rock customers.

Turnover in the instant payment system has increased both in terms of the number of transactions and their value since the go-live of the service. Looking at banking sector level, the average daily turnover (HUF 9 billion) during bank holidays is less than one seventh of the average working day turnover (HUF 67 billion), while in intraday transactions, starting from the early evening period outside working hours the turnover declines to a fraction compared to the one observed during working hours. This indicates a typically lower burdening of liquidity buffers outside working hours and a relatively lower level of the related risks. Nevertheless, it is important to note that this does not indicate the under-utilisation of the system outside working hours, as the differences across periods are much smaller in terms of the number of transactions. The more significant differences in terms of transaction value may be attributable only to the fact that outside working hours, in parallel with a drop in higher-value corporate transactions, lower-value retail items and within that presumably mainly time-critical credit transfers between persons may dominate. A further feature of the risks of individual bank liquidity positions is how the individual bank amounts of monthly outgoing instant payment transactions (outgoing transfers) change. There are several major credit institutions where outgoing transfers dominated in net terms in each period under review. Moreover, the amount of outgoing transfers may be considered relatively large compared to the sizes of the banks, which may have been attributable to the more important role of corporate credit transfers in the case of these institutions.

Chart 47
Distribution of changes in the LCR indicator as a result of liquidity shocks in the instant payment system and the number of non-working periods which are covered by the prefunded instant settlement accounts and the central bank credit lines allocated to the instant payment system (March 2020 – March 2021)



Note: The March 2021 values of the LCR are used to calculate the changes in the indicator, and the shocks are defined as the maximum of the gross and net outflow under a 4 day period. To calculate the length of covered non-working periods, the settlement account balances and credit line values observed at the beginning of the various longer non-working periods were proportioned to the outflows during the given non-working period.

The degree of outgoing transfers compared to the components of the liquidity buffers is also low, but in an extreme case a strong liquidity stress event may result in a heavy burden for some institutions. Gross outgoing transfers of longer non-working periods are covered many (typically at least 3-4) times by the bank liquidity pre-financed in the balance of the instant settlement account. The outgoing transfers during a longer non-working period (Chart 47) may also be considered many times overfunded in respect of the financing component as well that is available to the debit of the credit line, but the highest monthly outflows are also typically 10-20 times overfunded. In addition to the historical outflows, it is also worth assessing the sufficiency of the liquidity buffer compared to the volume

of deposits potentially affected by the mass withdrawal of deposits: according to our estimates it can be 5-10 per cent or even less in the case of several large banks, but the probability of a mass withdrawal is very low in view of the deposit insurance system as well. Moreover, large banks typically have eligible, not pledged securities as well in the magnitude of a hundred billion or close to that for the potential expansion of the credit line that can be used for the instant payment system. Finally, it can be established that last year no bank depleted its total liquidity buffer, they maintained the credit line continuously, and during non-working periods they financed instant payment transactions only occasionally and to a small degree from the credit line. Based on the above, large banks can be considered adequately prepared against the risk of the depletion of liquidity. At the same time, significant declines were observed in the instant settlement account balances and the values of credit lines in the months following the start of the instant payment system, which were presumably caused only by the initial uncertainty around the turnover of the system and the related greater degree of precaution.

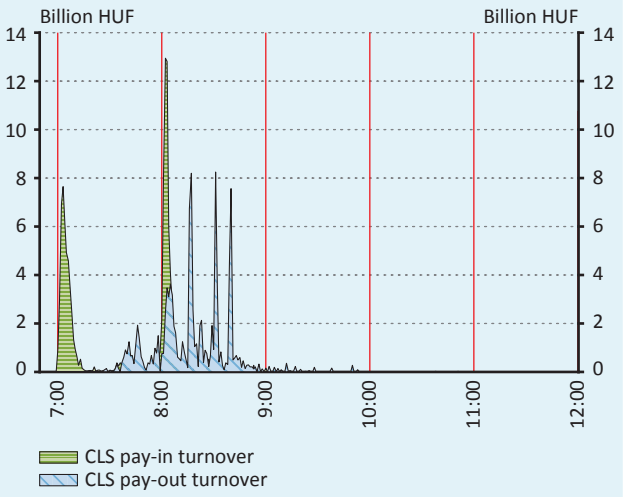
Relying upon the continuously collected experiences and the increasingly available data, the MNB will closely monitor the developments in risks related to the liquidity of the instant payment system in the future as well.

CLS

In parallel with the growth in CLS turnover, the efficiency of the netting of forint transactions also improved; namely, in 2020, the members of the system had to pay in less forint on average to settle one unit of foreign exchange transaction. The payment positions necessary for the settlement between the members of the system are netted on a multilateral basis, which significantly reduces their liquidity needs in the 18 CLS currencies. While in 2019 the total net forint requirement of the settlement of transactions was HUF 26,500 billion, which represents a liquidity-saving of 85.5 per cent in proportion to the gross turnover, these values in 2020 were HUF 26,700 billion and 86.4 per cent, respectively. In 2020 the 7-per cent increase in forint turnover was accompanied by additional liquidity of less than 1 per cent, and the efficiency of netting by CLS improved by almost 1 percentage points in respect of the forint transactions (Chart 34). This is important for two reasons: on the one hand, in exchange for the provided liquidity, Hungarian banks usually charge a fee to the CLS members in proportion to the turnover, and thus the improvement in netting reduces the cost of CLS settlement, and on the other hand, the liquidity demand of the payments to CLS in the morning is a key item in the liquidity management of Hungarian banks, in this regard the improvement in netting mitigates the liquidity pressure resulting from the growth in gross turnover.

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 forint leg, direct system members of CLS provided forint funding through 5 Hungarian VIBER participants as HUF-nostro-account providers, since they themselves are not direct VIBER participants [21]. Payments related to CLS-settlements will be completed in two time windows specified by CLS: between 7:00–8:00 (CET) and 8:00–9:00 (CET) in the morning. In 2020 the daily average CLS pay-in turnover reached HUF 106 billion[22], which accounts for 1-3 per cent of the total daily VIBER turnover. In 2020, in spite of the substantial turnover, nostro agents made their CLS-related payments mostly relying solely to their account balances, credit lines were utilised rarely. (Chart 48)

Chart 48
Daily distribution of the average market value of the pay-ins and pay-outs related to CLS (2020)



[21] HUF-nostro-agent bank VIBER members in relation to CLS: CIB Bank, K&H Bank, OTP Bank, Raiffeisen Bank, UniCredit Bank.
[22] Taking into account both payments to CLS and payments initiated by CLS, the daily average transaction volume doubles, i.e. increases to some HUF 212 billion. This equals to 2-6 per cent of the average VIBER turnover.

SECURITIES INFRASTRUCTURES

3.5 KELER CSD

Data sheet

Chart 49
Changes in the turnover of KELER (2016–2020)

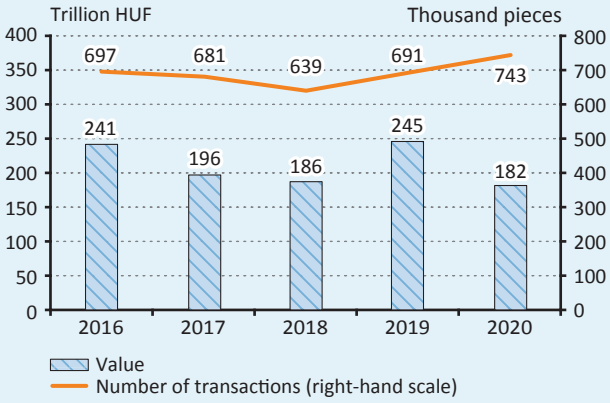
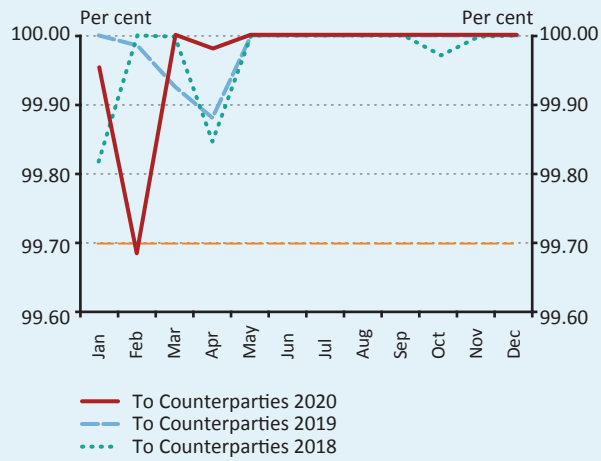


Chart 50
Developments in the availability of KELER to counterparties (2018–2020)



3.5.1 Current events

In 2020 the value of transactions settled in KELER declined by 26 per cent compared to 2019, while the number of transactions was up by nearly 8 per cent, mainly as a result of the pandemic. While the number of delivery versus payment[23] (DvP) type of transactions grew by 10 per cent compared to the previous year, their value declined by 36 per cent due to the decrease in the turnover of long-term government bonds. The value and number of free of payment (FoP) transactions increased by nearly 14 per cent and 7 per cent, respectively. Although in terms of distribution the ratio of the value of FoP transactions doubled, DvP transactions still account for 69 per cent of the total turnover. (Chart 49)

On 16 December 2020, KELER received its CSDR[24] licence needed for its central securities depository activity, valid in the territory of the European Union. The licensing procedure was protracted, as due to national characteristics, including the complex service providing structure and the design of the operation of the Hungarian central securities depository, the operation of KELER was different in various points from the requirements laid down in the CSDR. In view of that, harmonisation with EU standards and the changing of the legal system was a time consuming process. With its licence under the CSDR, KELER is entitled to provide basic central securities depository as well as non-banking-type and banking-type ancillary services and also custody services under the Credit Institutions Act[25] not specified in the CSDR but specifically approved in the licence. In addition to KELER, other central securities depositories in the EU and in EEA member states also received their respective licences, and thus 26 central securities depositories had CSDR licences in early June 2021.[26]

[23] The settlement risk of transactions may be significantly reduced by the application of the delivery versus payment principle, as payment is not effected and the securities are not credited until the funds necessary for performing the transaction are available at the parties.
[24] regulation (EU) No 909/2014 of the European Parliament and of the Council (23 July 2014) on improving securities settlement in the European Union and on central securities depositories and amending Directives 98/26/EC and 2014/65/EU and Regulation (EU) No 236/2012.
[25] Section 3(1)j) of Act CCXXXVII of 2013 on Credit Institutions and Financial Enterprises
[26] ESMA CSD Register (https://www.esma.europa.eu/sites/default/files/library/esma70-155-11635_csds_register_-art_21.pdf)

Box 5
Importance of the CSDR licence

The formulation of the CSDR Regulation was mostly warranted by the economic crisis that broke out in 2008, as it highlighted that central securities depositories play an important role in creating the necessary confidence among market participants. For that, it is essential to strengthen the protection of financial markets and to ensure the robust operation of post-trading infrastructures. Accordingly, the main objective of the CSDR Regulation, which has been effective since 2014, is to increase security and stimulate efficiency during the settlement of securities, including the related issues concerning the infrastructure.

The Regulation contains minimum requirements that the central securities depositories operating on the territory of the European Union must meet. These minimum expectations include the requirement of performing daily-level reconciliations, which ensures that there would be no differences between the books of the central securities depositories and its participants, and also ensures the continuous inspection of records. Accordingly, any undue creations or deletions may be identified or may become manageable in time using adequate procedures. In addition, the regulation also specifies the minimum prudential requirements, and thus the risks typically arising at central securities depositories (legal risks, general business risks, operational risks) and the assets into which a central securities depository is allowed to invest as well as the applicable capital requirement. Moreover, central securities depositories that have a licence for providing banking-type ancillary services have to comply with other provisions of law as well, including those of the CRR[27]/CRD IV.[28] The same is also true for investment service providing central securities depositories whose activities point beyond the ones named in the CSDR, and thus in their case the provisions of MiFIR[29]/MiFID II[30] need to be taken into account. These provisions of law are clearly referred to by the CSDR Regulation as well. As central securities depositories are in contact with other financial market infrastructures as well, not only the central securities depositories but also the entities joining them should indirectly comply with the relevant legislation. The objective of the regulation is to create stability in the European Union. The uniform regulation of central securities depositories may also strengthen this objective, as post-trading infrastructures are at least as important foundation stones of the financial world as the infrastructures that perform the trading.

In addition to the minimum expectations, the CSDR encourages business opportunities as well. It grants the freedom of issuing for the central securities depositories that have the licence by creating the possibility of providing cross-border services without having to set up a branch office on the territory of the given country as well. By this, it allows issuance under another Member State's law as well, encouraging competition between European central securities depositories. In addition, it also allows relations to evolve among the various central securities depositories, facilitating investors' access to various foreign securities as well in addition to the domestic ones in an as transparent and efficient manner as possible.

[27] Regulation 575/2013/EU of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation 648/2012/EU

[28] Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, amending Directive 2002/87/EC and repealing Directives 2006/48/EC and 2006/49/EC.

[29] Regulation (EU) No 600/2014 of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Regulation (EU) No 648/2012

[30] Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU

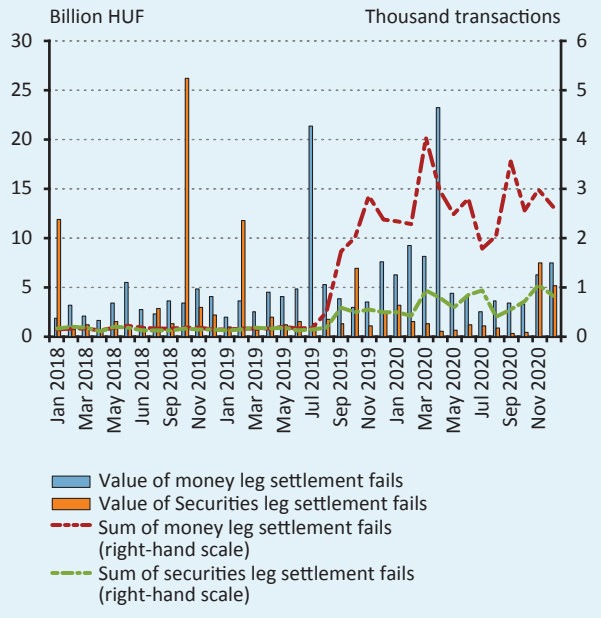
In addition to the CSDR, further related Commission implementing regulations, ESMA guidelines[31], opinions[32] and answers to arising further questions (ESMA CSDR Q&A[33]) lay down the detailed rules of the implementation and fulfilment of the expected CSDR provisions. Of the effects of the CSDR, the new RTS (SDR) requiring settlement discipline needs to be highlighted. As of 2022 it requires significant changes and measures concerning market infrastructures as well as investors and investment service providers (introduction of cash penalties and mandatory buy-in), and thus the CSDR is expected to significantly contribute to a safer and more efficient functioning of capital markets. The enforcement and supervision of these rules in Hungary is the task of the MNB.

3.5.2 Risks

According to the information provided by KELER, the services continued to function with high reliability. At the same time, the level of availability of business activities for counterparties somewhat declined compared to the previous year, but no effect of the remote work introduced in the pandemic was perceived. Incidents of the IT architecture that supports the business services' effect is traceable through the availability ratio which is directly perceptible for customers, and which was below the minimum level of 99.7 per cent in one month during the year 2020, required by both the TARGET2-Securities (T2S) platform (for the centralized settlement of securities) and VIBER. Moreover, in two thirds of the year 2020, the reported level of availability to customers was 100 per cent. During the year, customers faced incidents on 3 occasions due to network and hardware errors. In two of these cases the disruption was longer than 30 minutes. (Chart 50)

In 2020, the settlement risk was still low, however compared to the previous year it increased slightly with the expansion in the turnover of FoP transactions in terms of value and with the increase in failed settlements. Although the increase in the value of FoP transactions did not result in a significant rise in the risk of cash leg settlements, as they only account for nearly one third of the value of the total turnover. Almost three quarters of the turnover are DvP type of transactions, which are mostly settled in forint and central bank money. During settlements, KELER executes funds transfers and securities transfers of the parties to the transaction. If a securities transaction fails to be settled, or it is only partially settled on the initial settlement day, we speak about a failed settlement, which is eventually either settled with a delay or results in default. On the whole, in 2020 nearly 5 per cent of the value and almost 2.5 per cent of the volume of the transactions settled by KELER failed, which means deterioration compared to 2019. More than three quarters of the value of all the failed transactions was attributable to cash leg failures, exceeding the previous year's figure by 11 per cent. Compared to 2019, the number of failed settlements on both the cash side and the securities side nearly tripled in 2020. All this means that although the settlement risk is still low, it rose compared to the previous year, and the settlement of more transactions failed in 2020 (most of them were settled with a delay). A different trend was observed in terms of value. While a rise of nearly 24 per cent took place in failed settlements on the cash side, there was a decline of 27 per cent on the securities side compared to the previous year. Mostly shares and government bonds were related to the failures of settlement during trading in 2020. With the entry into force of the SDR further incentives will become effective, which aim at the strengthening of settlement discipline, and thus they are expected to facilitate a further reduction of the settlement risk. (Chart 51)

Chart 51
Trends in settlement fails (2018-2020)



[31] ESMA Guidelines and technical standards (https://www.esma.europa.eu/convergence/guidelines-and-technical-standards)
[32] ESMA Opinions (https://www.esma.europa.eu/document-types/opinion)
[33] ESMA CSDR Q&A (https://www.esma.europa.eu/press-news/esma-news/esma-updates-csdr-qas-10)

Box 6
Work of the ESMA committees

ESMA's CCP Supervisory Committee (CCPSC), established in view of the amendments to the EMIR Regulation, started its operations in 2020. In addition to the representatives of ESMA, its members are the representatives of national competent authorities. Its main tasks include the harmonisation of the operations of EU central counterparties, the promotion of financial stability, the analysis and monitoring of the risks of the financial system, the facilitating of supervisory convergence for a uniform interpretation and application of various provisions of law by the supervisory authorities of central counterparties. The Committee's tasks include the conducting of the EU-level ESMA stress test, in which KELER CCP is also always a participant. The CCPSC paid special attention to the market stress situation caused by the coronavirus pandemic that broke out in March 2020, and following the switch-over to working through remote access it ordered a default test. In view of the pandemic, the CCPSC started the assessment of central counterparties' margining and anti-procyclicality methods to see whether it is necessary to change the existing provisions of law.

For supervisory convergence, the CCPSC discusses and approves, inter alia, the methodological amendments initiated by central counterparties, the validation of which is carried out by ESMA as well. KELER CCP's amendment procedure concerning risk management methodologies was closed in 2020. Within the procedure, the CCPSC unanimously adopted the validation prepared by ESMA and supported the introduction of the methodologies. In order to make the implementation of such and similar changes easier, the CCPSC started the rule-making work in 2020. As a result, regulatory technical standards were formulated in connection with the methodological amendments and the changes affecting the operating licences. They are expected to enter into force in 2021.

The MNB continued to participate in 2020 as well in the PTSC[34], ESMA's committee that mainly deals with central counterparties. Two main subjects dominated the committee meetings during the year. Firstly, an active review of the CSDR Regulation and the related other legislation was going on, in which ESMA and its committees played a major part by organising public consultations as well as preparing and conducting questionnaires. As a member of the PTSC, the MNB also took an active part in collecting answers. The questionnaires were evaluated in early 2021, based on which the related report closing the review made by the European Commission will be published in 2021 H2. Following that, the final proposals to amend legislation will be known by the national competent authorities only by early 2022. In addition, attention focused on 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 (SDR). Taking into account indications from the market, central securities depositories and their national competent authorities, the European Commission postponed the entry into force of the SDR to 1 February 2022. The postponement was mainly justified by the handling of the challenges stemming from the coronavirus pandemic. In addition, in order to assess the impacts of the pandemic, during the year ESMA collected data about the settlements that failed at central securities depositories first with a daily, then with a weekly frequency. On the basis of the data, an increase in the ratio of failures caused by the pandemic was observed in March, before returning to the normal path as time went by.

[34] PTSC: Post-Trading Standing Committee

3.6 KELER CCP

Data sheet

Chart 52
Number and value of transactions settled by KELER CCP in the capital market (2016-2020)

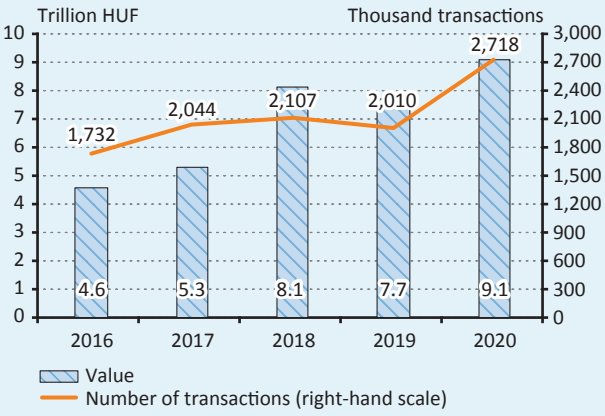
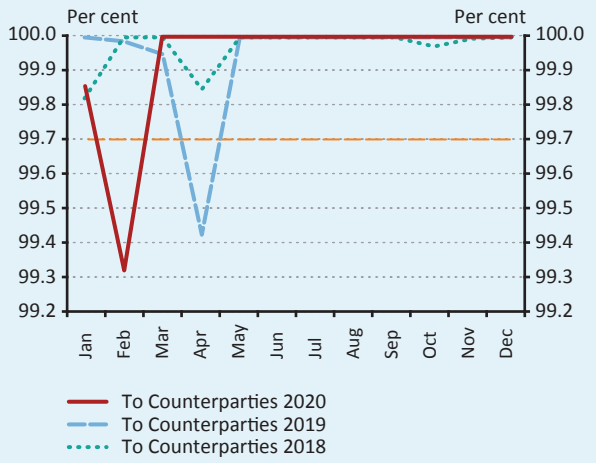


Chart 53
Developments in the availability of KELER CCP to customers (2018-2020)



3.6.1 Current events

In 2020, the turnover of markets cleared by KELER CCP increased by 15 per cent compared to 2019; of them, the performance of capital markets was outstanding. KELER CCP clears, as a central counterparty, financial instruments traded on the Budapest Stock Exchange, on the MTF markets[35], and the domestic gas markets[36], 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 ECC cleared markets[37]. In 2020, the total value of capital market transactions cleared by the central counterparty exceeded HUF 9,000 billion, representing a 19 per cent increase compared to the previous year. Compared to 2019, the total annual turnover of spot capital market transactions increased by 41 per cent, corresponding to a growth of HUF 1200 billion, while growth in derivative markets reached 4 per cent, worth HUF 166 billion. In the case of spot gas markets cleared as central counterparty, turnover was down by 57 per cent compared to 2019, while an increase of 18 per cent was seen in the case of derivative gas markets. Changes in the service related to the ECC and provided as a general clearing member were similar to the gas markets, i.e. a 13 per cent fall was observed in the energy spot markets in parallel with a 67 per cent increase in the forward markets compared to 2019. (Chart 52)

In March 2020, the worldwide spreading of the coronavirus pandemic resulted in one of the highest market volatilities of the previous 30 years. Accordingly, major shifts in prices were observed in the domestic capital and energy markets, but KELER CCP managed them successfully. Due to the high volatility, price movements not once exceeded the initial margins applied by KELER CCP, as a result of which the initial margin had to be raised significantly and intraday clearing had to be carried out on several occasions. Intraday clearing was ordered twice in March in relation to derivative shares and indices. Initial margin requirements increased considerably due to the stress period, but at the same time the procyclicality buffer was not exhausted, and thus the measures of KELER CCP increased procyclicality. Nevertheless, clearing members were able to meet the margin requirements and the elevated variation margins; default did not occur. KELER CCP managed the volatile period well as a result of rapid reactions and active risk management.

KELER CCP successfully passed ESMA's default test that was designed to assess the adequacy of remote working

[35] MTF markets: BÉTa Market, MTS Hungary, Xtend, Xbond
[36] Gas markets cleared as central counterparty: Balancing market, Trading Platform, CEEGEX, HUDEX – Gas
[37] Energy markets cleared as the clearing member of ECC: HUPX, HUDEX – Power, EPEX SPOT, EEX, PXE, NOREXECO, SEEPEX, SEMOPX

processes. In view of the spreading of remote working, ESMA paid special attention to central counterparties' ability to function in a remote working environment. Accordingly, a default test was ordered for European central counterparties, expressly focusing on the solving of stress situations from remote working. KELER CCP also participated in the test, simulating default through various scenarios, whose handling from remote working was successful, and the procedures of KELER CCP proved to be adequate. In line with its General Business Rules, KELER CCP performed all the necessary tasks in a remote working environment, its systems were continuously available, and all the colleagues kept continuous contacts, which all proved that KELER CCP had successfully switched over to remote working.

In 2020, ESMA's third stress test exercise regarding central counterparties was completed, and the guarantee system of KELER CCP proved to be suitable for the management of simulated market shocks. In the biannually organised stress test exercise ESMA subjects the European central counterparties to strict testing requirements so that they can identify in due course the systemic risks that were caused by central counterparties and may be dangerous for the financial system of the European Union. During the test, special attention is paid to the subjects of credit risks, liquidity risks and concentration risks, examining them through default scenarios worked out by the European Systemic Risk Board (ESRB) and price changes worked out for capital market and energy market products. According to the findings, the guarantee system operated by KELER CCP managed all risk types adequately, and its collaterals and default funds proved to be sufficient for addressing the defaults caused by the simulated stress situation.

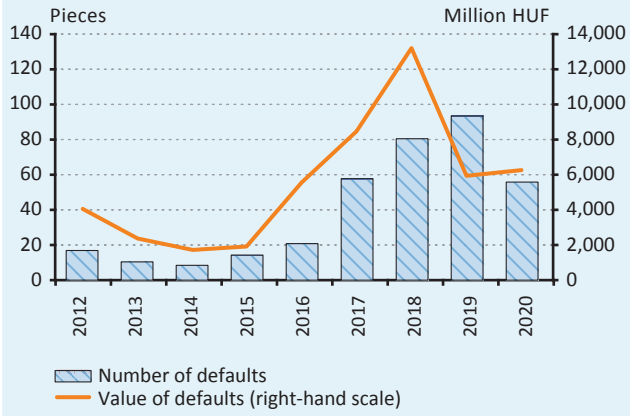
3.6.2 Risks

According to the information provided by KELER CCP, the level of availability of its business activities to counterparties declined somewhat compared to the previous year. Nevertheless, the services continued to operate with high reliability. KELER and KELER CCP concluded outsourcing agreements for the operation of the IT systems, pursuant to which the IT architecture supporting KELER CCP's business services is operated by KELER. The availability of KELER CCP may be significantly affected in a direct or indirect manner by incidents in the IT systems of KELER, as in addition to operating the IT systems the activities of KELER and KELER CCP are dependent on one another at various points. In 2020, incidents affecting customers as well took place on two occasions; they lasted for more than 30 minutes. As a result, similarly to the previous year, there was one month in 2020 when the level of availability failed to reach the generally expected 99.7 per cent. The incidents were caused by components used jointly with KELER. (Chart 53)

In 2020, the number of defaults declined by 40 per cent compared to 2019, but their total value exceeded the previous year's level by 6 per cent, which concerned mainly the capital markets. A significant portion (86 per cent) of the defaults is related to capital markets, 8 per cent to balancing clearing, 5 per cent to the CEEGEX market and only 1 per cent to the ECC energy markets. Within capital markets as well, the value of defaults was the highest (HUF 3.6 billion) in the MTS government securities market. At the same time, the amount of default was significant (HUF 1.8 billion) in the case of the stock exchange cash market as well. The defaults affected the securities side exclusively, and their most frequent reasons were attributable to trading errors and other external institutional or technical errors. Defaults amounted to a total HUF 524 million in the balancing market, HUF 337 million on CEEGEX and a mere HUF 42 million on the ECC energy markets, which is much lower than in 2019. Compared to the previous year, the reason for defaults among the energy market participants was the same; namely, they did not have sufficient liquid funds to discharge their liabilities. With the exception of one transaction out of the capital market and one out of the gas market defaults it can be established that each of them was settled within the grace period applied by KELER CCP. (Chart 54)

A foreign gas trading company failed to meet its obligation worth EUR 730 thousand in the balancing gas market. The default went through the default waterfall, resulting in a temporary risk exposure of EUR 334 thousand for KELER CCP. The default entailed the use of EUR 203 thousand from the default fund. The gas trading company caused an imbalance in the pipeline system because of the failure of an OTC purchase transaction. The purchase price obligation of the suddenly arising balancing gas product put the company under liquidity pressure, the company was unable to meet its payment obligations and defaulted. KELER CCP utilised the company's collateral and free balances, but they proved to be insufficient, and thus KELER CCP also used its dedicated skin-in-the-game amount and 10 per cent of the dedicated default fund. KELER CCP managed to collect all of its receivables – in close collaboration with the defaulting party, which indicated its willingness to cooperate, and gave information about its intention to pay its obligations. Accordingly, both the default funds and the skin-in-the-game amounts were replenished by end-September. As a result, neither the innocent parties, nor KELER CCP suffered any financial losses.

Chart 54
Defaults in the markets cleared by KELER CCP (2012-2020)



There was a considerable decline in KELER CCP's liquidity risks stemming from its contribution to the ECC default fund and the VAT funding in the gas market. During the central counterparty activity performed in the case of the gas markets, KELER CCP's sale and purchase transactions with counterparties are settled at a value including 27 per cent VAT. At the same time, pursuant to the VAT regulation, if the seller of a gas product is a domestic merchant and its buyer is a foreign customer, KELER CCP has to pay the purchase price including VAT to the seller, while it can only expect the net purchase price to be paid by the buyer. In cases like that, KELER CCP has to pay the amount of VAT from its own funds. Its VAT financing obligation dropped by 84 per cent during 2020 as result of the fall experienced in the turnover of the CEEGEX spot market, and the domestic seller/foreign buyer ratio also normalised in these transactions. In 2020, KELER CCP's contribution obligation to the ECC default fund varied. As of early 2020, the default fund and the contribution first had increased to around EUR 6 million, then declined to EUR 4 million during the year, but by the end of the year started to rise again, reaching as much as EUR 7 million, as the trading activity of non-clearing members increased considerably.

Box 7
Operation of the energy market

KELER CCP clears and guarantees the gas markets in Hungary as a central counterparty, and provides general clearing member services regarding the energy markets cleared by the European Commodity Clearing (ECC). As a result of its energy market services, KELER CCP has become a major actor in the post-trade infrastructure related to energy markets in the CEE region. Accordingly, incomes from the energy market services significantly contributed to the company's profitability in 2020 as well. As for the gas markets, the Hungarian system operator, FGSZ KP Kft., which is a subsidiary of the MOL Group member FGSZ Zrt., operates the Trading Platform (TP), which serves as a trading venue of prompt natural gas products, as a trading platform under the Gas Supply Act.[38] In parallel with that, as a member of the MGM Group, CEEGEX Zrt., a subsidiary of HUPX Zrt. operates the CEEGEX spot gas market as an organised natural gas market, which also serves as a trading venue for prompt physical delivery of natural gas products. The HUDEX regulated market, which also operates as a HUPX subsidiary, provides the possibility of trading in forward gas and electricity products. It is interesting that while the clearing house for forward gas products is KELER CCP, it is the ECC that takes care of the clearing of forward electricity products. Within the framework of the non-clearing member service related to the ECC, KELER CCP provides access to the largest and most important energy exchanges and trading platforms, where they trade in benchmark products like the Dutch TTF Gas or the German Phelix electricity, used at global level as well. In the most reputed markets, such as the EPEX Spot or EEX that belong to a German group of companies, the world's largest energy traders and financial institutions pursue trading activities. They are typically open 7/24, and the turnover of the exchanges exceeds the multiple of the total energy consumption of Hungary.

The trading in and clearing of energy products is very similar to the trading and clearing systems of financial products (as, for example, in most cases derivative energy products also qualify as financial products). At the same time, one must not forget about the physical aspects of energy products. These factors – including, inter alia, the mode of their production, the operating capacities and constrains of the networks needed for their physical transportation and their limited storability – affect the changes in market prices, thus widening the risk spectrum that a central counterparty may encounter during the clearing of energy products. In connection with energy market products

[38] Act XL of 2008 on Natural gas supply

an important physical feature like that is the obligation to maintain a balance. The special feature of the prompt natural energy products with physical delivery is that they cannot be substituted and their storage life is also limited. Moreover, suppliers and traders need to have physical access to the networks operated by so-called system operators, i.e. to the high-pressure natural gas pipeline in the case of gas products and to the high-voltage network in the case of electricity products. The high-pressure/high-voltage systems need to be permanently balanced, and thus traders are also obliged to maintain a balance, i.e. feeds into the physical system and drawing from it must be equal at all times. If an actor draws more from or feeds more into the system than the pre-nominated or scheduled volumes, it will get into an imbalance. Maintaining the balance in the system is the responsibility of the system operator, which is FGSZ Zrt. for gas pipelines and MAVIR Zrt. for electric lines in Hungary. If a participant becomes imbalanced, the system operator restores the balance on a mandatory basis, by allocating the balancing transaction to the respective participant.

In a unique manner in Europe, since 1 January 2020 KELER CCP as a clearing house has been clearing and guaranteeing the balancing transactions in the Hungarian gas market exclusively, and with this practice KELER CCP performs the clearing of transaction types that are completely different from the classical central counterparty activity. In line with the changes in statutory regulations, in 2020 KELER CCP started a review of the methods applied in the risk management of energy market products in order to be able to adjust even better and to be able to adequately manage the additional risks as well that originate from physically delivered energy products. The findings of the review led to a comprehensive change in concept in the area of risk management, which was submitted for approval to the MNB and ESMA in 2021.

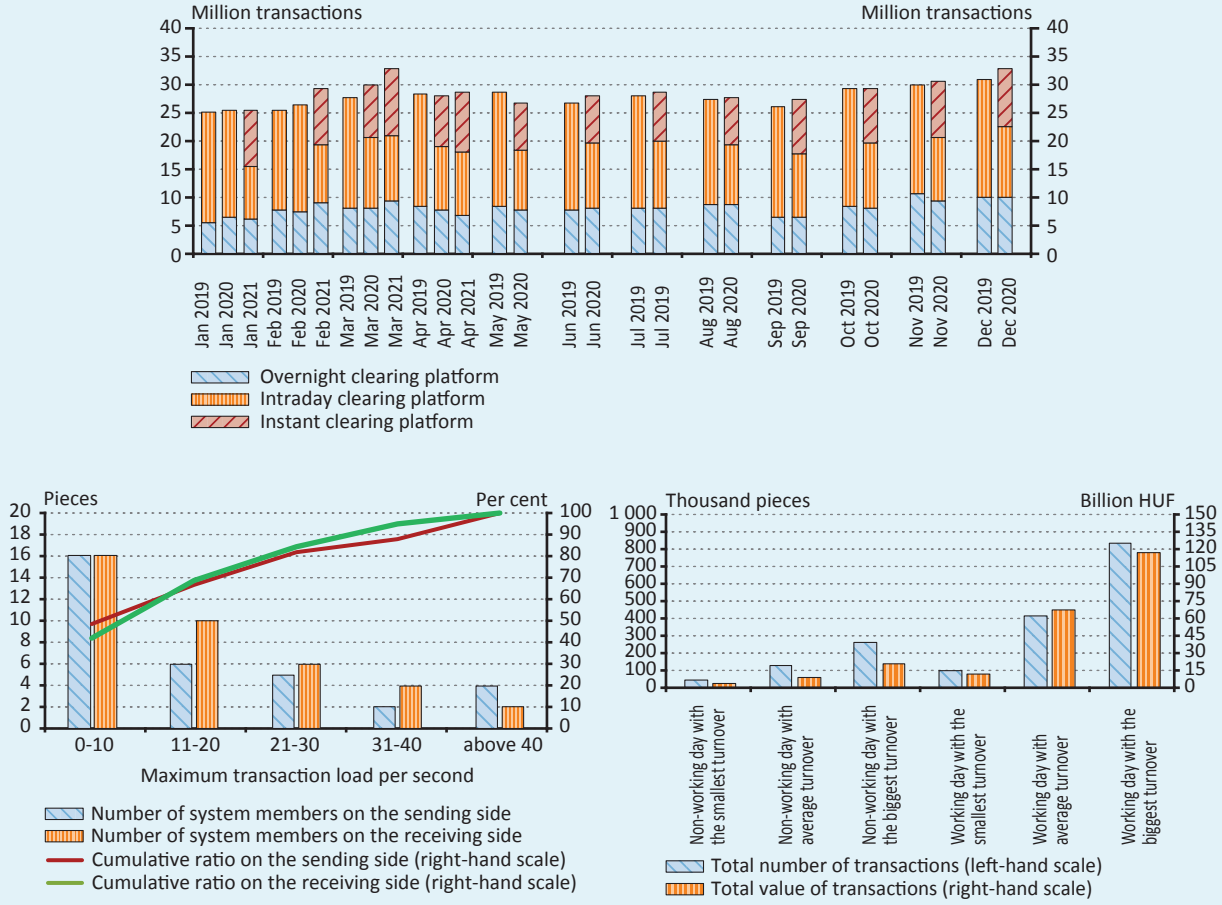
4 Current issues of payments and financial market infrastructures

4.1 CHANGE OF DIMENSIONS IN ELECTRONIC PAYMENTS

4.1.1 One-year experience of the operation of the instant payment system

On 2 March 2020 the instant payment service went live successfully in Hungary, placing domestic payments in a new dimension. Starting from the launch of the new service until the end of the first quarter of 2021 nearly 152 million instant payment transactions were executed with a total value of some HUF 29 thousand billion, including intrabank items. In terms of the distribution of the number of transactions, 22 per cent were intrabank and 78 per cent were interbank ones. At the same time, looking at the value of transactions, the intrabank ratio is much higher (38 per cent), which is also attributable to the fact that certain banks, that concentrate on business customers, execute the typically higher value corporate transactions submitted in batch format among their own customers according to the instant processing rules inhouse, bypassing the central infrastructure. In addition to all that, in the first full year of the operation, the central infrastructure processed nearly 114 million transactions with a total value of some HUF 17 thousand billion. Thus, more than 40 per cent of the transactions previously processed on the intraday clearing

Chart 55
Distribution of the transaction turnover executed on the individual platforms of the ICS and certain features of the instant payments processed in the central system (March 2020 – April 2021)



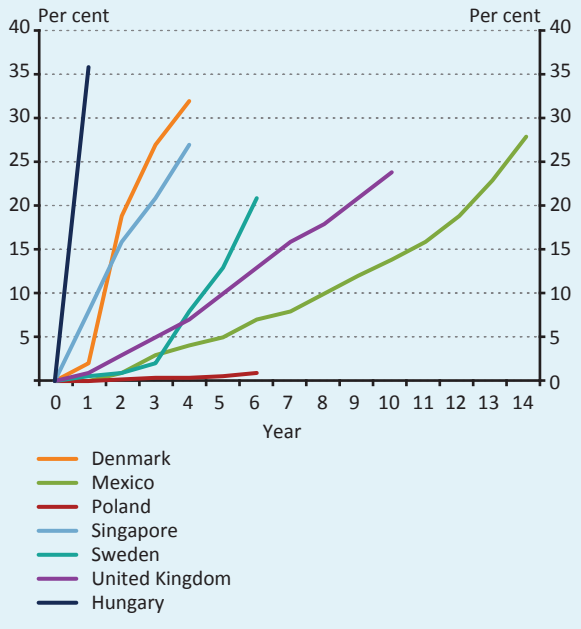
platform became directed to the instant clearing platform. Moreover, this ratio is increasing as time goes by, already reaching 50 per cent in early 2021. (Chart 55)

According to the processing data of the central infrastructure, both GIRO and the system members adequately prepared for executing the instant payment transactions. Until April 2021, on an average working day, GIRO processed 411 thousand transactions in a value of HUF 67 billion, whereas on non-working days 125 thousand transactions in a value of HUF 9 billion were executed on average. Both the sending and receiving capacities of the central system and the system members proved to be adequate for processing the turnover; there were no disruptions. Moreover, the GIROInstant platform was not even close to the limit of its processing capacity, as even the second with the highest turnover to date is far below the system's maximum capacity of 500 transactions per second. It also shows that there is still ample room for executing those transactions which can be submitted as of 1 September 2020 and do not fall under the obligation of instant processing, including the high number of corporate batch transactions, with which the scope of transactions executed 24 hours a day, every day of the week may expand significantly in the future. (Chart 55)

The approach to instant payment in Hungary, primarily in view of the requirement of mandatory instant processing below HUF 10 million is unique at international level as well, which may have contributed significantly to Hungary's becoming one of the leaders in the world in terms of the transforming of credit transfers into instant payment transactions. Examining the introduction of instant payment in Hungary in international comparison, it is seen that in a very short time Hungary was able to reach the level that took years for other countries with developed payment systems. Looking at intrabank turnover as well, from the launch of the system until the end of the first quarter of 2021, 36 per cent of all domestic credit transfers (intra- and interbank, individual and batch, forint and foreign currency credit transfers) were executed according to the instant processing rules, which is an outstanding result. (Chart 56)

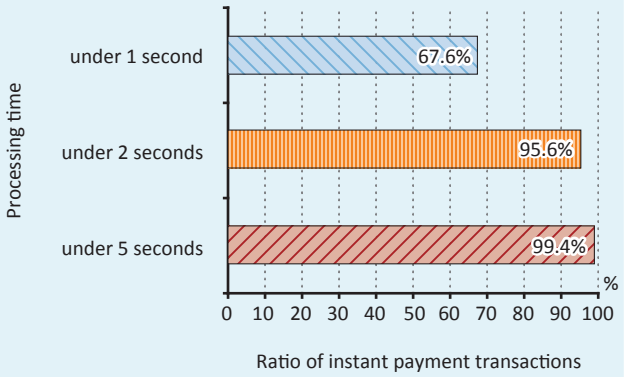
Customers quickly got used to and came to like the continuously available service, which allows an extremely fast execution of transactions. Nothing demonstrates the viability of instant payment better than the fact that nearly one third of the transactions are initiated by the customers outside normal banking hours, i.e. early in the morning, in the evening or at night as well as on non-working days. On weekdays, the turnover begins to gradually increase starting already from dawn, much before the opening of bank systems, without any spectacular fall after the bank opening hours either, so customers use the service in a rather intensive manner late in the evening as well. This trend is also observed at weekends. Moreover, then the late evening turnover is even closer to the peaks reached during the day, as it is seen on weekdays (Chart 45). The reliable operation of the system and the extremely fast execution of the transactions are significant contributors to the rapid spread of the service. Although the MNB's relevant Decree on the execution of payment transactions requires the transactions to reach the beneficiary's payment service provider in maximum 5 seconds, 67.6 per cent of

Chart 56
Share of instant payment transactions within all credit transfer transactions in an international comparison in the years following the introduction of the service



Source: MNB, ECB

Chart 57
Processing time of instant payment transactions (March 2020 – April 2021)



them are processed already within one second, while 95.6 per cent of them are executed within two seconds (Chart 57). Processing data of the ICS also reveal that the ratio of low-value transactions, mostly below HUF 10 thousand, increased as the instant payment service became available. The increase observed in terms of this value category may even reach several percentage points compared to the periods prior to the launch of the system, which also implies that there have been changes in consumer habits in terms of the redirection of some of the cash transactions between individuals.

4.1.2 Innovative service development based mainly on the instant payment service and on the change in the regulation regarding online cash registers

In 2020, the introduction of instant payment resulted in a major improvement in the conditions of a wide-ranging use of electronic payment solutions, as instant payment is a relevant electronic alternative even in those situations where cash used to be the only solution. Already the basic functions of the instant payment service allow electronic payment in almost every payment situation, and the innovative market solutions based on them may further simplify payment processes. As a result of the fact that the instant payment service became available, in parallel with the appearance and the wider and wider spreading of simply and comfortably usable mobile banking applications, there is a relevant electronic alternative for almost everybody to send money between individuals. One of its greatest advantages compared to cash is that the payee does not necessarily have to meet the initiator of the transaction, and thus it is possible to carry out time-critical transactions in real time, quickly and efficiently even between remote parties. In addition, the introduction of instant payment has already widened the options in the case of bill payments as well as physical and online shopping. Moreover, in a number of situations where there is no need to implement integrated solutions because of complex cash register systems and accounting programmes, even the basic service offers easily usable solutions. At the same time, many market participants work on convenient solutions to help the spreading of the services in more complex payment situations as well, which is also supported by complementary options provided by the MNB and GIRO, such as secondary identifiers as well as the request-to-pay service and the QR code standard. Within that framework, more and more market players allow payment initiation on the basis of a QR code, with the use of which the payer can initiate a payment transaction at the retailer's cash register or website (in the case of online shopping) simply, only with the scanning of the code. Although for the time being there are only three institutions that provide the option of payment initiation based on the QR code standard, coverage is already expressly good among customers as a result of the size of the institutions. The request-to-pay service is also provided by more and more market players, and in addition to banks, several non-financial institutions are also introducing the service. The service is available already at 7 system members, and the central solution (GIROFix) that allows the mass sending and processing of request-to-pay massages aroused the interest of several non-bank players as well. For example, in the case of major utility service providers, telecommunication companies and other bill issuers, with the option of mass sending and processing of request-to-pay messages, even the practice of bill payments can be placed on new foundations.

The mandatory provision of the option of electronic payment in shops that have an online cash register may give further momentum to the spreading of electronic payments, including instant ones, and to the development of the services that allow it. Making the electronic payment option widely mandatory – as of 1 January 2021 pursuant to the Act on Trade – is a major step forward in improving the conditions of use of electronic payment services. The fact that customers can be sure that they will be able to pay for their everyday spending electronically as well in all settlements of the country in any case terminates the previous uncertainty in this field, thus supporting a more intensive use and involving new customers in the use of modern payment solutions. It is important to highlight that one can comply with the rule brought about by the Act on Trade in terms of the acceptance of electronic payments with card payment or instant payment as well, and thus retailers have many options depending on the technical solutions, costs and the type of business. With regard to card acquiring, for example, in addition to traditional banks, more and more innovative service providers enter the market, and they often offer more tailor-made solutions. In addition, a significant innovation is the so-called 'SoftPOS' technology, which allows the avoidance of the use of more costly POS terminals. Moreover, there is also a wide range of possibilities in the case of instant payment as a result of secondary identifiers, the request-to-pay service and the Hungarian QR code standard. Nevertheless, for actors whose turnover is lower and who are thus more cost sensitive or who do not use integrated cash register systems, where the highest possible capacity of the cash register is typically not a critical issue, instant payment may be an obvious option, mainly in view of the relatively high costs of using the card acquiring service. In their case, major improvements are not needed either. It may be sufficient to register only a secondary identifier in order to make payment initiation easier, so that buyers do not

have to use long payment account numbers, or to create a static QR code, which does not contain the amount of the transaction, in order to facilitate the convenient transfer of payment data. This does not even require the involvement of payment service providers or other technical actors, as the secondary identifier service is just as mandatory as the instant processing in the case of a certain range of transactions, and for generating the QR code there are several free and reliable applications available on the market. The only additional task for merchants is to ensure real-time monitoring of incoming transactions, which is feasible by an SMS-based notification service that can be applied for at the account servicing payment service provider or even by monitoring the transaction history in the mobile banking application.

In order to further promote the widespread use of instant payment, key issues are the essential transformation of banks' pricing structures that affect credit transfers, the implementation of complementary elements relying upon the basic service, such as the request-to-pay service and the QR code-based payment initiation, as well as the facilitation of improvements concerning payment situations at the POI. Payment service providers, merchants with high transaction turnover and bill issuer service providers alike should make efforts for instant payment to become widespread in every payment situation. Accordingly, the wide spreading of instant payments requires an adequate pricing of the service. At the same time, as it is also seen from the description of the pricing practice concerning credit transfers in Chapter 2.2, credit transfers in the case of the majority of customers are still burdened by transaction costs (minimum fees and value-based items), which has an unfavourable impact on the use of this payment method. As a result of that, instant payment is still at a disadvantage compared to international card companies' payment solutions, in the case of which the majority of payment service providers have been applying a package-based pricing practice for a long time, or compared to cash, the use of which is perceived by customers to be free of charge up to HUF 150 thousand. In connection with that it is indispensable to create account packages that do not contain transaction fees for customers concerning credit transfers either, and to make these packages widely available. In addition to all that, the widest possible implementation of QR code-based payment initiation and the request-to-pay service is also a critical issue. As indicated above as well, although development projects were launched, the majority of banks still do not provide the related services for customers. For instant payment to be a really relevant option in all payment situations it is necessary that mobile banking applications allow at least a convenient and simple reading of QR codes and the initiation of instant payments based on that, as well as the receiving and answering of request-to-pay messages. This is also an essential precondition of the arrangement of acceptance by merchants in situations where the introduction of the new payment method needs to be adjusted to integrated cash register systems and complex accounting programmes. Nevertheless, the implementation of the above is the interest of market players as well, because it may result in a significant competitive disadvantage if someone does not put (sufficient) emphasis on instant payment, with which many cash transactions may be made electronic. In addition to the implementation of the improvements it is also important to adequately inform customers about the available options as experience shows that although most people heard about the service, they are not aware of the details and opportunities. In addition to payment service providers, merchants and bill issuer service providers, which have many customers, may also contribute to the spreading of instant payment by making its use possible for their customers. Namely, improvements implemented by some market participants may already make the new payment option available for a significant number of people. This, however, requires the provision of detailed information to these institutions and the mapping of their possibilities.

4.2 EUROPEAN REGULATORY, STRATEGICAL AND DEVELOPMENT INITIATIVES

On 24 September 2020, the European Commission published its digital finance package, the objective of which is to support the financial sector of the European Union and the related innovative pan-European development initiatives by formulating an agile regulatory framework. The Commission's package contains a digital finance strategy and a retail payments strategy as well as various draft regulatory proposals related, inter alia, to crypto-assets, distributed ledger technology (DLT) and to increasing the operational resilience of financial infrastructures. The objective of the European Commission is to strengthen the competitiveness of the financial sector of the EU, to adapt a set of rules that is able to better adjust to the continuously changing environment as well as to promote consumer protection, financial stability and access to innovative financial products. Within the framework of that, the issues put on the agenda include the addressing of market fragmentation and the ensuring of obstacle-free access to cross-border services, the wide-ranging enforcement of the principle 'same activity, same risk, same rules', the supporting of the spreading of instant payments, which would be underpinned in case of necessity by a statutory requirement concerning the mandatory introduction of euro-based instant payments, as well as allowing non-bank actors to have access to critical

financial infrastructures, which is already provided by the MNB. In addition to all that, irrespective of the Commission's package, further rules entered into force in other areas as well, including in connection with cross-border payments and certain securities market participants, mainly securities depositories and central counterparties, which also intend to facilitate the improving of transparency and the reduction of operational risks. In addition to regulatory initiatives, various innovative projects were launched to support pan-European service development, and a new action plan was also drafted regarding the establishment of the Capital Markets Union.

4.2.1 Digital finance strategy

The main objective of creating the digital finance strategy is that in parallel with the acceleration of the innovation cycles and with digitalisation coming to the fore, the European financial sector should preserve its flexibility that is sufficient enough not to tail away in the competition with overseas FinTech and BigTech companies. A key question in connection with the coming years' financial development trends is which actors will be able to push their way through in line with their own needs in the increasingly data- and IT-driven innovation developments. The European financial sector needs to take every opportunity offered by the digital revolution in order to become a determinant in controlling the processes at global level as well. At the same time, it is also necessary to strive for giving preference to digital financial processes based on European values as well as on the adequate management and regulation of risks. One of the main priorities of the digital finance strategy is the addressing of market fragmentation, thus providing cross-border, obstacle-free access preferably to European services for European consumers. In connection with this, the current problem is that some of the actors that provide various digital financial services and are increasingly interwoven in many respects fall outside the existing framework. Therefore, the newly created digital financial services pose greater and greater challenges to the existing regulatory and supervisory framework in terms of financial stability, consumer protection, fair competition, the preservation of security and the creation of the single market. Considering this, the European Commission intends to pay special attention to the principle 'same activity, same risk, same rules'. There is also great emphasis on ensuring that the regulatory framework of the European Union should facilitate innovation serving the interests of consumers and market efficiency. Within that framework it is ensured that the solutions based on distributed ledger technology and/or artificial intelligence are applied in a responsible manner, taking account of consumer protection aspects, in line with the values of the European Union.

4.2.2 Retail payments strategy

The main objective of the retail payments strategy is to promote the availability of competitive pan-European payment solutions that support the economic and financial sovereignty of the European Union. The vision of the European Commission in connection with the development of retail payments focuses on three basic areas: providing access to a wide range of high-standard payment solutions based on safe, efficient and available infrastructures for customers; supporting the creation and spreading of competitive pan-European payment solutions that promote the economic and financial sovereignty of Europe; and facilitating the improvement of cross-border payments outside the European Union. Considering all that, the objective of the European Commission is to establish a competitive payments market where each market player can participate in the competition under the same conditions, allowing the creation of really innovative and state-of-the-art payment solutions. Therefore, in order to create a single payments market and to support innovation and interoperability, it was set as a key priority to achieve the wide spreading of euro based instant payments by end-2021, which, if necessary, would be supported by a statutory requirement regarding its mandatory introduction. The creation of efficient and interoperable retail payment systems is also an important aspect in order to strengthen the interoperability between innovative services. Accordingly, at the end of 2021 a comprehensive review will be launched on the application of the new European Payment Services Directive (PSD2) and its effects. Based on the findings, by mid-2022 a legislative proposal will be prepared in connection with formulating a new 'Open Finance' framework. It is an important development that in relation to creating an open payment ecosystem that is available for all actors, in the case of non-bank service providers, including e-money issuers and other financial institutions, while ensuring adequate supervision and risk management, the allowing of direct and non-discriminatory access to critical financial infrastructures, which is already provided by the MNB, will be considered. In addition to all that, the European Commission wishes to cooperate closely with the ECB in order to support the issuing of a euro based central bank digital currency, in the first round in relation to mapping the possibilities.

4.2.3 Proposal regarding the increasing of the digital operational resilience of the financial sector

In order to increase the digital operational resilience of the financial sector, an EU-level regulatory proposal was elaborated to strengthen the cyber security aspects

of financial services and to manage operational risks in a wider sense as well as to provide a clear legal framework for the providers of crypto-assets. The DORA[39] contains provisions concerning the increasing of financial corporations' IT security, additional data reporting obligations, supervisory cooperation as well as the oversight of third-party information and communication technology suppliers**.** Within that framework it formulates detailed requirements how financial corporations should keep records of and manage the information and communication technology risks originating from their suppliers (as third-party players). Moreover, the proposal foresees stricter provisions and oversight tasks to be performed by authorities with regard to key information and communication technology service providers qualifying as third parties, considering that these actors typically provide cross-border services and/or services for a wide range of financial corporations. Taking that into account, the related oversight tasks would be attended to by a European supervisory authority. In addition, the draft is complemented by more regulatory technical standards, which defines the main rules concerning the related risk management, event reporting, testing and oversight in order to terminate the differences in legislation related to information and communication technology risks as well as the heterogeneous regulatory and supervisory approaches across Member States. All this will remove the obstacles to the establishment of the single market of financial services, and a harmonised and comprehensive framework will be created for financial organisations in connection with the application of information and communication technology solutions. Along that, the DORA is expected to bring a major step forward as its scope applies to almost all financial corporations, and thus from credit institutions to actors providing crypto-assets, from insurers to central securities depositories and from trading venues to credit rating agencies every institution has to report its incidents, manage its risks and test its relevant systems on the basis of uniform rules. According to the current plans, only the operators of central payment systems will not fall within the scope of the DORA. However, they are typically central banks.

4.2.4 Draft regulation on crypto-assets

At present, a major portion of crypto-assets falls outside the framework of the effective EU regulation. Considering the related risks, a regulation started to be prepared in order to create a single legislative framework for the adequate regulation of activities related to crypto-assets. In view of the significant consumer protection risks arising in relation to crypto-assets (e.g. Bitcoin, Ethereum, Dogecoin, Diem, which was previously named Facebook Libra), the MiCA[40] formulates uniform, detailed reporting, consumer protection, supervisory and anti-fraud rules regarding the issuing of and trading in crypto-assets. The regulation is planned to apply to all crypto-assets that have not yet fallen under the scope of any EU legislation yet, including, inter alia, the so-called asset-referenced tokens, consumer tokens as well as e-money tokens, which latter is a new concept. E-money tokens cannot be considered electronic money in a traditional sense, although they have all the features of traditional electronic money, which is one of the reasons why it is important to direct them into an adequate regulatory framework. The proposal formulates stricter requirements for the significant asset-referenced tokens, also known as global stablecoins. The intention with this is to strengthen the control of central banks over monetary policy. As the significant asset-referenced tokens may also be used as cross-border means of exchange, and may be suitable for the performance of high-volume payment transactions, these instruments would be supervised by the EBA in order to avoid supervisory arbitrage between Member States. In addition to all that, the draft legislation intends to make it mandatory for the issuers of crypto-assets to publish an information document (so-called white paper) in line with the regulation. The MiCA, which was published on 24 September 2020 and constitutes the new digital finance package of the European Union, is in the law-making phase for the time being. Its provisions are planned to apply 18 months from its entry into force.

4.2.5 Draft regulation on the experimental system of market infrastructures based on distributed ledger technology

At present, the application of the distributed ledger technology in financial services is still very limited. Considering that, an EU draft was worked out regarding the conditions of application and operation, the permitting and supervision of its use as well as the cooperation between national and European authorities. Although the European Union follows technology neutral principles, the current financial regulation was not formulated with the distributed ledger technology (DLT[41]) and the wide-ranging applicability of crypto-assets in mind. Consequently, there are provisions that expressly hinder the application of DLT in certain situations. In order to solve this problem, a draft regulation was formulated regarding market players (e.g. investment firms, central securities depositories) that are

[39] Digital Operational Resilience Act
[40] Regulation on Markets in Crypto-assets
[41] Distributed Ledger Technology

authorised to operate multilateral trading and/or securities settlement systems based on distributed ledger technology. The proposal contains provisions concerning the conditions of application and operation of the distributed ledger technology as well as the permitting and supervision of its use, and also regarding the cooperation between national and European authorities. Accordingly, authorised market players can operate DLT-based market infrastructures as an experiment in any EU Member State. With the help of the common EU pilot project for market infrastructures based on distributed ledger technology, firms can exploit the current legal framework, supervisory and regulatory authorities can assess the obstacles inherent in the regulation, while regulators and firms can collect valuable experience regarding the application of the distributed ledger technology. Nevertheless, five years after the launching of the pilot project a detailed report will be prepared, and in connection with that it will be examined whether the regulation can be maintained in its current form, whether it can be extended to other financial assets, and whether it is necessary to amend the EU legal framework in a way to allow the wide-ranging application of distributed ledger technology in the field of other financial services as well.

4.2.6 Further provisions to be applied in the case of cross-border payment transactions

In order to further increase the transparency of currency conversion charges, the latest provisions of the EU regulation on cross-border payments have to be applied as of 19 April 2021. Accordingly, card issuing payment service providers are obliged to send information to the customers on the charges related to card purchases or related to cash withdrawals through ATMs involved in currency conversion. The information express the full fee charged for the currency conversion related to card payments as a percentage mark-up over the latest available euro foreign-exchange reference rates published by the European Central Bank (ECB). As a result, upon initiating the payment transaction, customers learn about the mark-up applied by the payment service provider for the currency conversion services, and thus it becomes possible to compare the fees charged by various credit institutions in connection with currency conversion. The card issuing payment service providers are obliged to send the information to their customers on a broadly available and easily accessible electronic communication channel (e.g. in the form of a text message, e-mail or notifications within mobile banking applications) as they agreed. Consumers should receive such a message once every month in which they initiated a payment order by a payment card in a currency other than that of their payment account.

4.2.7 Pan-European development initiatives

In addition to the European Commission's digital finance package, upon the initiative of the ECB and major market players as well there are various projects going on in other areas and aiming at promoting the pan-European improvement of services. An outstanding pan-European development initiative among the ones concerning end-user payment solutions is the so-called European Payments Initiative (EPI), which is a project being implemented with the cooperation of dozens of market players (mainly commercial banks). Its objective is to create a payment solution for Europe as a whole, irrespective of the application of the euro, on the foundations of the already existing payment card systems and the instant payment service that is being newly created in relation to the SCT Inst scheme, exploiting the synergies that can be gained by combining certain elements of the two payment methods. According to the plans, the service offered within the framework of the EPI will be a solution comprising a card and a digital wallet as well in order to provide a relevant alternative for European consumers and merchants in as many payment situations as possible in terms of the initiation and receipt of payments. The technical details are being worked out and the implementation phase is being prepared. In addition to the EPI, other market initiatives are also pushing the promotion of a more uniform and more comfortable customer access to cross-border payment services. Within that, the association (ETPPA[42]) of third party providers (TPP[43]) that fall under the scope of the PSD2 and are independent of banks is worth mentioning. Its objective is to facilitate the settlement of issues remaining open after the entry into force of the PSD2 and the related RTS primarily in connection with the API access and strong customer authentication. In addition, in order to promote the further spreading of euro based instant payments within a harmonised framework, the ECB ordered all payment service providers that already offer SCT Inst based services and are members of the TARGET2 system to become available by the end of 2021 in the Target Instant Payment Settlement (TIPS) system as well, which was created and is operated by the ECB. The requirement also applies to the clearing houses that clear SCT Inst based instant payments, with the obligation that they have to migrate their technical accounts from TARGET2 to TIPS. The ECB strives to promote the cross-border, pan-European availability of various

[42] European Third Party Providers Association
[43] Third party provider

payment services on other fronts as well. Accordingly, in parallel with the initiative of the European Commission, on the basis of the Regulation on electronic identification and trust services (eIDAS)[44] it urges the creation of a European framework of electronic identifiers and electronic signature services with regard to the use of payment services and the initiation of payment transactions as well in order to allow the easiest possible access of consumers to cross-border services.

4.2.8 Action plan related to the capital markets union

The idea of creating a capital markets union is about setting up a single European capital market operating in a harmonised manner in the Member States of the European Union, where there are no borders. The fragmentation of the European capital market or still rather capital markets – is considered to be one of the greatest competitive disadvantages of the European Union. One of the reasons for the capital market fragmentation is that investors do not have information about investment possibilities in other Member States, and even if they have some knowledge, very often their confidence in these possibilities is lower. Besides, the different national rules make cross-border investments more complicated. All this is especially disadvantageous for private persons, who often do not have the knowledge or capacity with which they could overcome the aforementioned difficulties. Accordingly, the objective of creating the capital markets union is to allow obstacle-free flows of institutional and private investor capital within the European Union, thus providing market based financing for investment all over Europe.

The new action plan[45] of the European Commission formulates 16 actions in total in the fields of funding, security and integration. In September 2020, the European Commission set up at end-2019 and led by Ursula von der Leyen announced a new action plan in order to achieve the capital markets union. At the time of the disclosure of the action plan the first experiences of the negative impact of the coronavirus pandemic on the economy and the need for a green turn of the global economy were already known, and thus these directions also appear in the objectives set by the European Commission. Three objectives were formulated in the action plan: firstly, the new measures should make funding more accessible for undertakings, supporting with this as well the recovery of the European economy following the pandemic in a green, digital, inclusive and resilient manner; secondly, the European capital market should be made even safer for individuals' savings and long-term investments; and thirdly, capital market integration needs to be further deepened. The European Commission is initiating 16 actions in order to achieve these goals.

Measures that deepen capital market integration may have the greatest impact on the operation of payment infrastructures. Of the above objectives, it is primarily the integration objective that poses new tasks and challenges to domestic capital market players over the medium term. Seven actions in total were assigned to this objective. The actions include that through 2021 Q4 the European Commission will examine whether there are national obstacles to becoming shareholders through digital technologies, and by 2023 it will assess how the rules of the second European directive (SRD2) on shareholders' rights, which entered into force in September 2020, perform in practice. The development of cross-border capital market settlement services was also set as a target. In connection with that, the review of the European regulation on central securities depositories (CSDR) will also be carried out. Finally, one of the most ambitious elements of the package of measures needs to be highlighted. The objective formulated therein is not less than the creation of an allowance system for tax at source applying to the European Union as a whole. It would mean an EU-level standardisation of the taxation rules of incomes from cross-border investments, planned to aim at the reduction of costs on these types of investments and at the prevention of tax fraud. From the package, perhaps this measure is the most sensitive issue in terms of the sovereignty of nation-states. Therefore, the annex to the action plan is cautiously worded in connection with the implementation. In close consultation with the Member States, depending on a positive impact assessment, the European Commission is planning to initiate a legislative step by 2022 Q4 regarding this topic.

4.2.9 Framework for the recovery and resolution of central counterparties

Regulation (EU) 2021/23 of the European Parliament and of the Council on a framework for the recovery and resolution of central counterparties was prepared in December 2020. Its objective is to create a uniform set of rules to address cases when a central counterparty faces

[44] Regulation (EU) No 910/2014 of the European Parliament and of the Council of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC

[45] https://ec.europa.eu/info/business-economy-euro/growth-and-investment/capital-markets-union/capital-markets-union-2020-action-plan_en

financial distress or is at the point of failure. The regulation contains uniform procedures and sets of rules that allow the restoration of the normal operation of the central counterparty or ensure that the resolution of the central counterparty in the case of a failure does not cause any disruption in the functioning of financial markets or does not cause losses to the economy. As central counterparties play key roles in the financial systems, the objective of the framework is that they work out measures with which they can terminate financial difficulties and can maintain their critical functions in the case of a resolution. Another objective is to help authorities in managing the problems caused by financial difficulties.

Central counterparties have to prepare a recovery plan, which they have to update and review regularly, especially when significant deterioration takes place in their financial position. The recovery plans have to provide a comprehensive description of the measures needed for the central counterparty to restore its viability, and need to contain incentives that guarantee a fair distribution of losses between the central counterparty and market participants. The primary objective of a resolution is the preservation of critical functions and to avoid the harmful effects on financial stability, for which the resolution authority has to prepare an adequate resolution plan. And the plans also have to be approved by the resolution college, which is to be newly set up. In addition, the new regulation authorises ESMA to create regulatory technical standards and ESMA recommendations, thus contributing to supervisory convergence. ESMA set up a separate working group to coordinate working processes and work out the rules. The MNB is also represented in this group, and thus it may influence legislation in a way that is favourable for the Hungarian capital market and KELER CCP. Due to the high number of provisions and recommendations to be formulated on the basis of the mandate stemming from the regulation, the ESMA working group prioritised the recovery related works, whereas the regulations related to resolution will be worked out in 2021 H2.

The regulation obliges central counterparties to separate a capital element of adequate size, which can only be used in a recovery situation prior to the contributions of customers. The size of the capital element is not expected to be large enough to cause deterioration in the capital position of KELER CCP, but at the same time it will also mean an extra buffer for market participants, resulting in an increase in the resilience of KELER CCP. For the competent authorities it will create the possibility of early intervention and the introduction of restrictions, which will be even more instrumental in stabilising the financial position. It will also be possible to pay financial compensation in certain cases, provided that the central counterparty uses the market players' contributions as well to cover losses. In addition, the ESMA working group will develop factors and indicators to be contained in the recovery plan, and their sufficient strictness will ensure that the central counterparty may perceive the risks stemming from financial difficulties and loss events and be able to manage the situations that evolved adequately and in due course.

4.3 PAYMENT ASPECTS OF CENTRAL BANK DIGITAL CURRENCY AND CURRENT ISSUES RELATED TO THE DISTRIBUTED LEDGER TECHNOLOGY AFFECTING FINANCIAL INFRASTRUCTURES

At international level, increasing attention is focused on the issue of making central bank digital currency widely available as a response, inter alia, to the spreading of crypto-assets, which fall partly or completely outside the regulatory and supervisory framework, and to the expansion of FinTech and BigTech actors in payments. Ensuring the efficient, reliable and smooth execution of payments is one of the basic tasks of a central bank. At the same time, with the spreading of digitalisation and the faster and faster changes affecting payment services in parallel with that, as well as with the ensuing appearance and gaining ground of new actors, compliance with this requirement poses increasingly great challenges to central banks all over the world. Already now there are various types of monies (such as cash, money on central bank accounts, money on accounts at commercial banks, electronic money) circulating in the economy, with an extreme variety of services linked to them. At the same time, almost without exception, in some form they are parts of payments, whose rapid, cost-effective and, most of all, safe operation is of key importance in terms of the functioning and competitiveness of the economy as well. Nevertheless, the newly appearing virtual tokens and crypto-assets as well as some of the actors offering them fall outside the existing regulatory and supervisory framework partly or completely, i.e. outside the powers of central banks, hampering the performance of the basic central bank task related to the smooth execution of payments. Therefore, in order to control market developments, central banks throughout the world participate in an increasingly active manner in the initiation, shaping as well as coordination of development projects related to payments. There are various related areas, starting from regulation, through the supporting of innovation and competition under controlled circumstances, to direct intervention into development processes. As a result of technological development, which already allows central banks to keep separate accounts

for each citizen or company, several institutions also put projects on their agenda that examine the possibilities of applying central bank digital currency (CBDC) and the related modes of implementation. In addition to the achievement of payments related objectives, this could even contribute to the improvement of the efficiency of monetary transmission, the sustaining of financial stability and the financial catching up of households.

While previously the form of available central bank money was determined by the technological possibilities, and thus only cash was widely available, with the ceasing of these constraints it is justified to ask the question whether it brings any advantage if the receivables from the central bank become accessible in digital format as well for companies and households. Although central bank digital currency has been available for a long time for the participants in the financial system, i.e. typically for commercial banks and in certain cases other financial institutions and payment service providers, access has not been provided to a wide range of users, including companies and households, until now. Accordingly, a new form of money would appear for households and companies with the introduction of the widely available CBDC, and, in parallel with that, central banks' role and scope of duties would also change and expand considerably, bringing new challenges in this area. Therefore, almost without exception, payments related considerations are formulated when examining the possibilities of introducing the CBDC, although these considerations are very diverse.

With the wide-ranging introduction of the CBDC, a central bank may intervene in the operation of the financial sector and of the whole economy in a wider sense more directly and to a greater degree than now, which may have innumerable reasons and effects as well. At the same time, a common element is the payments implication, which needs to be thoroughly examined. As shown by various international research findings as well, many factors may justify the wide-ranging application of a form of CBDC or making it available. The common feature of these factors is that all of them have some kind of payments implication. Nevertheless, those cases need to be distinguished when providing wide-ranging availability of the CBDC aims at the addressing of a problem identified in the payments market or of a market failure, and the ones when the introduction takes place due to other – including monetary policy – considerations, although the payment function is ensured in this case as well. One of the main motives focused on in the related international analyses is the high level of the use of cash and, in parallel with that, the insufficient penetration of electronic payments, which results in high costs at society level, and has a negative impact on the competitiveness of the economy and thus on its growth rate as well. In this respect, in addition to the existing electronic payment methods, the CBDC could create a cashless alternative that may even be more attractive for a wide range of consumers, thus increasing the spread of electronic payment services. In respect of payments dominated by cash, a significant aspect may be the size of the grey economy as well as of tax avoidance and money laundering risks, for which a widely available CBDC could also offer a good solution, even by directing government transfers to this channel. The other extreme is if the acceptance of cash declines to a degree when it is not even an option in most of the payment situations. It may carry the risk that consumer groups that are less susceptible to digitalisation and those who cannot afford the using of a wide range of electronic payment services due to cost-based aspects may become crowded out of the access to certain products or services, which makes the maintaining of a normal way of life extremely difficult. Against this background, another important motive may be the concept of financial inclusion, and in this respect it may happen that a significant number of consumers do not have a bank account, and thus do not have access to the use of electronic payment methods. An interesting aspect is the assessment of the flexibility of market players in respect of the supporting of innovation and competition. It may happen that insufficient emphasis is put on the development of payment services or on their wide spreading, which may result in competitiveness problems or negative economic impacts. Within that, problems may be caused by lack of payment systems or of certain elements of infrastructure related to them, or by the possible occurrence of a market failure, as a result of which payment service providers on their own do not develop innovative end-user payment solutions. In relation to that, it may also pose challenges if classical payment service providers lose importance in parallel with the appearance of FinTech or rather of BigTech actors and their rapid expansion, the result of which is that in view of the payment solutions they offer (e.g. electronic money, stablecoin), new pretenders take over a major part of the payments market, causing significant problems in terms of fragmentation and interoperability. The issue of the security of payments may also arise in parallel with that. As the case may be, either with the appearing of new actors or irrespective of that, the number of frauds concerning electronic payments may increase, which may reduce consumer confidence and may thus hinder any further development significantly. And that may also have negative implications on competitiveness and the economy. Accordingly, the scope of motives behind the introduction of the CBDC and of the objectives to be attained with that is extremely wide. At the same time, the payment aspect is present in some form everywhere.

Based on the characteristics of electronic payments in Hungary, making CBDC widely available may theoretically contribute to the development of electronic payments in various respects. At the same time, it also needs to be considered that the development objectives may be achieved by other means as well, and therefore, this issue requires further analysis. One of the possible reasons behind the eventual introduction of the CBDC in Hungary may be, for example, the further encouragement of the spreading of electronic payments, as the ratio of the use of cash within retail payments is still relatively high, as well as the improvement of cheap and innovative payment services, since the fees for retail payment services in Hungary are high in international comparison as well. At the same time, these goals may even be achieved through a further development of the already available electronic payment solutions and market payment services as well. This is strengthened by the mandatory introduction of the instant payment service as well, which revolutionised domestic payments from the launch of the system, creating a relevant electronic alternative in any payment situation. In addition, the outbreak of the coronavirus pandemic also had a major impact in terms of the spread of electronic payment solutions, which may be sustained in the longer run as well. In addition, a favourable factor is the provision of the Act on Trade that as of 1 January 2021 all taxpayers obliged to use online cash registers have to provide the possibility of electronic payment. Overall, the development of electronic payments in Hungary is unbroken, which is also well visible form the second chapter of the Report. Moreover, the favourable developments became even stronger in 2020 from a certain point of view.

Central bank digital currency may even play a major role in payments in the longer run, although the areas where it will push through cannot be seen exactly yet. CBDC research is carried out on two main tracks: in addition to the retail one discussed above, the analysis of the possibilities of the wholesale application of the CBDC also plays an important role. The common feature of the two types of CBDC is that both exist in some kind of digital form, and similarly to the currently well-known central bank money, i.e. cash, it represents a claim directly vis-à-vis the central bank. Nevertheless, while on the basis of the currently known international analyses and projects in the case of the retail CBDC we are talking about a general-purpose, widely available central bank money, in the case of the wholesale CBDC the issuing central bank limits the range of those who have access to the instrument. A limitation like that could be for example if the CBDC became available only for the members of the financial intermediary system.[46] Regardless of the type, it is of utmost importance that the introduction of new instruments should be preceded by thorough research. At the same time, in the case of the wholesale CBDC the viability of the projects aiming at the examination of the application possibilities is confirmed by the fact that they revolutionise cross-border payments, which are nowadays typically expensive, slow and complicated in terms of their operation. Moreover, the risks related to its introduction are less relevant in view of the closed circle of users, although even in their case it is a serious issue whether there is room for efficient introduction and operation. A major question in the case of the wholesale CBDC is what degree of added value would result from the replacement of the existing central bank and commercial bank infrastructures, which are applied as a mix, with CBDC-based systems compared to the current service quality. A further important element is how the interoperability between the new and traditional electronic payment systems can be ensured in the presumably long interim period needed for the complete change-over. In addition to all that, the size of investments that may be required for changing over to the new infrastructure is also not a negligible aspect, and the question is whether these investments pay off as a result of the lower operating costs hoped from the more modern technology.

Besides CBDC, all over the world there are more and more development projects that intend to apply the distributed ledger technology to improve the efficiency of certain financial processes, including, inter alia, that of some elements of securities market infrastructures. The increase in efficiency promised by the distributed ledger technology is especially attractive from the aspect of securities infrastructures, as the process of securities settlement is often lengthy and costly. Accordingly, central infrastructures and securities market players alike are experimenting with the introduction of the new technology. Nevertheless, the projects launched in this subject are far from being uniform: there are isolated initiatives testing the issuance of only one securities series as crypto-asset, and there are comprehensive projects that intend to cover all the trading and post-trading processes of the securities issued as crypto-assets. Of the latter initiatives,

[46] As it was mentioned before, central bank digital currency in account denominated in the currency of the given country is already available for commercial banks and, in some countries, including Hungary, for other participants of the financial intermediary system. Therefore, studies classify only the tokenised digital central bank funds into the wholesale CBDC category. However, in the case of general-purpose central bank digital currencies we speak about CBDC with regard to both the tokenised currency and the money in account.

an outstanding one is Project Helvetia,[47] launched by the Swiss infrastructure group (SIX), the Swiss central bank (SNB) and the Bank for International Settlements (BIS). Within the framework of the project, the settlement of securities issued as crypto-assets against central bank digital currency was tested successfully. The results of the project open important prospects in the field of innovative infrastructure development even if for the time being they remain only test results: the SIX Digital Exchange (SDX) that was established by the SIX Group and deals with crypto-assets will initially perform securities transactions only against commercial bank money, i.e. the introduction of the central bank digital currency still has to be waited for. It is important, however, that the issuance and trading as crypto-asset increasingly affects the market of traditional securities as well, and in the coming years numerous projects will start, which will examine the potential inherent in the technology not only from a theoretical perspective.

4.4 MAIN DEVELOPMENTS RELATED TO FRAUD MONITORING AND PREVENTION

In parallel with the rapid spread of digitalisation and the increasingly fast rise in the number of electronically initiated payment transactions it is extremely important to strengthen the defence against fraud attempts. The increasingly dynamic changes in digitalisation affect almost all areas of our lives, including payments. Nowadays almost everybody has access to the Internet and/or a smartphone. Accordingly, payment service providers are also increasingly focusing on directing their services towards digital platforms. As a result, the development of electronic payments is also accelerating. Moreover, in addition to traditional service providers, innumerable innovative actors are attempting to enter the market, which often results in the fragmentation of payments and thus in a more complex choice of services. In many cases it affects transparency as well, since in the various payment situations often various payment solutions are available for customers, which is only further exacerbated by the flooding of customers with a lot of information. They typically do not have time for processing and structuring it, and the situation is made more complicated by the lack of adequate supporting knowledge. Exploiting all this, frauds related to payments increasingly affect electronic channels. Moreover, fraudsters apply increasingly sophisticated solutions in relation to acquiring customers' sensitive payment data and to deceiving them. Realising that, pursuant to the PSD2 and the SCAr., which supports the former, European legislators require compliance with increasingly strict provisions (e.g. application of strong customer authentication in all payment situations), and the data collection spectrum is also expanding with regard to frauds, in order to support their early detection, identification and the taking of the necessary measures.

4.4.1 Availability of more detailed fraud statistics on the basis of data reporting expanded in connection with the PSD2

On the basis of the data collection methodology renewed in connection with the PSD2, data reporting concerning frauds has been expanded in Hungary as well, providing additional information for attending to the related supervisory tasks. In view of the changes observed at international level in relation to frauds affecting payments, increasing emphasis is put on early detection, the identification of patterns and prevention. Accordingly, the ECB and the EBA renewed their data collection methodology, which was implemented by European central banks as well. In parallel with that, in respect of the data collection related to payment services, in 2020 the MNB changed over to a much more detailed, so-called dimensional structure, which can be flexibly expanded in the future, and also serves a basis for the quarterly publications and analyses related to payments. Accordingly, payment service providers' statistical data to be reported on frauds related to individual payment methods also expanded. Within that, in connection with fraud monitoring, more detailed data regarding payment turnover and frauds not related to cards as well as regarding frauds, losses and losses written off in the card issuing and acquiring businesses were implemented. With its new content, the data reporting also helps the preparatory works of the MNB's administrative inspections, and allows deeper analysis regarding the identification of trends concerning frauds and the taking of the necessary measures. In addition to the above, in connection with the PSD2 the data reports concerning the refusal of access to payment accounts and non-refunded payment transactions are also important to mention. Account-servicing payment service providers may only refuse access to payment accounts for the new actors of the PSD2, i.e. for third-party providers, if an unauthorised payment transaction is initiated or access in a fraudulent manner takes place. In view of the importance of the issue, during its administrative inspections the MNB puts great emphasis on examining the above, which is significantly supported by the related data reporting obligation. As for the data reporting to the MNB concerning unauthorised payment transactions it is important to mention that the events have to be examined from the aspect of the

[47] Swiss National Bank, BIS Innovation Hub, SIX Group (2020): Project Helvetia, Settling tokenised assets in central bank money – https://www.bis.org/publ/othp35.pdf

customer. It means that even if a payment transaction is implemented technically, it is not sure at all that it has been really authorised by the customer.

4.4.2 Handling of unauthorised payments

In connection with the refunding of unauthorised payment orders, pursuant to the PSD2, the Payment Services Act places a kind of objective liability on payment service providers, forcing them to take security measures that protect customers during the performance of everyday financial transactions. Unauthorised payment transactions are transactions that were authorised by a person other than the one who has the disposal of the money or the authorisation did not take place as it was intended by the latter. The fact that the transaction took place only means that from the payment service provider's aspect the payment order seemed to be completely authorised in a technical sense (e.g. the application of the chip and the password together when a payment card is used, or the authorisation was done in line with the rules of strong customer authentication in the case of a credit transfer). However, this is not equivalent to the case when the authorisation originated from the payer. If a customer indicates to its account provider that he detected a transaction that he had not authorised, pursuant to the relevant provision of the Payment Services Act[48] – irrespective of whether the transaction was initiated through a payment initiation service provider or not – the payer's payment account provider is obliged to refund the amount of the unauthorised payment transaction to the payer not later than by the end of the working day following the learning about the event. An exception from that is if the account servicing institution suspects a fraud in the given situation and informs the MNB about it in writing. In this case the payment service provider has to prove, inter alia, that the disputed payment transaction was authorised by the customer and it was recorded properly. The payment service provider can only be exempted from the liability to refund the value of the payment transaction if it proves that the damage was caused by the customer acting in a fraudulent manner, or if following the detection of the unauthorised payment transaction the customer failed to immediately notify the account provider. It is also exempted from the obligation if it is proven that the customer did not use the service as laid down in the framework contract, or during the safekeeping of the authentication data he did not act as it could be expected of him. Nevertheless, in connection with the failure to notify, the breaching of the conditions of use laid down in the framework contract and the safekeeping of authentication data, the payment service provider also has to prove that the breach of duty was caused by the customer deliberately or by his gross negligence.

The use of a payment card or the initiation of a credit transfer in itself does not prove that the customer authorised a payment transaction. Pursuant to the relevant liability rules,[49] the presence of the payment card in itself does not prove that the holder of the payment card was present when the payment order was approved, not even if the identifier (PIN code) belonging to the payment card was also used. Likewise, the fact that a credit transfer was initiated and authorised from the payer's mobile phone cannot be used as proof that the order was fulfilled by the customer. In both cases it is conceivable that an unauthorised person may gain access to the personal security elements even without the account holder's wilful misconduct or gross negligence. In view of that, the payment service provider has to explore and examine the circumstances in the case of each unauthorised payment transaction, and in each and every case it is the provider who has to prove that its customer caused the damage in a fraudulent manner or by breaching his liability related to the safekeeping of the personal security elements deliberately or through gross negligence. Likewise, the customer's immediate reporting obligation does not mean either that the customer is obliged to continuously monitor his messages or account history, but it means that as soon as he notices the suspicious transaction, in that moment he must indicate it to his payment service provider. Accordingly, when the payment service provider sends a text message, push or other message about the transactions, the moment of sending by the service provider is not necessarily the point of time when the customer noticed or could notice the execution of the unauthorised payment transaction. Moreover, for this reason it is worth for payment service providers to examine whether the various messages were sent successfully and whether they were delivered to the customer. Nevertheless, a positive answer in itself does not confirm that the payer has really read the message.

In connection with unauthorised payment transactions, the most important thing is prevention, which allows a reduction of losses through providing adequate and understandable information to customers as well as through the application of real-time fraud monitoring systems and with cooperation. The increasingly complex financial services as well as the widely available Internet and the general use of smart devices allow the development of extremely complex and refined methods of electronic fraud. Mobile phone operating systems and applications,

[48] Section 44 (1) of the Act on the Pursuit of the Business of Payment Services
[49] Section 43 (2) of the Act on the Pursuit of the Business of Payment Services

which make people's lives easier, allow almost completely automatic operations. In addition to convenience, developers' effort to relieve users of the burden to bother with many settings also gives green light to malware, as it may get into users' devices unnoticed if they are not security conscious enough – even hidden behind a simple weather forecast application or a game software. This is why it is also important to examine all access rules and licences prior to any downloading and see whether they are really justified. Looking ahead, however, customers' awareness is insufficient, as certain programmes may be installed even without the customers' consent and approval. Moreover, Internet banking and mobile banking applications also want to offer more complete user experience for their customers, and therefore they exchange data with the applications on the customer's computer or mobile device, which may pose further risks and gaps, and fraudsters do take advantage of that. Fraudsters may take complete control over customers' payment accounts on the infected phones and computers even in a way that, for example, during a payment order initiated by a fraudster the customer as payer does not even learn about the text messages or push messages related to the strong customer authentication, and thus the customer does not even have a chance to complain about the 'unwantedly' arriving identifier factor, as he learns about the unauthorised transaction only following the debiting of the amount of the payment transaction. In view of all that, in addition to the strengthening of customers' financial awareness, it is of utmost importance to apply real-time fraud monitoring systems as well, which also examine transactions on the basis of customers' payment habits and the data of the devices typically used by them, detecting the suspicious elements (e.g. irrational place of payment based on geographical location, login from an IP address that is different from the previous ones, application of a new device when accessing the account). In addition, the strengthening of cooperation between payment service providers is also an important element in order to quickly identify the patterns of fraud and to support the taking of the necessary measures.

4.4.3 Trends of frauds affecting credit transfers and the importance of customers' financial awareness

In connection with the frauds affecting credit transfers, the number of cases related to the acquiring of sensitive payment data is still high. In the case of attempted frauds affecting credit transfers, the number of fraudsters' access to customer accounts is still relatively high. In the vast majority of cases, phishing emails that are easy to recognise even for non-professional persons are used to convince the victims to disclose their sensitive payment identifiers and passwords as well as the confirmation codes received in a text message. These cases also include more sophisticated solutions when fraudsters copy an online login interface of a bank and acquire the identifiers and passwords typed in by customers as well as the single-use codes through that. The common element in the case of these frauds is that using sensitive payment data, fraudsters gain access to customer accounts by installing a mobile application on their own device, thus guaranteeing that they are able to initiate transactions without the account holder's knowledge. This is mostly possible because – as experiences suggest – many customers are simply careless, they typically do not examine incoming e-mails thoroughly, but automatically obey the instructions therein, which seem to be safe requests from the bank in connection with access to the account or the changing of the password. Moreover, they do not even check the address of the website that looks like the Internet banking login interface and where they are directed to from a phishing e-mail, although it would be easy to realise that something is wrong. In many cases they do not even notice the obvious differences compared to the real bank interfaces either, and they do not read the text accompanying the single-use code received in text messages, and thus they do not realise that the code is related to the activation of a mobile banking application and not to entering the Internet bank.

Nevertheless, in addition to the major role played by frauds built on phishing, dynamic rearrangement towards methods that are typically not payments related and are based on deception is observed. In addition to phishing aiming at the acquiring of consumers' sensitive payment data, and thus at having access to customer accounts, as well as in addition to the unauthorised payment transactions initiated on that basis, attempted frauds affecting credit transfer transactions are increasingly related to deception relying upon psychological manipulation. Although within that the choice of background stories used by fraudsters is extremely wide, persuasion to fictitious shopping, offering fictitious games of chance and investment opportunities, triggering sympathy and compassion, online dating as well as personification of the representatives of official institutions and authorities are the main motives. In the spring of 2020, for example, numerous scams related to the procurement of means needed for controlling the coronavirus were observed, when there was still a shortage of them through the normal retail channels. The common feature of these cases is that the culprits use various arguments to try to convince their victims to initiate a payment transaction to a given target account, i.e. the transactions are performed by the customers and not by the fraudsters, so the authorisation is given by the customer deliberately, not without his knowledge. In practice, in parallel with the

spreading of digitalisation, realising the opportunities inherent in electronic channels and in the insufficient knowledge of consumers, fraudsters diverted the attempts that previously existed in relation to cash payments as well to new platforms and simpler electronic payment solutions, where there is not even a risk of meeting in person.

Box 8
Frequent forms of fraud

A very popular way of fraud based on deception is when culprits advertise 'chart-topper products' (e.g. high-quality toys, popular books, branded garden tools) in various marketplaces on the Internet for around half of the retail price, typically with 3-4 day delivery times, requesting payment by credit transfer in advance. For the carefully built up scam, fraudsters choose the name of a well-established company that has been operating for at least 4-5 years, and its scope of activity includes one that is related to the goods to be sold. As a result, even those customers can make sure that they are ordering a product from a real, operating undertaking that seems to be reliable who carefully check the authenticity of the seller firm, for example with a company information service provider. For a couple of days, the fraudsters actively answer the questions they receive, and confirm the orders as well. In the meantime, they continuously transfer the money on from the payment account they opened, or pick up the currently available amount in cash. Due to the delivery time, it takes almost a week until customers complain at the payment service providers. By the time the number of complaints reaches the threshold that already indicates system-level fraud, and the target account is blocked, almost two weeks elapse from the day of the first credit transfers. Payment service providers are helpless in these cases, as by that time the money is already out of their sight, and customers pay the price.

Another frequent form of fraud is when customers are contacted by phone at random, and the fraudster – as a bank clerk – indicates to the customer that he has just succeeded in stopping a purchase detected by the bank's fraud monitoring system. Of course, the answer to the question whether the purchase has been performed by the customer is 'no', as it is a made-up transaction. Then the payment card data are asked for in order to block the transaction definitely. It often happens that if the customer himself does not disclose the name of his account provider, the fraudster gives a bank name at random, saying this is where he is phoning from. If the customer indicates that his account is with another bank, thus revealing the name of his bank, the 'clerk' puts the call through to the bank named by the customer, but in fact to a partner of the fraudster to make the call seem even more genuine. The fraud can take place using the payment card data obtained. Unveiling the call is also made difficult by the fact that – using various 'voice over IP' services – fraudsters display banks' phone numbers on the customer's device, as a result of which the name saved by the customer is shown as caller.

While the type of fraud presented in the first part is difficult to recognise and avoid, as there are many honest sellers, although the too attractive and also unreal price as well as the urging (such as 24-hour discount) may be grounds for suspicion, loss can be avoided in the second case by being more careful and calling back the number that we know.

In addition to the restructuring towards scams, it is also an important development that fraudsters use increasingly sophisticated solutions in order to hide their fraud attempts, and therefore in addition to the application of banks' real-time fraud monitoring systems, there seems to be growing need to strengthen consumers' financial awareness as well. Within frauds affecting electronic payments, whether it is phishing or deception based on psychological manipulation, fraudsters apply increasingly sophisticated solutions, paying special attention to circumventing banks' monitoring systems. Accordingly, they carry out transactions that are typically not different from the victims' previous transaction habits or persuade customers to initiate transactions like that, and thus their detection causes difficulties even for the refined real-time fraud monitoring systems implemented in parallel with the launch of the instant payment service. It is typical that these items remain undetected even during risk-based reviews, and thus, in parallel with the application of real-time fraud monitoring systems, it is also especially important to strengthen customers' awareness through campaigns aiming at presenting the various forms of deception.

In order to reduce losses to a minimum level, for payment service providers it is sensible to operate a real-time fraud monitoring system that is able to supervise all

the segments of the payment turnover and to detect attempts of access that have a criminal intent. Although the SCAr. provides that payment service providers must have transaction monitoring mechanisms that allow the detection of unauthorised or fraudulent payment transactions, real-time application is not mandatory. In addition, the exception rule concerning the disregarding of strong customer authentication that grants exemption regarding the items identified as low-risk ones on the basis of real-time transaction monitoring mechanisms in the case of initiating remote electronic payment transactions is also only an option. Nevertheless, in view of the above risks, according to the MNB's expectations banks' fraud prevention systems should be set up in a way that they can recognise with great certainty any attempt of giving a payment order that is presumably not from the legitimate owner of the amount of money or that is unusual compared to customers' transaction habits. The fact that many customers use electronic devices allows learning about customers' behaviour, shopping habits and devices in a previously unimaginable, detailed and through manner. Taking that into account, monitoring the IP address is not enough in the case of electronic devices. It is also necessary to examine, inter alia, the features of the devices used, and attention must be paid to whether the data were given in a different manner than before, and also to the degree of the difference of the given transaction compared to the customer's earlier payment habits. In relation to the fraud prevention system, in addition to alerts it is also essential to implement the possibility of the automatic stopping of transactions (e.g. preventing cash withdrawal in a suspicious country). Collecting the information detailed above helps payment service providers in the regular review of the related parametrisation concerning continuous monitoring and also in carrying out the settings in line with current trends. Upon designing the monitoring systems, island-like operation, i.e. the cases when the service provider operates separate fraud monitoring mechanisms for cards and credit transfers, should also be avoided. In addition to all that, it is also sensible if market participants share the information they have about frauds and fraudsters in a regulated framework and as fast and as efficiently as possible.

Although clear progress is observed in the field of banks' fraud monitoring systems, there is still ample room for development. More and more Hungarian banks use real-time fraud monitoring systems that analyse every transaction initiated through electronic channels, and determine from the transaction data to what extent they are different from customers' earlier transaction habits. During the analyses, the systems take into account the experiences of known fraud scenarios, the risk rating of the beneficiary's side as well as the payer's previous spending pattern. If a transaction is of a value exceeding a determined risk level, its execution is typically suspended or refused automatically. Following the automatic measure, banks usually contact the customer concerned without delay, and clarify the circumstances of the examined transaction. Nevertheless, if an examined item is not significantly unusual compared to the affected customer's previous transactions, execution is not suspended or refused. In order to detect frauds, for achieving a better hit rate, further tightening of risk sensitivity would be needed. However, it could increase the quantity of transactions wrongly deemed to be risky and thus suspended or refused to a degree that would jeopardise the continuous operation of payment services. Nevertheless, in the case of some service providers the monitored parameters do not seem to be strict enough. Moreover, at several actors the use of such real-time monitoring systems is only in an experimental phase or they have not yet been implemented at all. The MNB's definite expectation is to start their operation as soon as possible and to determine the monitored rules in a way that allows the detection of as many fraud attempts as possible without jeopardising the smooth execution of payments.

4.4.4 The introduction of online SCA

The MNB expects a decline in the number of frauds as a result of the application of strong customer authentication in all payment situations. Following 31 December 2020, the application of the so-called strong customer authentication, which serves the protection of customers, is mandatory not only in the case of electronically initiated credit transfers and physical card purchases, but also in the case of online card purchases. At EU level, Hungary finished in a distinguished position in terms of the data related to frauds and abuses, but with the introduction of strong customer authentication and customers' adequate security awareness the safety of payments may be further improved. In practice this change is good for customers because it ensures that only the authorised card holder can authenticate a transaction, as knowing only the data on the card is insufficient for performing it. Even a stolen, contactless card can only be used for a limited number of times without giving the PIN code. In the case of online bank card purchases the MNB encountered various solutions applied by banks, but they strived to be customer-friendly everywhere. In addition, according to the extraordinary reporting that followed the launching, the performance of Hungarian payment service providers concerned was outstanding in an EU comparison as well.

Due to the application of the exception rules, customers experienced that the use of strong customer authentication is not always mandatory. Although the sector is basically prepared, the application of the exception rules may still be unusual or not sufficiently known for customers. The law exactly determines the cases when payment service providers are allowed to apply the exception rules, but payment service providers individually decide on their actual application. Therefore, there may be differences across the practices of account providers. If the payment service provider decides to refrain from applying strong customer authentication, the special liability rules related to payments become even stricter. If, for any reason, there is no strong customer authentication during the transaction, the account provider of customers will be fully liable for the damage stemming from the lack of strong customer authentication. Although the EBA expressly forbade the extension of the final deadline, seven European supervisory authorities and/or central banks allowed additional time for preparation to their own respective sectors until 31 March 2021. As a result, until that day no strong customer authentication was applied at EU level in the case of some of the payment transactions concerned. During its inspections going on within the framework of continuous supervision, to date the MNB has only found minor deficiencies, but during the payment inspections it will continue to examine, inter alia, the lawful application of the exception rules. It is also important to emphasise that strong customer authentication does not protect against the cases when customers themselves disclose their sensitive payment data to unauthorised people by mistake (e.g. as a result of fraud). Therefore, it is important that customers should also be sufficiently careful and security conscious.

Box 9
Work of the Standing Committee on Payment Systems of the European Banking Authority, current directions of regulation and their relevance in Hungary

The most important standing committee of the European Banking Authority (EBA) is the Standing Committee on Payment Systems (SCPS) organised jointly with the ECB. Participants in its meetings are European central banks, including the MNB, as well as supervisory authorities. Within the framework of the Standing Committee it is also possible to formulate guidelines if the members are of the opinion that it is indispensable for a uniform interpretation of certain issues at EU level or for the uniform application in practice. Otherwise, the PSD2 also authorises the EBA for this. The issued guidelines are implemented by the MNB as well in the form of recommendation or guidance. The SCPS deals with the subject of the PSD2 and primarily the SCAr. implementation, and carries out a continuous fine-tuning of the European practice on the basis of feedback from Member States. In 2020, the working group worked out, inter alia, the foundations of the international knowledge sharing related to payment frauds, monitors and facilitates the formulating of a uniform European practice in connection with the strong customer authentication of online bank card payments, and considers harmonisation steps in relation to the necessary supervisory practice. Accordingly, it published the guidelines that contain the detailed rules of fraud reporting[50] as well as the recommendation on the conditions of resorting to exemption from the reserve mechanism.[51]

At present, the work of the SCPS mainly focuses on the subject of obstacles related to application programming interfaces (API) as well as on strong customer authentication, which is mandatory to be applied in the case of online payment card purchases as of 1 January 2021. Accordingly, the EBA called on national authorities to take supervisory measures for access to payment accounts pursuant to the PSD2 and the related detailed rules and in order to remove the obstacles to the API application. Based on that, national authorities first had to assess the preparedness of account-keeping payment service providers and the progress achieved so far, and if the obstacles have not been removed, supervisory measures have to be taken. As for the application of strong customer authentication for online bank card payments, pursuant to the decision of the EBA, all those concerned had to comply with it by 31 December 2020 at the latest. Considering that at EU level not all stakeholders were prepared completely, the EBA ordered further reporting regarding 2021 data.

[50] EBA/GL/2020/01
[51] Recommendation No 14/2019 (VII. 3.) of the Magyar Nemzeti Bank on the conditions of resorting to exemption from the reserve mechanism

4.5 OPEN BANKING AND OBSTACLES RELATED TO THE APPLICATION OF APIS

So far, open banking, the great innovation of the PSD2, has been able to spread only to a limited degree, as the international regulation is not specific enough in terms of the application programming interface (API) to be implemented, on the one hand, and banks may hinder new actors in various ways, on the other hand. As of 14 September 2019, with the customers' consent, banks have to provide access to customer data, which represent significant assets for them, and assign some of the online customer interactions, which are also valuable, to third-party providers. Nevertheless, some banks support third-party providers only up to the degree of minimum compliance with the law. In addition, banks can also hinder third-party providers' activities in many ways. This is not necessarily deliberate, and may also originate from previous inappropriate practice or wrong interpretation of statutory instruments.

The most frequent method of hindering is that banks design the API to be provided to third-party service providers in a way to cause inconvenience to customers who use it or to third-party providers. One of the inconveniences is when customer authentication is more complicated through API than it would be if the customer had access to his account through the bank (e.g. the bank requires more than two factors during customer authentication). A frequent obstacle is when the API enforces the typing in of the number of the payment account instead of selecting the account intended to be used for performing the payment transaction. In certain cases the bank requires further customer consent in addition to customer authentication for having access to the account, which is also an obstacle. In the case of open banking a basic principle is that the authentication procedures that are available for the customer upon the direct online access to the bank (biometrics, mobile application, text message, token etc.) have to be available through the API for the customers of the third-party provider as well, but this requirement is not always completely complied with either. It is also considered as an obstacle if the bank requires any complementary registration from the third-party provider in addition to the eIDAS certificate.[52] There are cases that are not considered as an obstacle according to the law, but are deemed to be that by third-party providers. Related to that is the permissive rule pursuant to which in the case of account information service, following strong customer authentication it is possible to access the balance and the account history for 90 days even without another strong customer authentication. It happens, however, that banks do not allow it. At the same time there is no legal obstacle to that, as ensuring it is not a requirement, only a possibility related to the exemption from strong customer authentication.

The MNB worked out a complex action plan to support the spreading of open banking and remove the obstacles. Accordingly, it also issues an MNB recommendation about hindrance, and conducts sector-level API inspection. Obstacles are perceived not only in Hungary; it is a problem present at European level. Realising that, in June 2020 the EBA explained its position concerning obstacles in its European Banking Authority opinion, and the MNB formulated it as an expectation for the Hungarian banking sector in an executive circular dated 13 July 2020. Following the publication of the executive circular, during its payment audits and based on market feedback the MNB experienced that solutions that prevent and hinder open banking are still present, and therefore considered it necessary to take further steps in order to support the spreading of open banking. Accordingly, in 2021 the MNB launched a targeted API inspection with a technical focus, during which the API created by the 10 largest banks is examined in order to have a real 'snapshot' of the current state, thus allowing the central bank to take administrative measures if necessary. Moreover, in order to increase the predictability of the application of law as well as to promote the uniform application and the prevailing of the relevant legislation, the MNB prepared a recommendation in which it clarifies what practice it considers as an obstacle and good solution. After the professional consultations the MNB recommendation[53] was published on 1 July 2021. With that, the MNB will withdraw the previous executive circular, and will also transpose its the contents, which are loosely related to obstacles, to the recommendation.

Further, mainly standardisation steps may also be necessary to completely exploit the potential inherent in open banking. The market is uniform in the current regulatory environment, but access is fragmented both technically and from the process side as well, i.e. there is no uniform standard or scheme regarding the operation of APIs. Therefore, to build out relations with account providers, actors (including credit institutions) that provide account information services and payment initiation services need to implement as many separate improvements as many different API implementations exist

[52] Compliance certificate regarding the licence to provide payment services under Regulation EU No 910/2014 on trust services (eIDAS)
[53] https://www.mnb.hu/letoltes/10-2021-akadalyozasrol-ajanlas.pdf

in the European market. In addition, due to the different structures of processes supported by the APIs, customer experience also varies, which may make users unsure. In the MNB's opinion, the European legislator is able to respond to these challenges efficiently, and/or standardisation at European level may be the solution. As for the latter, the Euro Retail Payments Board (ERPB) has already taken steps, and in November 2020 it launched an initiative concerning the shaping of a uniform SEPA API Access Scheme.

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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