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Impact of the coronavirus pandemic on Hungary's payment turnover in 2020

The first coronavirus patient in Hungary was registered on 4 March 2020. The first wave of the Covid-19 pandemic began in Hungary in March 2020. The state of emergency – ordered to contain the pandemic and during which the government applied strict restrictive measures – ended at the end of June. The borders were closed, curfew measures were implemented, the majority of shops, cinemas and restaurants were shut down. As a result, economic activity weakened significantly. The second wave of the pandemic began in August 2020 with increased intensity, as a result of which the government repeatedly ordered the state of emergency on 10 November 2020 and introduced restrictions in order to reduce the number of personal contacts. During the second wave, the restrictions were of different structure than earlier, and thus economic activity declined to a smaller degree, which was also reflected in the number of payment transactions.

The Magyar Nemzeti Bank (MNB, The Central Bank of Hungary) strives for analysing the short- and long-term effect of the coronavirus pandemic in a complex way in order to obtain a detailed view of the condition of the economy and the impact of the government measures. In 2020, the coronavirus pandemic also largely influenced the change in payment habits in Hungary. The purpose of this paper is to present last year's developments in electronic and cash payments and changes in consumer preferences based on the data available to the central bank.

As a result of the coronavirus pandemic, the turnover of most payment methods declined during the first and second state of emergency, with the strongest impact on low-value cash payments. Electronic payment methods were used more frequently in several payment situations. Due to the general caution on travel and the restrictions imposed, there was a significant decline in cross-border payments requiring personal presence and in domestic transactions with foreign-issued cards. By contrast, both the number and value of domestic online card payments showed an extraordinary increase last year. In terms of card types, transactions with domestically issued credit cards declined much more than debit card payments with only a moderate change. The largest decline in cash payments was registered in April, while in the summer period the number of transactions hardly fell short of last year's values. However, the new state of emergency, introduced from November, once again resulted in a major decline.

Due to the significant decrease in the volume of cash payments and the moderate change in card purchases, from March 2020 the proportion of both the number and value of electronic transactions increased significantly within payments registered on online cash registers. It can therefore be said that the spread of electronic payments was amplified by the pandemic situation, but only in the longer term will it be possible to determine how much of the faster increase will be lasting. On the other hand, it may support the further expansion in electronic payments that in Hungary the law prescribes mandatory acceptance of electronic payments in retail trade from 1 January 2021. The appearance of convenient, fast and cheap payment solutions – built on the instant payment system

launched on 2 March 2020 – in the market in larger number and its penetration may also increase the ratio of electronic payment further. In the fourth quarter of 2020, recognising the increase in demand, several banks introduced services built on instant payments, such as the QR code generation application at merchants, which represents an alternative, in addition to card acceptance, for the use of electronic payments.

Journal of Economic Literature (JEL) codes: G20, D12, G40, E42

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1. INTRODUCTION

This paper analyses the changes in domestic payment turnover in 2020, with special regard to the impacts of the coronavirus pandemic and the restrictive measures, ordered to contain it, on payment transactions and cash demand. For this purpose, we used the data from the domestic banks' data supply, the transaction data of the domestic payment systems, the online cash register database¹ (hereinafter: OCR database) of the National Tax and Customs Administration (NTCA) containing the receipt data until the end of 2020, and the data from the questionnaire-based household survey performed in autumn 2020.

The banks' data supplies present the transactions carried out with payment cards issued in Hungary in different breakdowns² and they also cover cash transactions performed by credit institutions and cash-in-transit companies. In addition, on the basis of transactions carried out in the Hungarian payment card acceptance network, transactions with cards issued domestically and abroad in Hungary can be examined separately. Furthermore, the turnover data of the Széchenyi Recreation Cards ("SZÉP Cards")³ by sub-accounts are available from the banks' data supply, which provide us with a more detailed picture of the turnover of the catering sector, hit hardest by the pandemic. From the receipt-level transactions of online cash registers, the extent and proportion of transaction purpose card and cash use at merchants obliged to use an online cash register in Hungary can be examined broken down by different regions or value categories. In autumn 2020 the MNB performed a questionnaire-based survey on payment habits, where respondents were also asked specifically about the impact of the coronavirus pandemic on payment preferences. The results of that are also summarised here.

In the second chapter we present the main changes in the electronic and cash payment turnover at aggregated level, based on banks' data supply, the turnover of payment systems, OCRs and

¹ Taxpayers can only fulfill their obligation of giving receipt with online cash register for certain activities.

² For example, the place thereof (physical acceptance point / online shopping, or transaction abroad/in Hungary) by card type.

³ The Széchenyi Recreation Card i.e. SZÉP Card, is an electronic voucher in card format, which may be provided by employers to their employees as fringe benefit. The SZÉP Card may be used to pay for domestic holidays, warm meals, a variety of health, beauty, wellness and sports services as well as cultural programmes and entertainment. The maximum amount of the fringe benefit that employers may provide to employees on SZÉP Card subject to preferential taxation is HUF 800,000. The SZÉP Card has three sub-accounts, namely: accommodation, catering and leisure. Employees can use the SZÉP Card at acceptance points in Hungary.

central bank cash transactions. In the third chapter, using banks' data supply, we analyse the changes in the structure of card and cash payments in more detailed breakdowns. In the fourth chapter, based on the receipt data of merchants and service providers obliged to use an OCR, we are illustrating developments in the proportion of payment transactions by card and in cash in various – monthly, quarterly, regional, number and value-based – breakdowns. Then, in the fifth chapter, we analyse the payment habits assessed in the questionnaire-based household survey and the changes in those resulting from the impacts of the pandemic.

2. MAIN CHANGES OBSERVED IN THE USE OF ELECTRONIC PAYMENT METHODS AND IN CASH TURNOVER

In 2020, the coronavirus pandemic and the related restrictions had a significant influence on the turnover of electronic payment methods and demand for cash. In this chapter we analyse, in a breakdown by payment methods, the main changes in turnover at aggregated level, based on banks' data supply, the turnover of payment systems, online cash registers and central bank cash transactions.

2.1. Card payments

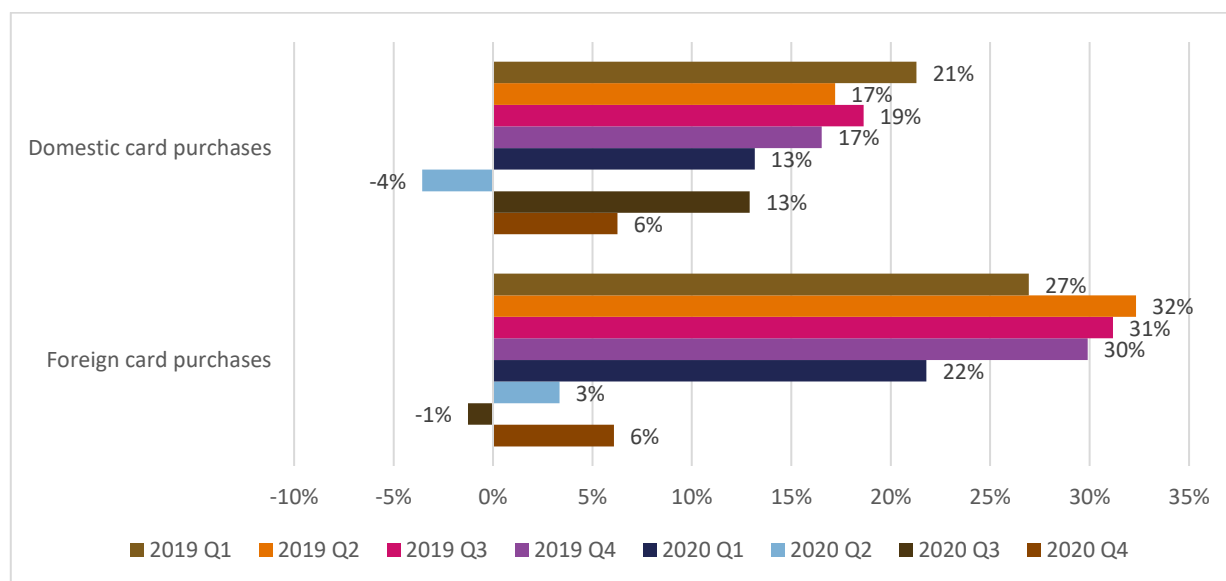
After the temporary halt observed in the second quarter in the dynamic growth in the purchase turnover carried out by payment cards issued in Hungary, there was a pick-up once again in the third quarter, followed by a decline in the fourth. As regards the turnover of the entire year, the number and value of transactions rose by 7 and 15 per cent, respectively, compared to 2019.

The growth rate in the value of purchases by payment cards issued in Hungary was 24 per cent in the first quarter of 2020, just like in previous periods. In the second quarter this declined to 9 per cent, while in the third quarter – bouncing back toward the values of previous periods – it registered a growth of 15 per cent and 13 per cent in the fourth quarter, year-on-year. As regards the number of purchases, after the 3 per cent decline observed in the second quarter, the third quarter was already characterised by a growth rate of 12 per cent, similar to that observed at the beginning of the year, while in the fourth quarter the growth rate declined to 6 per cent.

When examining within total purchases the payments made in Hungary and abroad we found that while card transactions in Hungary realised a larger growth both in terms of number and value, purchases abroad showed persistently poor performance from the second quarter, presumably due to the bans on travelling abroad. The number of purchases in Hungary with cards issued in Hungary rose by 7 per cent during the entire year, according to the following pattern. After the 4 per cent decline observed in the second quarter, it grew by 13 per cent in the third quarter, while growth in the fourth quarter dropped to 6 per cent. In terms of value, the growth was 17 per cent in 2020 as a whole. As regards changes on a quarterly basis, in the third quarter – after a 12 per cent growth registered in the second quarter, falling short of that of the previous period – the growth rate was once again 20 per cent, similar to earlier periods, which then dropped to 15 per cent in the fourth quarter. Growth in purchases abroad was moderate compared to that observed

until now, and some of the periods were characterised by larger declines. During the entire year, annual growth fell to 7 per cent in volume and to 1 per cent in value. As regards the distribution among the individual quarters, after the intensive growth observed in the first quarter, the rise was significantly lower in the second quarter. Then, in the third quarter a fall of 1 per cent in volume and 10 per cent in value was observed year-on-year, followed in the fourth quarter by improving figures, i.e. a growth of 6 per cent in volume and a decline of 3 per cent in value. (Chart 1).

Chart 1: Annual changes in card transactions in the quarters of 2019 and 2020



2.2. Credit transfers and batch payment transactions

Due to the coronavirus pandemic, the dynamic growth observed in 2019 in the number of individual credit transfers stopped during the first wave of the pandemic. In the second quarter of 2020, the number of credit transfers was the same as that observed in the same period of 2019. As a result of the strict government measures, general economic activity also fell, due to which the number of credit transfers decreased among households as well as among retailers and enterprises. After the first wave of the pandemic, most of the restrictive measures were lifted; accordingly, in summer the number of credit transfer transactions also rose by 3 per cent year-on-year. During the second wave of the pandemic, owing to the less stringent restrictive measures, the number of credit transfers rose by 3 per cent year-on-year, similarly to that observed in summer. In the third and fourth quarter, growth in the number of credit transfers was almost the same as in the pre-pandemic period. During the first wave of the pandemic the value of credit transfers declined by 10 per cent, while in summer and during the second wave it rose by 3 per cent and 15 per cent, respectively, year-on-year. (Chart 2).

In each month since spring, the number of low-value payments (HUF 0-50 thousand) in the instant and intraday systems exceeded considerably the value registered in the same period of 2019. During the first wave, the number of low-value credit transfers rose by 5 per cent, while in summer and during the second wave of the pandemic it was up by 7 per cent and 10 per cent, respectively,

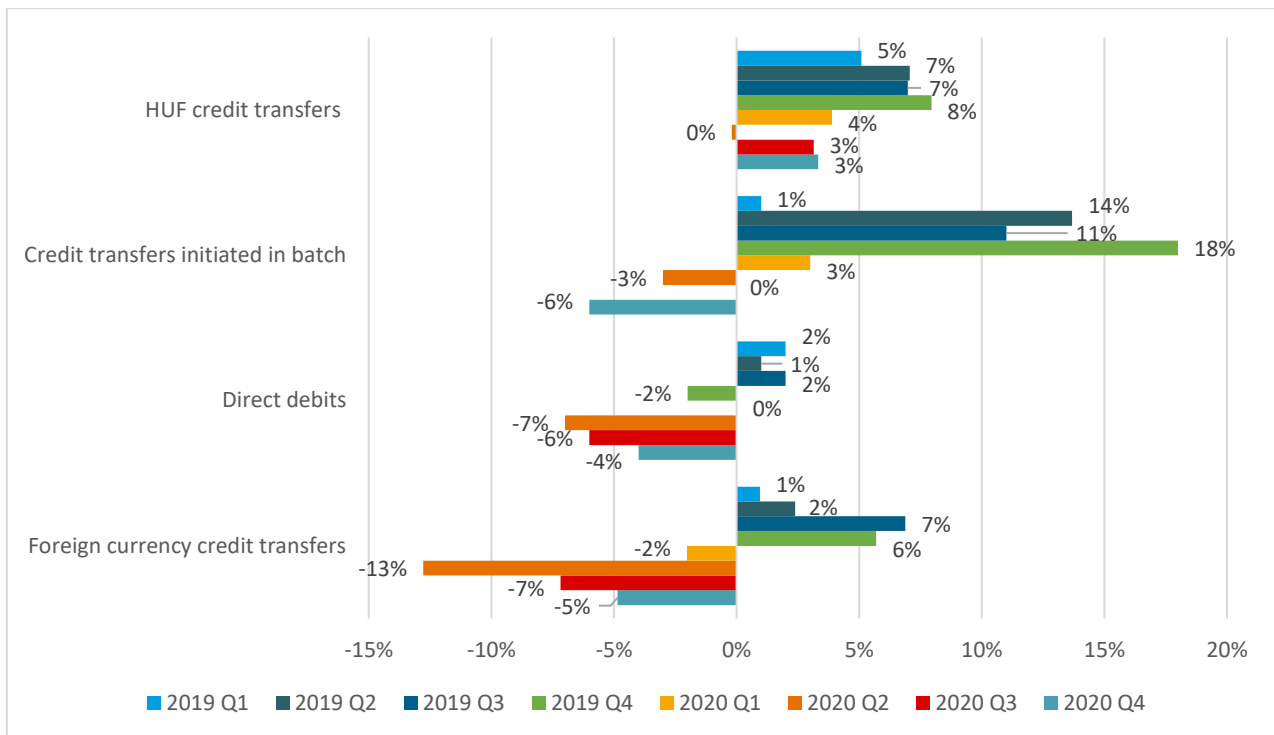
year-on-year. Based on the foregoing, due to the pandemic situation, part of the former low-value cash transactions was presumably diverted to the instant payment system, launched in early March 2020, which provides all clients of all banks with constantly available instant payment services.

Batch items consist mainly of wage payments, loan repayments, bill payments and other regular credit transfers, and thus these transactions include a significant portion of transactions paid by or sent to companies. During the first wave of the pandemic, the moratorium on loan instalments was equally available to retailers, enterprises and private individuals, which helped part of them avoid bankruptcy. In parallel with the contraction in general economic activity, the number of batch items declined throughout the year. This trend was observed both in the first and second waves of the coronavirus pandemic. In parallel with the lifting of restrictions and the reopening of shops following the first wave, in summer the number of batch items was also able to rise. During the first wave of the pandemic, the number of batch credit transfers fell short of the year-on-year value by 3 per cent, while it was similar to it in summer. During the second wave shops were permitted to remain open; however, part of the sectors, like the catering sector, were profoundly hit by the prolonged pandemic situation. Due to the persistent pandemic situation, during the second wave, the number of batch credit transfers fell short of the year-on-year figure by 6 per cent. The degree of the decline during the second wave was larger than in the first wave.

During the first wave the number of the direct debits – similarly to direct credits – fell by 7 per cent, while in summer and during the second wave of the pandemic it fell by 6 per cent and 4 per cent, respectively, year-on-year. The considerable decline during the first wave of the pandemic was the consequence of the restrictive measures, while during the second wave the fall in the number of transactions was also attributable to the prolonged pandemic situation.

As a result of the coronavirus pandemic, in 2020 the number of transactions to the Hungarian State Treasury declined by 9 per cent year-on-year. Tax payments by enterprises account for a large part of the Hungarian State Treasury's transactions. Accordingly, the analysis of the transactions sent to the Hungarian State Treasury may provide a broader view of the enterprises' economic situation. As a result of the government measures and allowances, also impacting enterprises, in the first wave the largest decline in the number of transactions was 17 per cent. In summer the decline was somewhat smaller, merely 6 per cent, while in the second wave, the decline in the number of transactions was once again 14 per cent year-on-year. The fall in the number of transactions during the second wave came close to that observed in the first wave, which is presumably the consequence of the prolonged coronavirus pandemic. The large decline in the number of transactions may be caused by the fact that as a result of the moratorium on loan instalments, the tax allowances and wage subsidy, the number of loan, wage and tax payments decreased.

Chart 2: Annual changes in credit transfer transactions in the quarters of 2019 and 2020



In 2020, the number of foreign currency credit transfers fell short of that registered in 2019 by 7 per cent in the entire year. As regards foreign currency credit transfers, during the first wave the number of transactions dropped by 14 and 7 per cent in the second and third quarter, respectively, while during the second wave, in the fourth quarter it fell by 5 per cent compared to the same quarter of last year.

2.3. Online cash register payment turnover

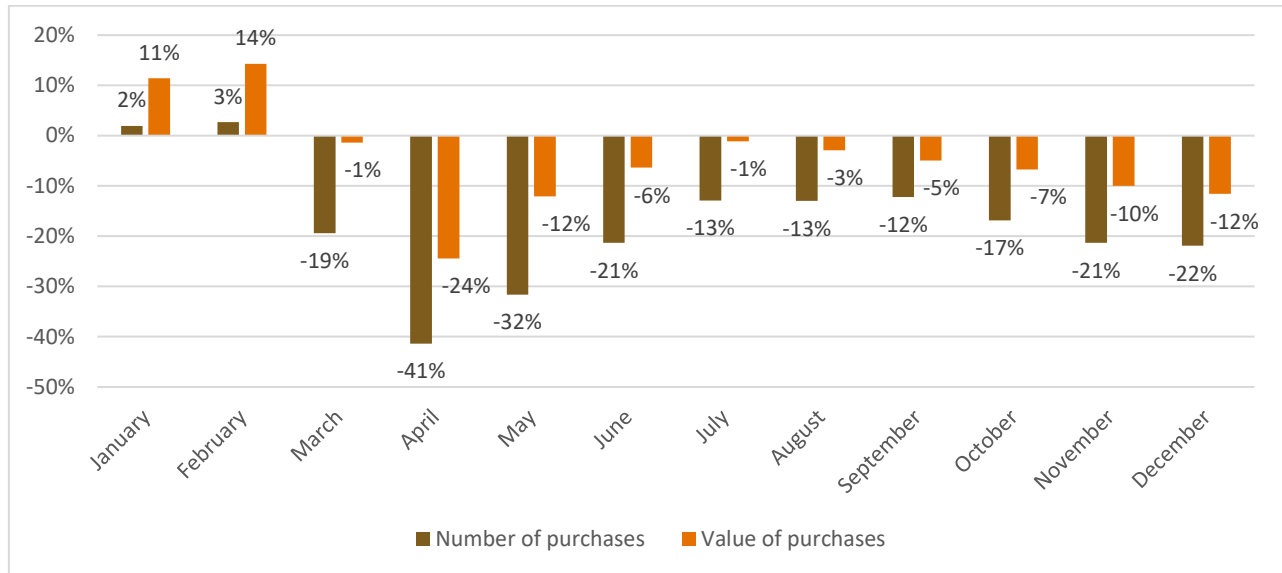
OCRs record payment transactions carried out primarily in retail trade and in certain special services (e.g. catering, accommodation, taxi, spas), and the transactions performed by beverage and merchandise vending machines are also recorded in the tax authority's database.

The number and value of purchases registered in the OCRs and vending machines significantly declined during the first wave of the pandemic. Then, due to the easing of the restrictions, it was typical here as well that primarily in the summer period purchases declined to a lesser degree compared to the previous year. By the end of the year, as a result of the repeated tightening of the restrictions, both the number and value of purchases declined repeatedly.

During 2020, the number and value of transactions recorded by the OCRs fell by 18 and 5 per cent, respectively, which represents a reversal of trends compared to the previously observed stable rise of 2-4 and 7 per cent, respectively. The largest decline occurred in April and May, when at a national level the number of transactions fell by 41 and 32 per cent and their value by 24 and 12 per cent, respectively (Chart 3). The decline registered in June was already smaller, but in terms of number it was still high, i.e. 21 per cent. On the other hand, the decline in terms of value was more favourable, i.e. 6 per cent, while the period from July to September was already characterised by

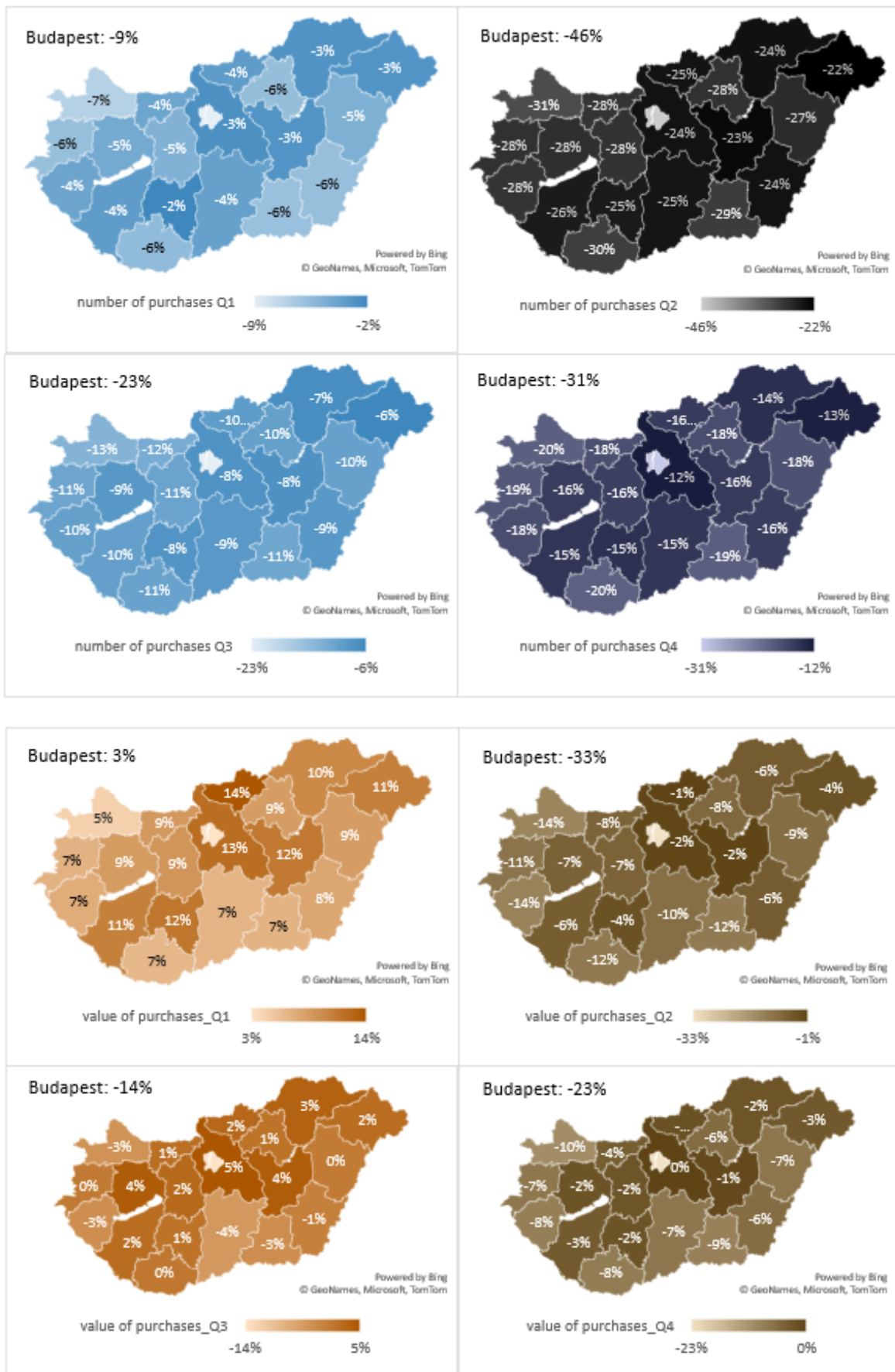
a moderate decrease, i.e. 13 per cent in the number of transactions and around 1-5 per cent in value. From October the number and value of purchases once again started to fall to a greater degree, and by November-December the decline reached 20 per cent in volume and 10-12 per cent in value.

Chart 3: Annual change in the number and value of purchases based on the online cash register database in 2020 by month



The largest decline was observed in Budapest in the second, third and fourth quarters. The decline was particularly large in the second quarter, since the fall in the number and value of transactions reached 46 and 33 per cent, respectively, in the capital (Chart 4). In the other regions, in the second, third and fourth quarter, the rate of the decline in the number of transactions remained in the range of 22-30, 6-11 and 12-20 per cent, respectively. While in the second quarter the value of purchases fell by 1-14 per cent, in the third quarter in some of the regions a decline of 3 per cent and even a growth of 5 per cent could be observed. In the fourth quarter, in some regions the value of purchases corresponded to that registered previous year, but in several regions a fall as high as 10 per cent could also be observed.

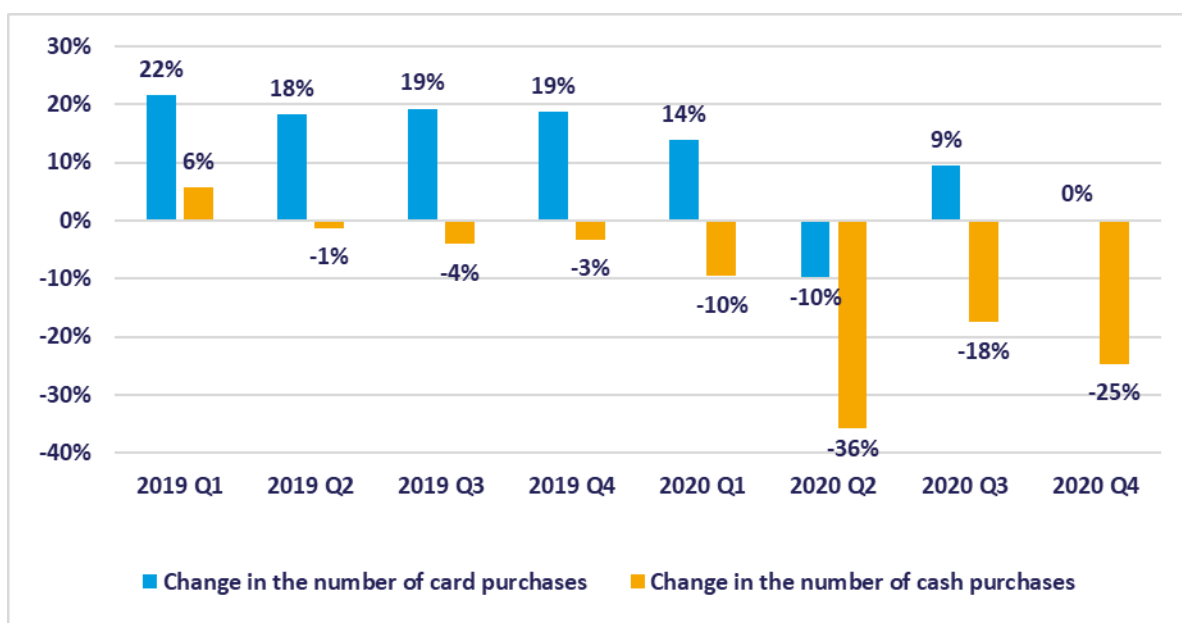
Chart 4: Annual change in the number and value of purchases in the quarters of 2020



When examining the number and value of purchases by payment method we found that the changes affected cash and card payment to a different degree. In the latter case, in a large part of the second half of the year an increase could be observed both in terms of the number and value of transactions, and thus the annual decline solely affected cash transactions. As regards the value of purchases, the annual decline of 5.3 per cent is the combined result of the 14 per cent fall in cash transactions and the 11 per cent increase in card transactions. The 18 per cent decline in the number of purchases observed in 2020, is the combined result of the 22 per cent decline in cash transactions and the 3 per cent annual growth in card payments.

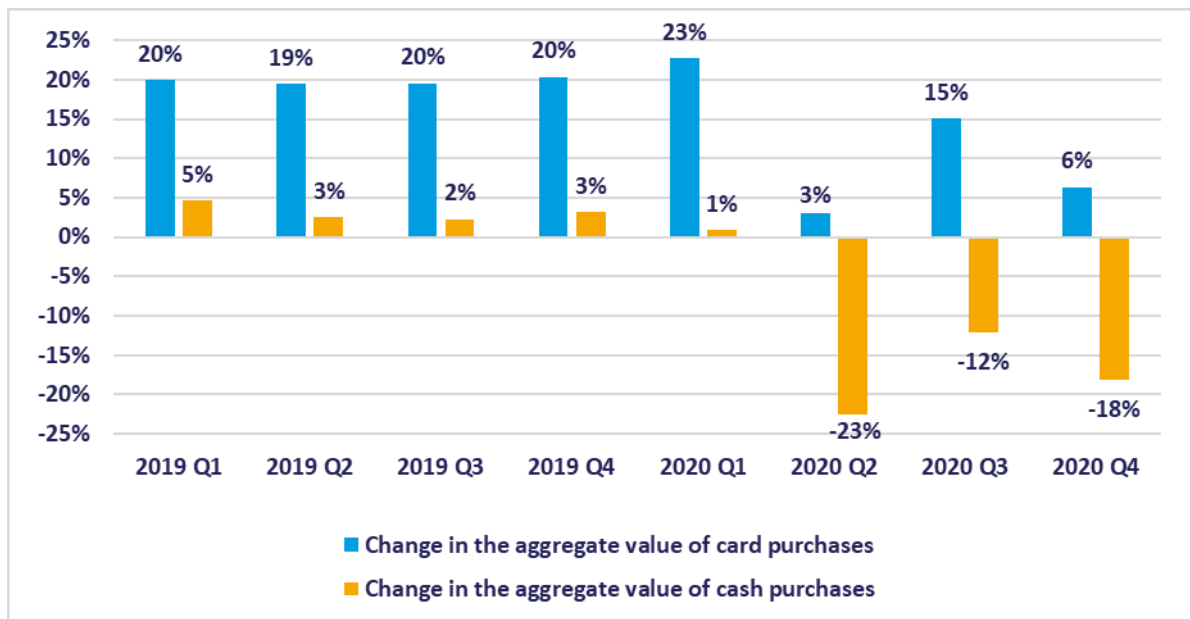
In the third and fourth quarter of 2020, the volume of cash transactions fell by almost 153 million and 197.5 million, i.e. by 18 and 25 per cent, respectively, year-on-year, while the number of card transactions – contrary to the trend observed in the second quarters – increased or stagnated in both periods. In the third quarter the number of card transactions rose by 18 million, representing an annual growth of 9 per cent, while in the last period of 2020 the rise was negligible, i.e. 0.1 million transactions (see Chart 5).

Chart 5: Annual change in the number of card and cash purchases in the quarters of 2019 and 2020, based on the online cash register database



As regards the aggregate value of cash transactions, the annual decline in the third and fourth quarter amounted to HUF 254.1 billion and HUF 377.5 billion, representing a fall of 12 and 18 per cent, respectively. By contrast, the value of card transactions rose by 15 and 6 per cent, i.e. by HUF 164.4 billion and 74 billion, respectively, which, however also falls short of the previous average annual growth rate of around 20 per cent. (see Chart 6).

Chart 6: Annual change in the aggregate value of card and cash purchases in the quarters of 2019 and 2020, based on the online cash register database



Obviously, the nominal changes in the use of payment methods also significantly influenced the ratio of those, which is described in detail in the fourth chapter.

2.4. Changes in cash turnover

For 8 consecutive working days starting from 12 March 2020 – in connection with the state of emergency ordered by the Hungarian Government due to the first wave of the coronavirus pandemic – the Magyar Nemzeti Bank recorded an outstandingly high volume of cash outflow, reaching HUF 250 billion, which – based on previous trends – corresponded to the normal increment of 5-7 months. The initial intensive demand generated by the pandemic situation was followed by a period of adjustment, during which the MNB registered significantly lower outflow of banknotes than usual, while during the summer months most of the statistical indicators related to cash circulation reached or came close to their previous typical values.

During the second wave of the coronavirus pandemic in autumn, the introduction of stringent restrictions generated much smaller growth in demand compared to March. However, the impact of the pandemic could be clearly felt in several areas (e.g. number of cash payment transactions, cash withdrawals from credit institutions over-the-counter and through ATMs, cash-in-transit company data). Although the various cash circulation indices indicate a certain degree of decline in cash usage for transaction purposes, this did not have a significant impact on the banknote demand towards the central bank. The simultaneous fall in transactional cash demand and the growth in currency in circulation implies that the economic uncertainty caused by the pandemic encouraged a large part of the population to hoard cash.

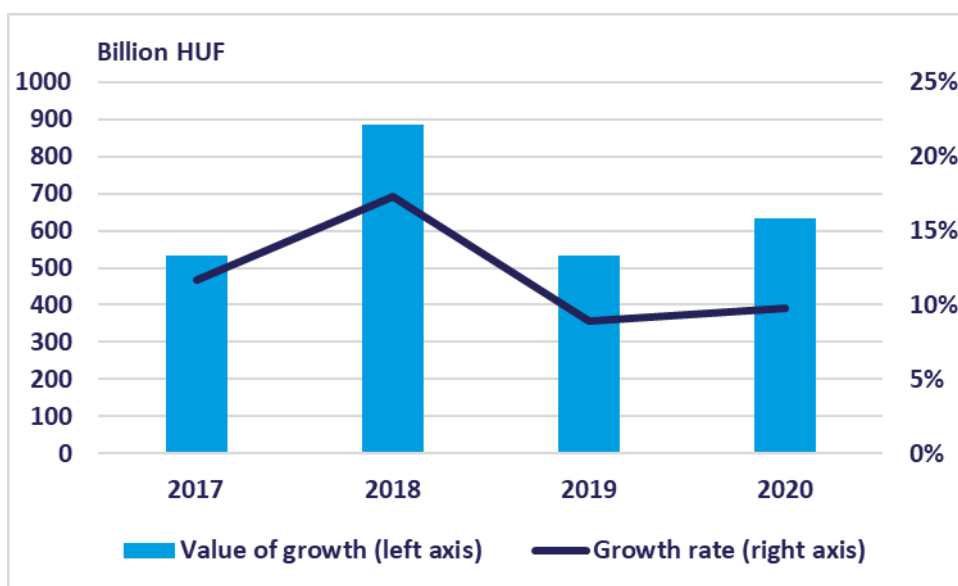
2.4.1. Changes in currency in circulation

In 2020 the value of currency in circulation rose from HUF 6,530 billion to HUF 7,164 billion, corresponding to a growth of HUF 634 billion, i.e. 9.7 per cent. This value is somewhat also

influenced by the recent issuance of a new banknote series, since the withdrawn but still exchangeable old banknotes no longer qualify as legal tender, but their inflow to the MNB is continuous even after the date of withdrawal. After adjustment for the differences resulting from this, the growth is somewhat larger, i.e. HUF 664 billion or 10 per cent.

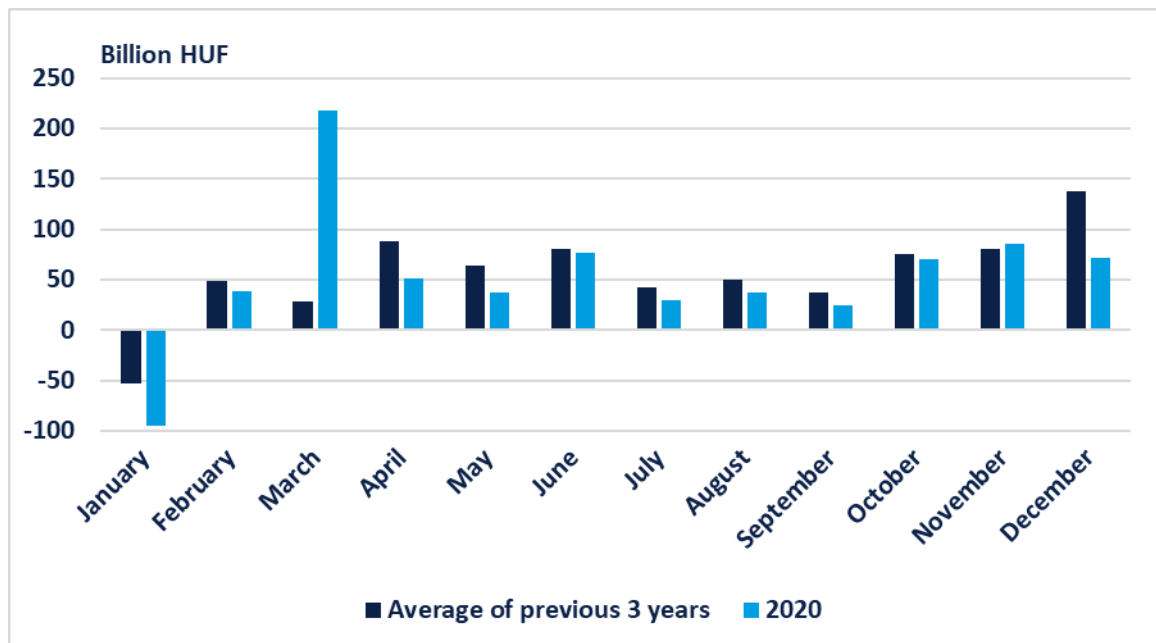
Regarding the absolute value of the growth it slightly falls short of the average of the previous 3 years, and in terms of percentage value it also lags behind the growth rate registered in 2017 and 2018 (see Chart 7) despite the fact that the coronavirus pandemic and the consequent economic and social crisis generated a surplus cash outflow of roughly HUF 190 billion only in March 2020, representing almost 30 per cent of the total annual growth.

Chart 7: Annual growth in the amount of cash in circulation between 2017 and 2020



When examining the annual growth rate after adjustment for the impacts of the pandemic, the growth rate without the one-off demand shock in March would have been merely 7.1 per cent in December 2020 year-on-year, being the lowest value of the past 3 years. The analysis of the net cash outflow from the central bank in a monthly breakdown shows that in the second half of the year demand fell short of the values registered in 2019 in almost all months; however, even this was not enough to fully offset the particularly high demand shock observed in March (see Chart 8). The exception is the month of November, when the introduction of stringent restrictions due to the pandemic was accompanied by a small and temporary growth in outflow. It should be also noted that the major difference, in annual terms, observed in December is partly attributable to the calendar effect: in 2020, compared to previous years, there were more working days in the period between Christmas and New Year, and thus credit institutions may have deposited the larger part of their excess cash appearing after Christmas on those days, while in 2019 this mostly took place in early January. Considering this phenomenon, the demand in December 2020 does not fall short of neither the same month of the previous year nor the average of 2017-2019.

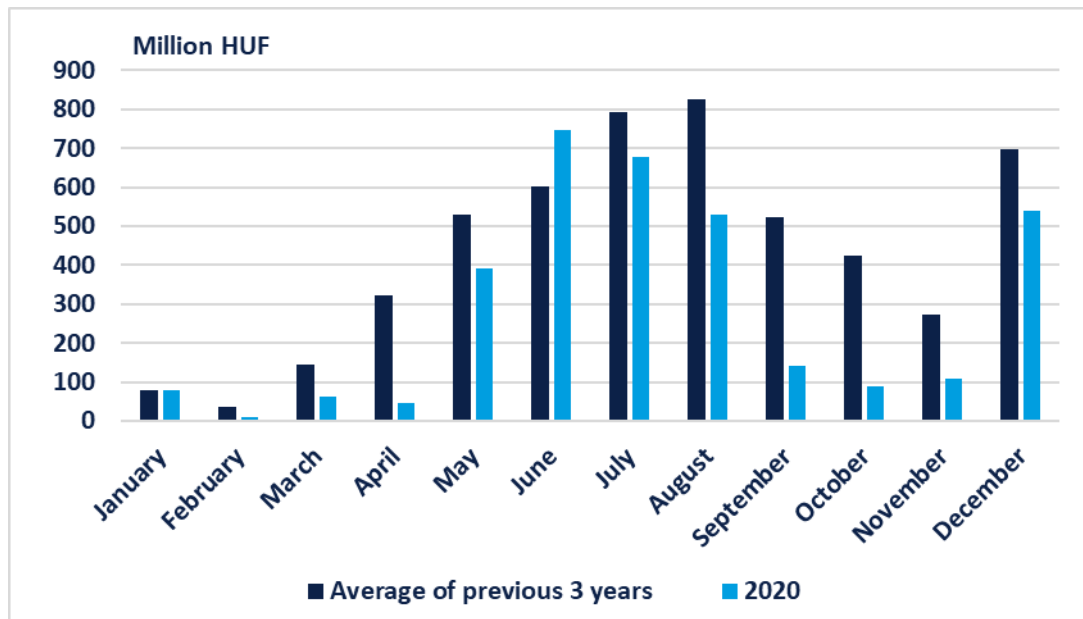
Chart 8: Net central bank balance of cash inflow and outflow in 2020 by calendar months, compared to the average of the previous 3 years



The analysis of the circulation of the individual banknote denominations shows that in 2020 both the outstandingly high demand in March and the growth experienced in the rest of the year involved primarily the HUF 10,000 and HUF 20,000 denominations, the stock of which increased in 2020 by 26.4 and 13.7 million pieces, respectively. This also confirms that the growth in the banknotes in circulation is mostly attributable to the increase in cash savings. The stock of the banknotes of lower denomination was characterised primarily by seasonal fluctuations. There was a minor trend growth in the HUF 500 and HUF 1,000 banknotes, while the average stock of the HUF 2,000 and HUF 5,000 banknotes stagnated compared to 2019.

Regarding forint coins neither the first, nor the second wave of the coronavirus pandemic caused a growth in demand similar to that observed at banknotes. Outflow in March and April, and in the period of September to November significantly fell short of the average of previous years (See Chart 9). In 2020 roughly 99 million pieces of coins were withdrawn from the central bank in total, which falls short of the data registered in 2018-2019 by 35-40 million pieces, thereby breaking the rising trend observed since 2015. This is presumably due to the fact that as a result of the restrictions related to the pandemic situation, the number of transactions (e.g. low-value purchases in snack bars, at newsvendors and from vending machines) characterised by frequent use of coins declined to a particularly large degree. During summer, simultaneously with the lifting of restrictions, demand for coins was closer to the level observed in previous years. However, looking at 2020 as a whole, its volume and value in aggregate fell short of the previous 3 years' average by roughly 23 and 35 per cent, respectively. Accordingly, it may be assumed that the potential onset of additional waves of the coronavirus pandemic may entail lower than usual coin turnover also in the first half of 2021.

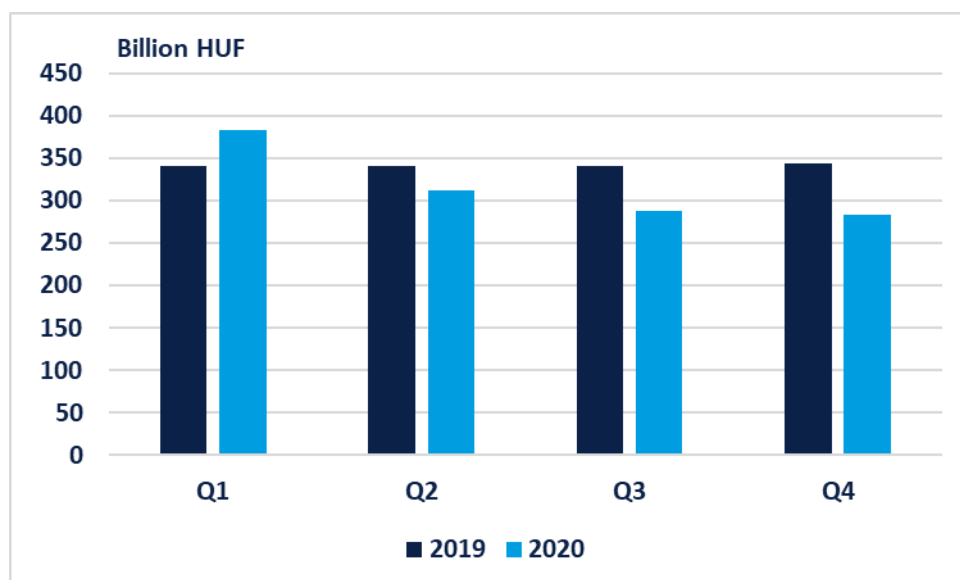
Chart 9: Value of coin outflow from the central bank in 2020 by calendar months, compared to the average of the past 3 years



2.4.2. Forint cash reserves of credit institutions

In the second half of 2020 credit institutions' cash reserves developed in line with the typical monthly seasonality, fluctuating within the range of HUF 260-320 billion. The precautionary stockpiling of cash, observed in March during the first wave of the pandemic, was no longer present during the autumn. Reserves in the third and fourth quarter amounted on average to HUF 287.2 billion and HUF 283.6 billion, respectively, which falls short of the values registered in 2019 in the same period by roughly HUF 53.4 and HUF 59.6 billion, respectively (see Chart 10).

Chart 10: Average quarterly balance of credit institution' forint reserves in 2019 and 2020



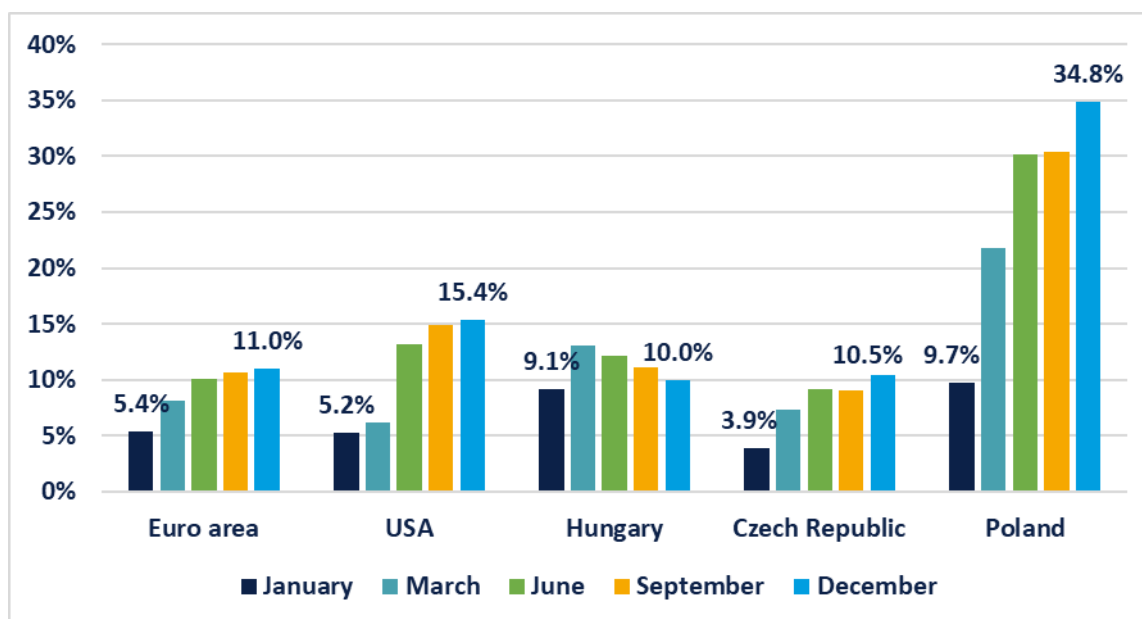
The decline in the average size of reserves is mostly attributable to the changes in interbank rates, since upon developing their inventory strategy credit institutions tend to take those into account,

particularly that of the 3-month BUBOR, which in the third and fourth quarters was steadily above 0, i.e. the level characterising previous years.

2.4.3. International comparison

Similarly to Hungary, the major currencies of the world and of other countries in our region were also faced with record high cash demand due to the outbreak of the coronavirus pandemic (see Chart 11), which primarily impacted banknotes of higher denomination. In 2020 the annual growth rate of the euro banknote stock has more than doubled, rising from the previously typical level of 5-6 per cent to 12.1 per cent. The US dollar registered an even larger increase, reaching an unprecedented annual growth rate of 16.4 per cent. Accelerating growth in cash in circulation was also observed in the Czech Republic and Poland, particularly the latter taking an unprecedented degree – and presumably closely related to the significant cut in the base rate – coming close to 40 per cent. It should be noted that in 2020 the annual growth rate of the forint circulating stock fell short of the US dollar, Czech koruna and Polish zloty growth rates, which was unprecedented in previous years.

Chart 11: Comparison of the annual growth rates of currency in circulation measured on month over month basis in the euro area, the USA, Hungary, the Czech Republic and Poland, between January and December 2020



Due to the coronavirus pandemic, in several countries, where the volume of cash in circulation has been characterised in recent years by stagnation or slow decline, the annual growth rate in 2020 was steadily higher than before. The growth rate in the United Kingdom, Israel and Canada rose from 0.1 to 13.3 per cent, from 2.2 to 20.8 per cent and from 3.4 per cent to 17.2 per cent, respectively, while in Norway the former decline of 6.8 per cent changed to a growth of 1.5 per cent.

2.5. Why do cash holdings continue to rise despite the continuous spread of electronic payments?

It may appear to be controversial that while adjustment to the coronavirus pandemic resulted in unprecedented growth in the use of domestic electronic payment methods, cash holdings also rose significantly. However, the record high increases in cash demand and the use of electronic payments do not preclude each other, as fundamentally different underlying drivers can be identified for these two trends.

In the case of electronic payments the gradual and balanced increasing trends of recent years were clearly reinforced by the fact that due to the restrictions implemented to contain the pandemic the number of personal contacts drastically fell, and thus masses of citizens switched to online shopping instead of personal shopping. The fact that certain media exaggerated the role of cash in the transmission of the virus – particularly during the first wave of the pandemic – also fostered the spread of electronic payments⁴, and thus many retailers clearly encouraged buyers to use cashless payment methods, while certain online shops even cancelled the cash on delivery option.

As a result, the consistently high demand for cash was primarily generated not by transactional purposes but rather the hoarding behaviour of households stemming from the widespread economic uncertainty. International trends and relevant researches also confirm that at times of economic and social crises, households typically start to accumulate cash in volumes larger than usual, treating cash as a kind of emergency reserve. However, households' fear and the uncertainty developed due to the coronavirus pandemic often led to stockpiling of food, medicine and chemicals, thereby temporarily strengthening the demand for transactional denominations too. These phenomena are supplemented by the persistently low interest rate levels, declining further in 2020 all over the world, as a result of which even long-term cash savings may not be regarded as an irrational decision.

Considering the above, we may conclude that compared to the demand for major currencies of the world and other national currencies of the region, the roughly 10 per cent annual growth rate of the forint circulating stock in 2020 is notably low and that growth in cash holdings and the increasing popularity of electronic payments are not contradicting trends.

3. CHANGES IN THE STRUCTURE OF CARD AND CASH PAYMENTS

In addition to the aggregate turnover of the individual payment methods, the pandemic also had major impact on the structure of those. Below we present in more detail the various changes in the distribution of card usage, and the changes in certain indicators of cash usage.

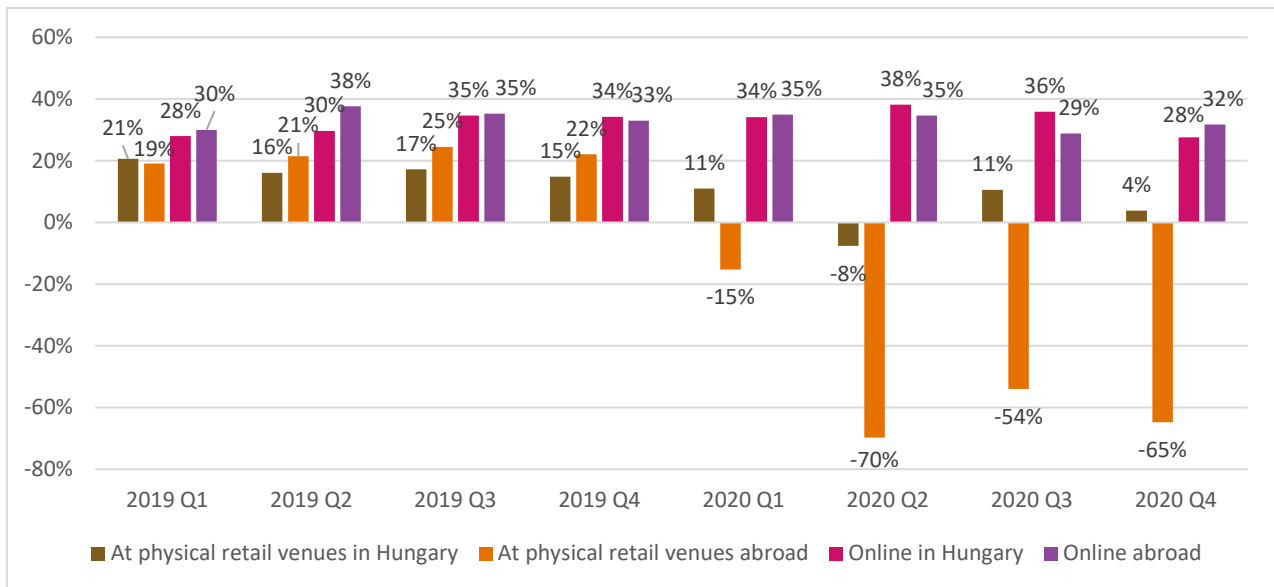
⁴ By the end of 2020 several researches (Bank of England, European Central Bank) confirmed that the use of cash does not represent any surplus risk of spreading the coronavirus compared to other commonly used objects. In fact, viruses can survive for only a few hours on paper banknotes and up to a day on coins, while on plastic surfaces this period is much longer.

3.1. Card purchases made online and at physical retail venues

In terms of payments, online retailers are the key winners of the protracted coronavirus pandemic, since internet purchases continued to grow significantly, registering an annual growth of 33 per cent in volume and 39 per cent in value in 2020. When examining the annual growth in a domestic and foreign breakdown, the change is similar in terms of number, i.e. 34 and 32 per cent, respectively, while the difference is greater in terms of value, as the growth in Hungary was 47 per cent, while abroad it was 26 per cent. As regards the quarterly changes, growth in Hungary was the most dynamic in the second and third quarters, while it somewhat declined in the fourth quarter. In Hungary, the largest growth in terms of the number and value of online card transactions was observed in the second quarter, with a year-on-year growth rate of 38 per cent (Chart 12) and 57 per cent, respectively. In the last three quarters of 2020, the annual growth rate of cross-border online transactions was 29-35 per cent in volume and 15-24 per cent in value. The average purchase value per transaction in Hungary decreased in the third quarter compared to the second quarter, which may be the consequence of the wide-ranging penetration of online shopping, while in the fourth quarter it repeatedly came close to the second quarter's value of slightly over HUF 14,000.

As regards payments at physical merchants, growth in 2020 reached 3 per cent in terms of volume and 8 per cent in value. When the change is broken down to Hungary and abroad, there are greater differences. While in Hungary growth in volume and value was 4 and 11 per cent, respectively, abroad there was a fall of 53 and 52 per cent, respectively, due to the ban on travels abroad. When examining the changes in a quarterly breakdown, the situation was somewhat better in the third quarter of 2020 compared to the first half-year both abroad and in Hungary, while in the fourth quarter the values repeatedly came close to the second quarter's low. In Hungary, after the larger decline, the number and value of purchases at physical merchants rose by 11 and 16 per cent, respectively, while in the fourth quarter these figures dropped to 4 and 11 per cent, respectively. The soar in the average purchase value from HUF 6,704 to HUF 7,505 in the second quarter was less typical in the third quarter, presumably due to the easing of restrictions and to the holiday season. While in the third quarter of 2019 the average purchase value was HUF 6,636, in the third quarter of 2020 the typical value was HUF 6,968. In the fourth quarter the average purchase value once again rose more dynamically: while in 2019 the average transaction value was HUF 7,060, in 2020 this amounted to HUF 7,527. Due to the general cautiousness and restrictions related to travels, the significant decline in cross-border transactions with personal presence can still be felt, albeit the degree of the decline in turnover somewhat decreased here as well. However, by the end of the year these values once again came close to those observed in the first wave. While in the second quarter the decline measured in the number of purchases was 70 per cent, it was 54 and 65 per cent in the third and fourth quarter, respectively. In terms of value, the decrease of 74 per cent measured in the second quarter fell to 53 per cent in summer, while in the last quarter it was back to 66 per cent.

Chart 12: Annual change in the number of transactions made at physical retail venues and online in Hungary and abroad in the quarters of 2019 and 2020



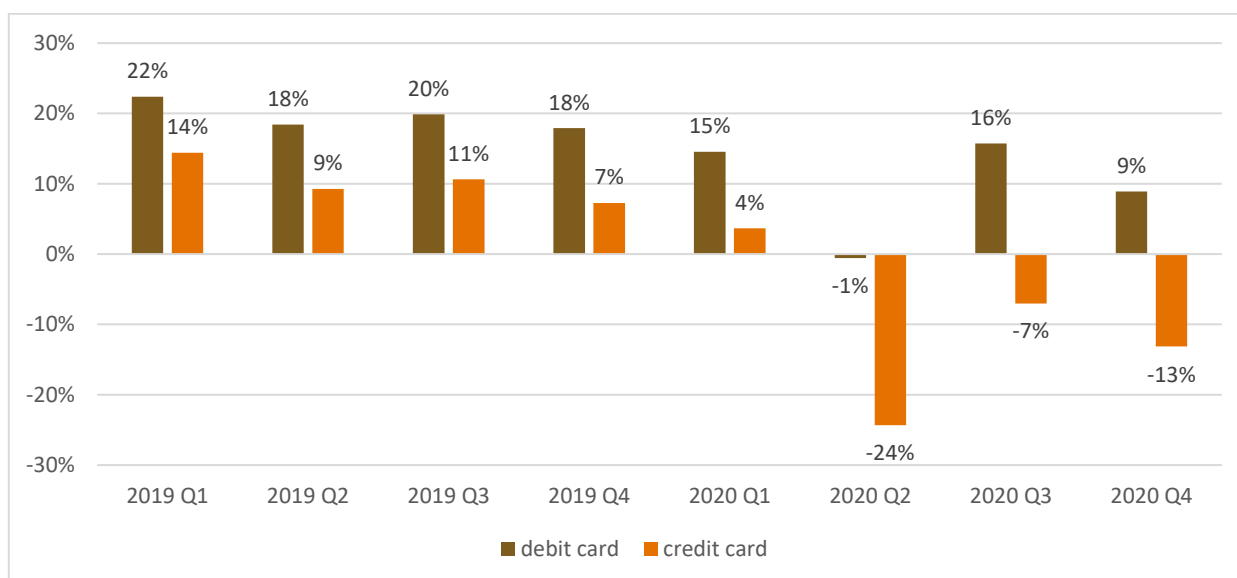
As regards the distribution of transactions carried out by cards issued in Hungary between physical and online purchases, the ratio of online payment rose dynamically during the year, i.e. by almost 4 percentage points. In the second quarter, the annual increase in the ratio of online payments rose from the general 2 percentage points to 6 percentage points in terms of number of transactions, while in the third and fourth quarter growth was almost 3 and over 3 percentage points, respectively. Accordingly, the ratio of online payments within all transaction was the highest in the second quarter of 2020, reaching 20 per cent, followed by a moderate decrease and then bouncing back close to this ratio by the end of the year. The breakdown by Hungary and abroad shows that while the change in Hungary was smaller, 2-4 percentage points, from the second quarter of 2020, growth was still very high abroad, 18-21 percentage points, and thus the change in 2020 as a whole corresponds to a growth of 2 percentage points in Hungary and 17 percentage points abroad. This is also in line with the fact that in Hungary, in parallel with the easing of the restrictions part of the online shoppers diverted from physical shopping once again opted for physical shopping, while abroad, due to the ban on travels, the growth in the ratio of online payments persisted despite the fact that their ratio was higher in this segment from the outset. Accordingly, within the purchase transactions with payment cards issued in Hungary in 2020 the ratio of online purchases was 12 per cent in terms of volume and 20 per cent in terms of value, while abroad these values were 87 and 85 per cent, respectively.

Overall, we found that the growth in the ratio of online payment observed in the first half of the year somewhat declined in the third quarter, and then in the fourth quarter it repeatedly came close to the dynamics observed in the first wave. When examining the domestic and foreign ratios separately, growth abroad is still strong even under the essentially higher ratio of online payments, which is attributable to the travel restrictions.

3.2. Purchases made in Hungary with domestically issued payment cards, by card type

When examining the transactions within card payments by card type we found that while in 2020 purchases with debit cards in Hungary rose by 10 per cent in number and by 20 per cent in value, credit card transactions registered a decline of 10 per cent in number and 1 per cent in value. In a quarterly breakdown we found that the number and value of credit card transactions in the third quarter continued to decline, similarly to the second quarter, on an annual basis. The decline was smaller in the third quarter, i.e. from 24 per cent to 7 per cent in terms of volume, while the total value remained unchanged after a fall of 10 per cent. However, in the fourth quarter a fall of 13 and 3 per cent was registered in volume and value, respectively. (Chart 13). In the third quarter of 2020, the annual growth in debit card purchases more or less returned to the pre-pandemic level, with a growth of 16 per cent in volume and 22 per cent in value, year-on-year. In the fourth quarter the growth rate fell to 9 and 18 per cent in terms of volume and value, respectively. When examining the ratio of debit card transactions to credit card transactions within all transactions, in the second quarter of 2020 the change in the ratio to the benefit of debit cards was relatively high, 3 percentage points, compared to that observed before, followed by a change of 2 percentage points in the third and fourth quarters of 2020, which may still be deemed high. The different change in debit and credit card transactions is presumably the consequence of curbing borrowing and the shift towards propensity to save, resulting from the uncertainty. This may have been also influenced by the change in consumption structure or in the credit card schemes. Thus, the share of transactions with debit cards was 90 per cent, while that of transactions with credit cards was 10 per cent within all transactions made with payment cards issued in Hungary in 2020.

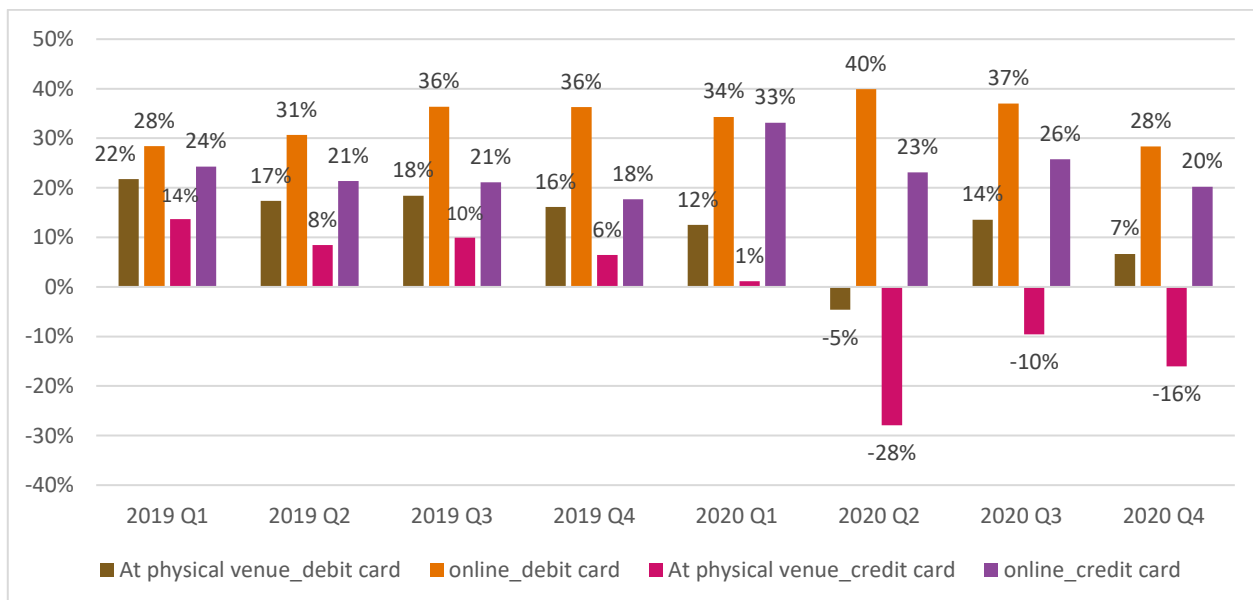
Chart 13: Annual change in the number of debit and credit card purchase transactions in the quarters of 2019 and 2020



The analysis of the debit and credit card transactions by venue shows that in 2020 the number of debit card purchases at physical acceptance points rose by 7 per cent, while the number of credit card transactions fell by 13 per cent. In the case of online transactions, the number of debit card transactions rose by 35 per cent, while that of credit card transactions was up by 25 per cent.

Breaking down the annual changes to quarters, in the third quarter transactions with debit cards issued in Hungary rose by 14 and 37 per cent at physical acceptance points and in online space, respectively, while in terms of value it increased by 19 per cent and 39 per cent, respectively (Chart 14). In the fourth quarter, with the exception of the value of online debit card purchases, the growth in all debit card indicators declined year-on-year. Accordingly, at the physical acceptance points the number and value of debit card purchases rose by 7 and 14 per cent, while the online debit card purchases increased by 28 and 38 per cent, respectively. The same trend can be observed in credit card transactions. Finally, in the last quarter of the year physical acceptance points and online purchases registered a decline of 16 per cent and a growth of 20 per cent in volume, and a decrease of 10 per cent and a growth of 36 per cent in value, respectively. In this breakdown, the trends are the same as described in the previous paragraph; the number of transactions carried out with online debit cards stagnates, while online credit cards increase, albeit moderately; in terms of value a moderate rise can be observed at both of them. As regards the number of purchases at physical merchants, debit card registered a growth after a decline, while the larger growth observed at credit cards started to decrease. While in terms of value the situation is the same at credit cards, growth at debit cards declined and returned to the original growth level in the third quarter. When examining separately the ratio of debit and credit card transactions also within transactions at physical acceptance points and online transactions, we found that in this breakdown the changes in the ratios do not differ from the overall changes examined in the previous paragraph.

Chart 14: Annual change in the number of debit and credit card purchase transactions in the quarters of 2019 and 2020 by transaction venue

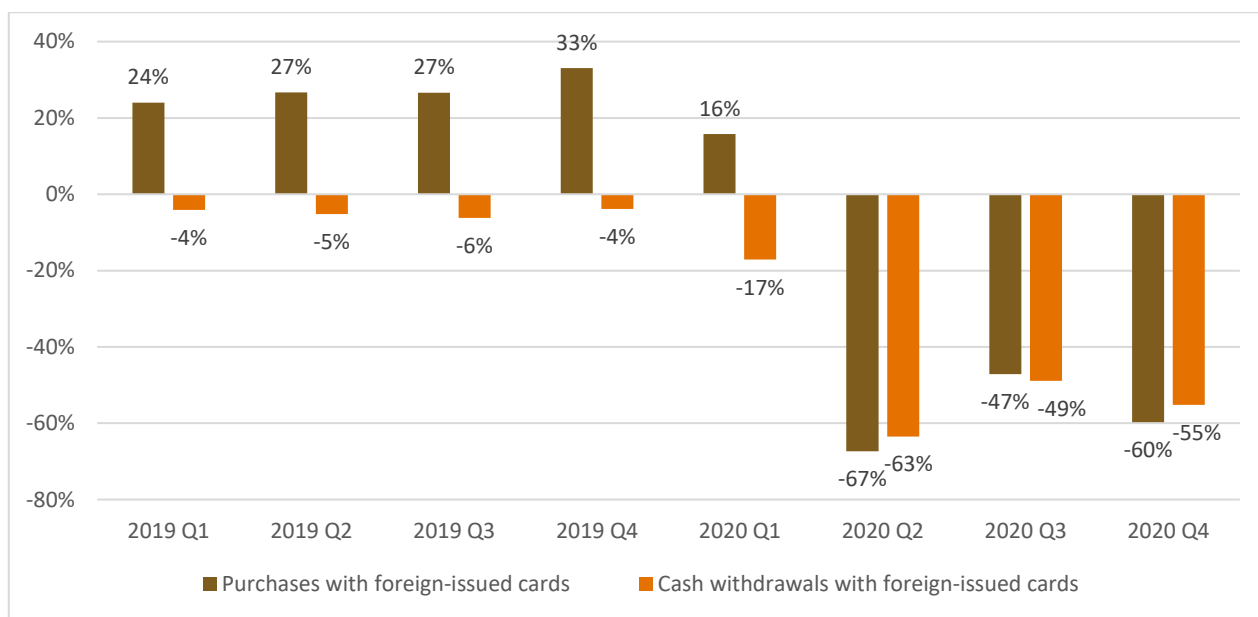


3.3. Payments made with domestic and foreign cards in Hungary

In addition to payments made with domestically issued cards, we have also examined transactions made with foreign cards in Hungary. The impact of travel-related restrictions can still be clearly seen in this breakdown as well. In 2020, the number and value of purchases carried out by cards

issued abroad fell by 45 and 46 per cent, respectively, year-on-year. As regards the number and value of cash withdrawals the decline was 48 and 44 per cent, respectively. The analysis of the annual changes by quarter shows that purchases carried out with cards issued abroad – similarly to the second quarter – fell significantly in the third and fourth quarter of 2020, i.e. by 47 and 60 per cent in volume and by 49 and 59 per cent in value, year-on-year, respectively (Chart 15). As a result of this, in the second quarter of 2020, the ratio of purchases carried out with cards issued in Hungary within the purchases made in Hungary with card rose by almost 5 percentage points to 98 per cent, and this ratio was similar also in the third and fourth quarters. Although compared to the second quarter of 2020 both the number of transactions and value of cash withdrawals in Hungary carried out with cards issued abroad declined to a lesser degree, the year-on-year decline was still significant in the third quarter of 2020, followed by a decrease in the fourth quarter similar to that observed in the second quarter. The rate of the largest decline observed in the second quarter is 63 per cent in volume and 56 per cent in value.

Chart 15: Annual change in the number of transactions carried out in Hungary with cards issued abroad in the quarters of 2019 and 2020

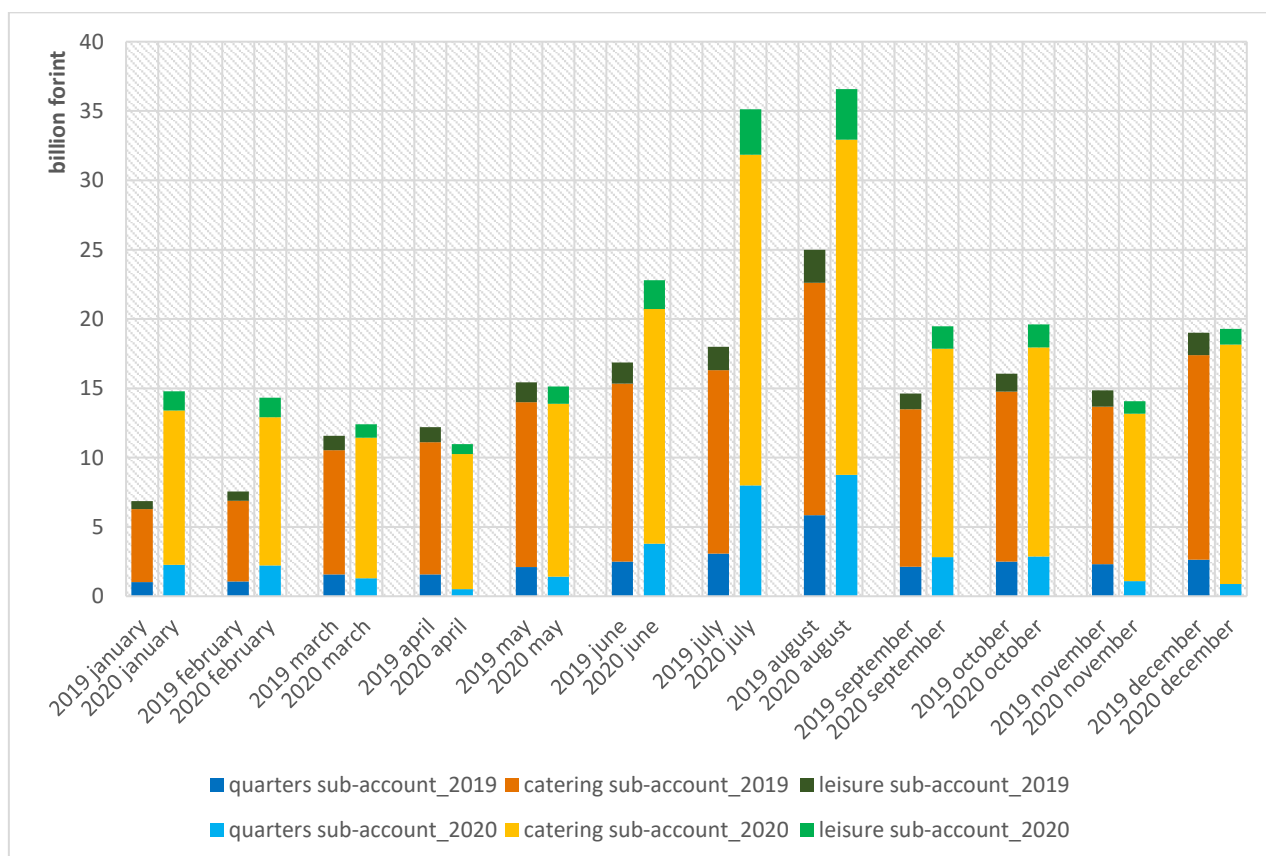


3.4. Turnover of SZÉP cards

As a result of the pandemic situation, in spring 2020 the turnover of the accommodation and leisure sub-accounts of the SZÉP card vouchers significantly decreased. Due to the restrictions most accommodations were closed, and leisure activities were also forbidden. However, the turnover of the catering sub-accounts decreased only to a minimal degree, presumably due to the large growth in the turnover of restaurants offering home delivery services. Due to the pandemic, the government introduced preferential tax rate on SZÉP cards, and increased the maximum amount of the fringe benefit subject to preferential tax rate from HUF 450,000 to HUF 800,000. In many cases employers transferred the allowance to employees as an extra benefit, and thus in summer the available balance of the SZÉP cards also increased. In summer and autumn turnover of all sub-accounts substantially increased due to the lifting of the restrictions introduced in spring and to

the recovery of domestic tourism. Due to the coronavirus, the larger part of the population refrained from travelling abroad. Accordingly, even those who until now typically travelled abroad for holiday, chose a domestic destination in 2020, which may have further increased domestic tourism. In June 2020 the turnover of all sub-accounts reached or exceeded the value registered in 2019; in July and August 2020 the turnover exceeded that of 2019 by more than 50 per cent. The government measures and the substantial increase in the SZÉP card turnover may have significantly contributed to the compensation of the catering sector – hit hardest by the pandemic and the restrictive measures – for the revenues lost in spring. In the fourth quarter of 2020 the turnover of SZÉP cards comes close and even exceeds the values registered in 2019, presumably due to the rise in the turnover of restaurants also offering persistently popular home delivery services. The minimal turnover of the accommodation sub-account is presumably generated by the bookings for summer 2021.

Chart 16: Turnover of SZÉP card vouchers by sub-accounts in 2019 and 2020 by month



3.5. Changes in cash usage patterns

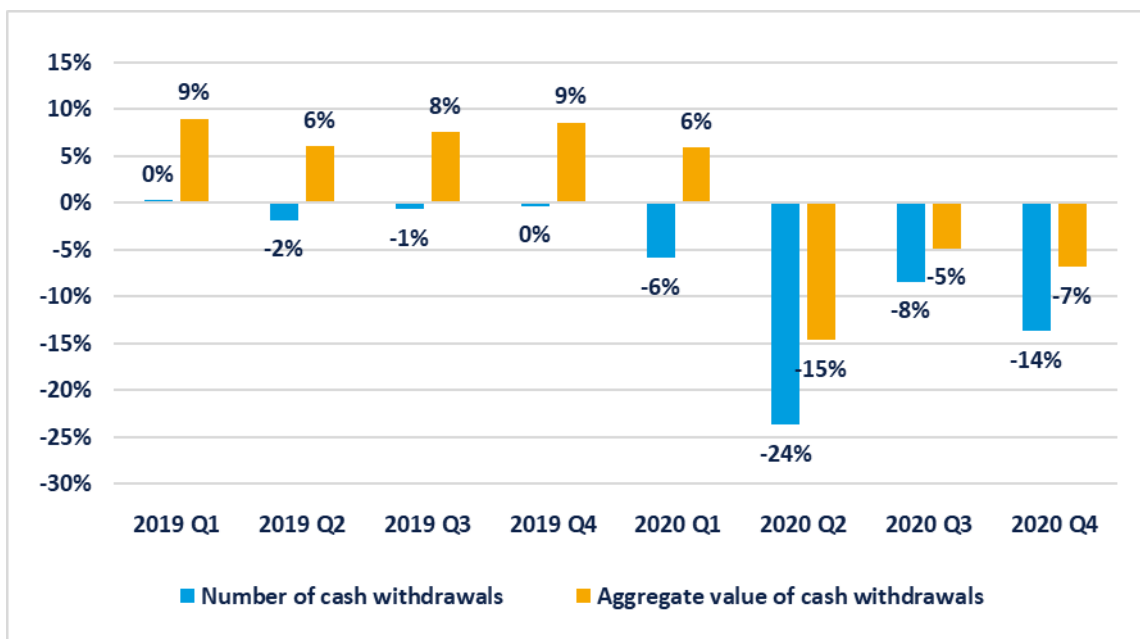
The impacts of the coronavirus pandemic and the related restrictions could be clearly observed in credit institutions' cash turnover and also in households' cash usage patterns. Information on the changes in the first indicator is provided by credit institutions' data supply to the central bank, while in the latter by the OCR database.

3.5.1. Cash withdrawal and cash deposit turnover

Generally, it can be stated that credit institutions perform the largest part of the cash withdrawals through their ATM network, while most of the cash deposits are made over-the-counter through the branch network. However, in the latter case the various types of cash-in and cash deposit machines handled by the clients, have also become increasingly popular.

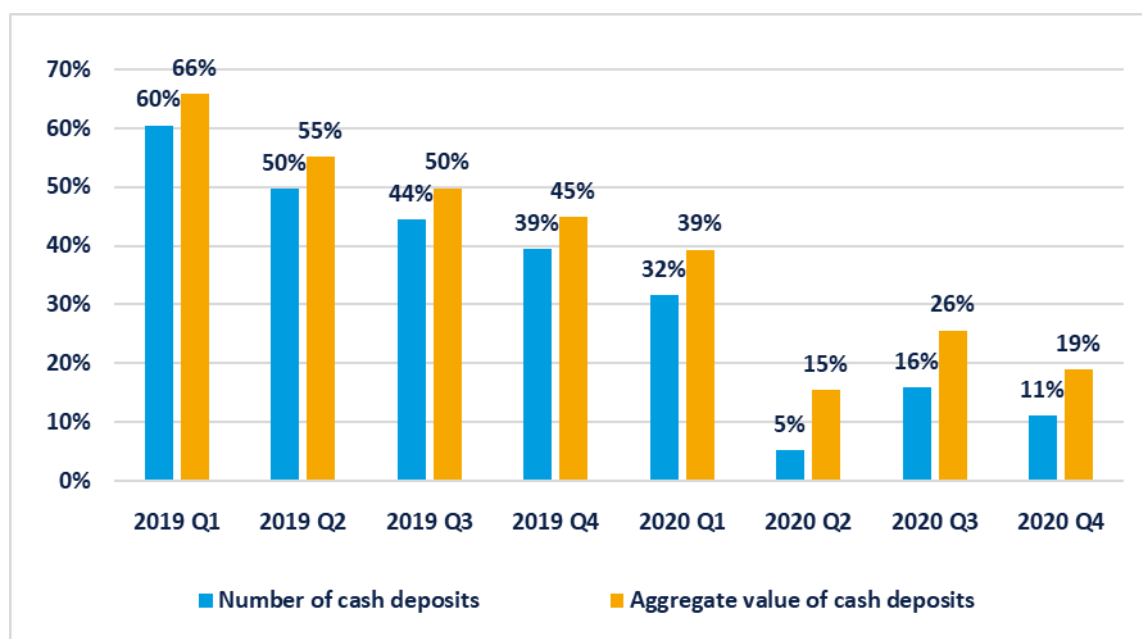
During the panic buying observed in March at retailers due to the coronavirus pandemic, credit institutions reported extremely high ATM cash withdrawal levels for a few days. However, the aggregate data reflected no major growth even in the first quarter of 2020, while the rest of the year was clearly characterised by declining turnover (see Chart 17). In the third quarter, 24.4 million cash withdrawals were made with cards issued in Hungary, which is an 8 per cent decline year-on-year, while the aggregate value of cash withdrawals amounted to HUF 2,074 billion, representing a decline of 5 per cent. In the fourth quarter, the same indicators fell by 14 and 7 per cent, as a result of which the number of cash withdrawals was 23.2 million and the aggregate value was HUF 2,132 billion.

Chart 17: Annual change in the value and number of cash withdrawals with cards issued in Hungary, in the quarters of 2019 and 2020



By contrast, cash deposits followed a steadily increasing trend both in terms of number and value, which continued also in the second half of the year, albeit at a much slower rate than observed in 2019 (see Chart 17). In the third quarter of 2020, almost 2 million cash deposits were made with cards issued in Hungary, representing a growth of 16 per cent on an annual basis. The aggregate value of those reached HUF 427.2 billion, representing a rise of 26 per cent. In the fourth quarter, the same indicators registered a growth of 11 and 19 per cent, respectively, as a result of which the volume of cash deposits slightly exceeded 2.04 million with an aggregate value of HUF 434.6 billion.

Chart 18: Annual change in the value and number of cash deposits with cards issued in Hungary, in the quarters of 2019 and 2020



The volume of cash withdrawn and deposited over-the-counter in bank branches changed significantly in a short time during the first wave of the coronavirus pandemic. In March and April the volume of cash received by credit institutions in this way fell short of the data of preceding months by roughly HUF 80 billion, which also influenced to some extent the demand towards the central bank. No deviation of similar magnitude could be observed in the second half of the year. However, the volume of cash inflow through branches once again started to decline slowly during the second wave of the pandemic, from September 2020. The phenomenon is also clearly attributable to credit institutions' efforts to divert as many clients as possible from their branches to self-service cash deposit machines.

As a result of the fast rise in the number of such machines operated by the sector (it doubled in the past 3-4 years and by 2020 it came close to 800) and in their aggregate turnover, the total value of the banknotes deposited through this channel rose by almost 35 per cent in 2020, in December exceeding HUF 150 billion. Owing to the dynamic growth, in 2020 roughly a quarter of the cash deposits made by clients were executed through these machines.

3.5.2. Turnover of cash-in-transit companies

The volume of banknotes taken over by cash-in-transit companies from retailers is a good indicator of cash usage for transaction purposes. During the first wave of the pandemic, and the related strict lockdowns in April and May it fell by almost 30 per cent compared to the preceding months. No similar drastic decline was observed in autumn, but the seasonal growth typical for the period fell short of the usual rate. As regards 2020 as a whole, the aggregate value of banknotes deposited by the largest retail clients fell by roughly HUF 125 billion, i.e. 8 per cent. The fall implies a general large-scale decline in certain retail sectors as well as that in the periods under review, consumers

may have preferred cashless payments, with special regard to contactless solutions, to a larger degree than before. More precise information on these phenomena is provided by the analysis of the OCR database.

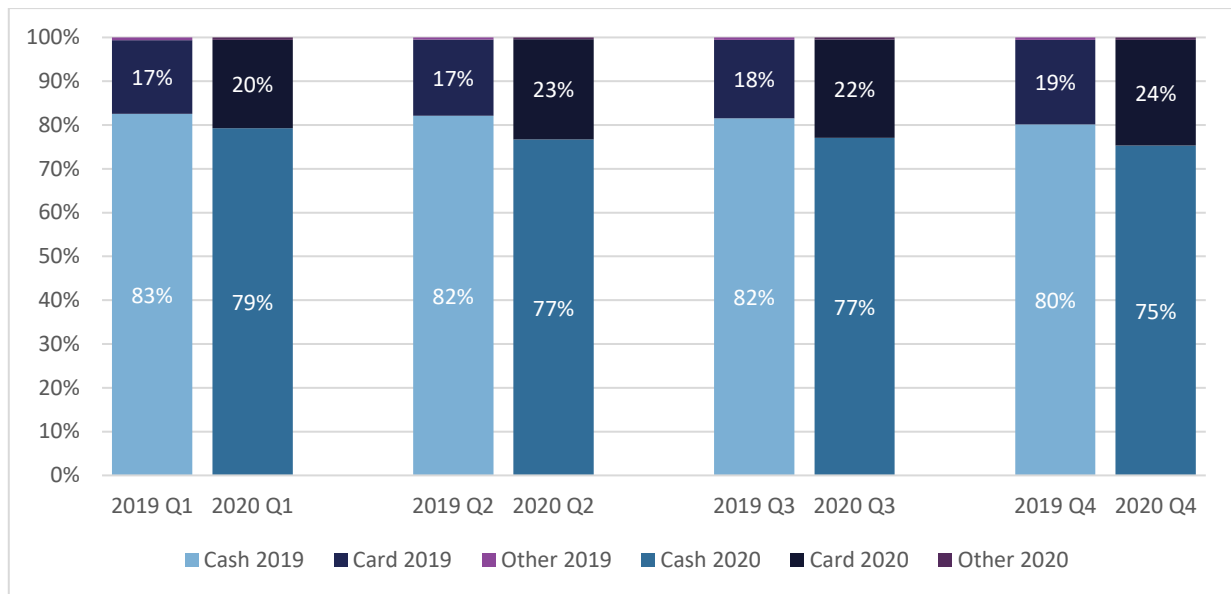
4. CHANGES IN THE VOLUME AND VALUE OF PAYMENT TRANSACTIONS AND IN THE RATIOS OF PAYMENT METHODS ON ONLINE CASH REGISTERS

As for payments made in retail sales and in case of using other services in Hungary, we have examined them in more detail on the basis of a database of receipt-level data on online cash registers operated by the National Tax and Customs Administration of Hungary. In addition to the changes in the values of purchases aggregated by payment methods, presented in the second chapter, we also analysed the changes in payment methods observed in this database in terms of region, time and value categories.

4.1. Aggregate changes in the proportion of payment methods

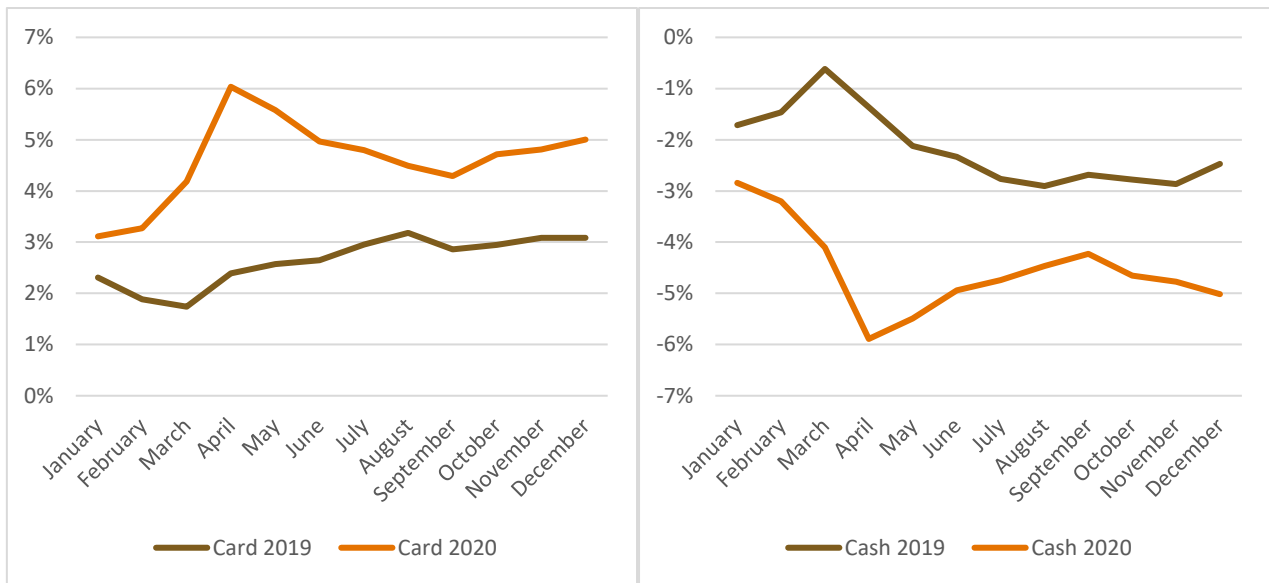
Because of the changed payment habits due to the Covid-19 pandemic, the share of card purchases within the payments made on online cash registers increased much more than in the previous years. During 2020 as a whole, 77 per cent of the volume of purchases took place in cash, and 22 per cent electronically. The ratio of card payments rose significantly, by 5 percentage points compared to the breakdown in 2019. In addition to these two payment methods, other payment methods also occur, such as loyalty cards and SZÉP card, but the ratio of these is negligible. In terms of value, 59 per cent of the transactions were carried out in cash and 41 per cent of them electronically, in 2020. In a quarterly breakdown the share of card payments in the second quarter of 2020 was already 23 per cent compared to 17 per cent registered last year. Maintaining this level in the third and fourth quarters, with a rate of 22 and 24 per cent, respectively (Chart 19). Accordingly, in the second quarter, the share of cash payments fell to 77 per cent from the 82 per cent of the previous year, while in the third and fourth quarters of 2020 this ratio was 77 and 75 per cent, respectively.

Chart 19: Proportion of payment methods in the quarters of 2019 and 2020



In addition to the annual change, the monthly shifts also show that the share of card payments increased notably as early as March, but mainly in April, compared to the previous months, albeit the number of transactions declined in the period under review in both payment segments (Chart 20). Although the growth rate of the ratio of card payments decreased somewhat from May year-on-year, the annual increase of over 4 percentage points – being the smallest increase – was still significantly higher than the 2–3 percentage point growth observed in previous years. From September the growth in the share of cards was once again higher, with the annual percentage change already reaching 5 percentage points in December. Over the same period, the proportion of the value of card payments also rose remarkably: within the total value of payments made on OCRs, it increased from 34-35 per cent to 40-42 per cent. This may mean that, while cash remains the most commonly used household payment method, as a result of the changed payment habits in the pandemic situation, some of the substantial increases in the proportion of electronic payment methods may become fixed permanently. However, in the current situation it is difficult to estimate what part of the drastically falling cash transactions was channelled to electronic payments and what is the ratio of purchases cancelled in full due to the lockdowns.

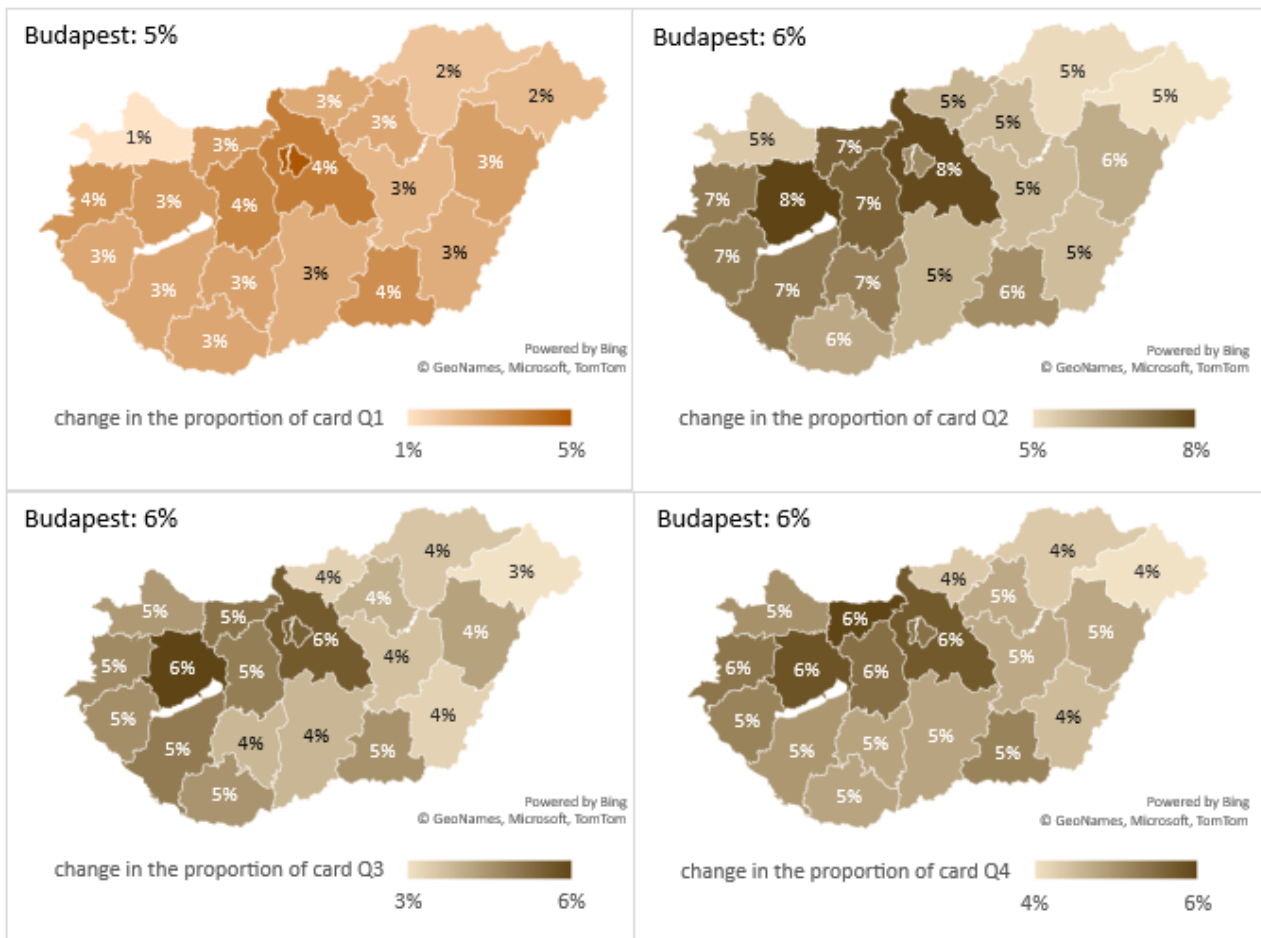
Chart 20: Year-on-year percentage point changes in the proportion of card and cash payments of 2019 and 2020 by month



4.2. Regional changes in the proportion of card and cash payments

The upward trend in the share of card payments within the number of purchases was regionally different. In the first quarter, an increase of 1 to 5 percentage points was observed, and in the second quarter, the annual change was between 5 and 8 percentage points. (Chart 21) While in the first quarter, the largest increase was in the capital, Budapest, in the second quarter, it was observed in Pest County and Veszprém County, presumably due to the fact that commuters, giving preference to card payments, spent less time in Budapest, which impacted these areas the most. In the third and fourth quarters the rise in the share of card payments was observed in a similar breakdown and degree. The share of cash payments changed in the opposite direction to the share of card payments.

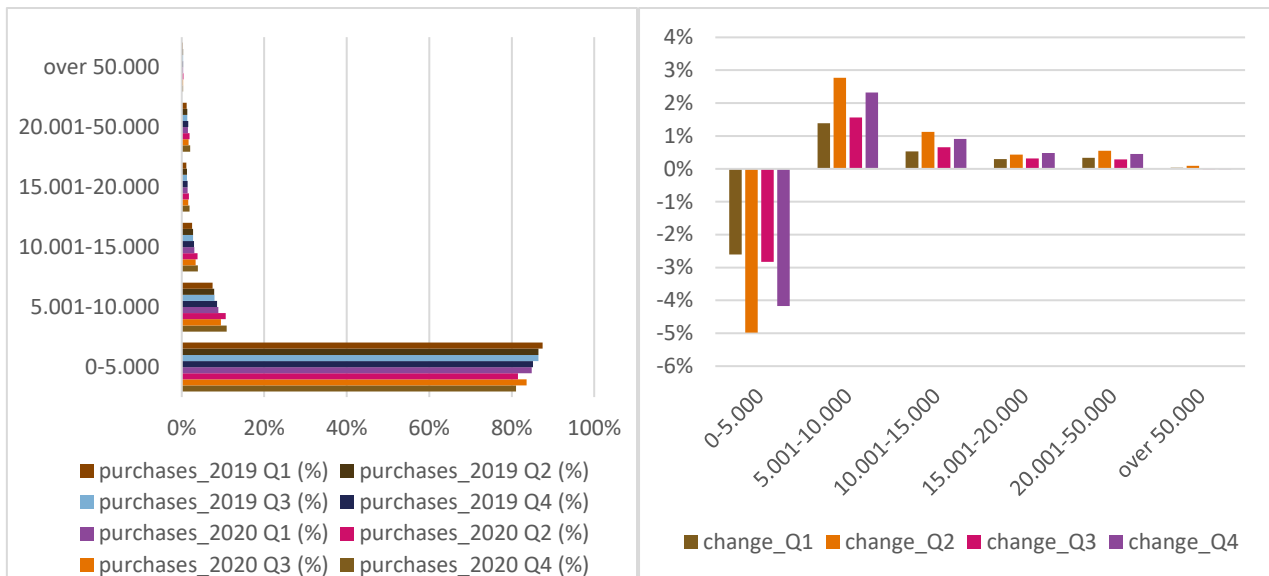
Chart 21: Regional changes in the proportion of card payments (annual change in percentage points) in the quarters of 2020



4.3. Distribution by value threshold

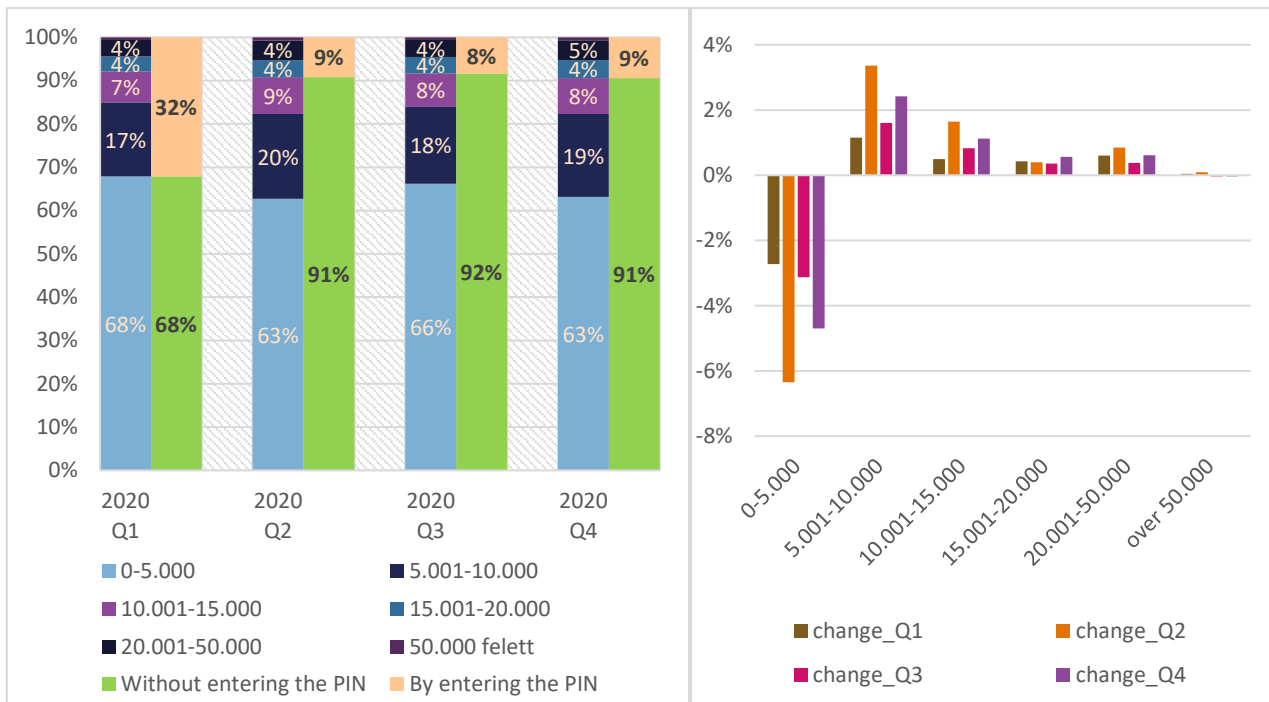
When examined the transactions by value threshold, a large proportion – 96 per cent – of purchases both in the first and second half of 2020 were below HUF 15,000. Starting from the second quarter, the proportion of purchases in the ranges of different values changed more than usual. Part of the purchase transactions was regrouped from the range below HUF 5,000 into the higher value intervals, presumably because due to the virus the population did shopping less frequently but in higher amounts (Chart 22).

Chart 22: Distribution of the number of purchases and annual percentage point change in the distribution within the given payment categories in the quarters of 2019 and 2020



Within total purchases presented in the previous paragraph, we also looked at the distribution of payment categories specifically for cards. It also applies to card payments that a large ratio of them, i.e. 91 per cent both in the first and second half of 2020, were below HUF 15,000. (Chart 23) Within this, in the more detailed value categories, however, the proportions differ more from the distribution of all purchases. While the ratio of purchases below HUF 5,000 within all purchases is around 80-90 per cent, this ratio is only 60-70 per cent at card payments; i.e. higher value payments are more typical for card payments than for cash payments. In the case of very low-value transactions, the factors influencing payment habits may differ. In terms of regrouping among value ranges, in the first quarter, in card payments there was a change of similar direction to all purchases. During the two waves of the pandemic, in the second and fourth quarters, compared to total turnover, the decrease in the ratio of transactions below HUF 5,000 and the increase in the ratio of categories of higher value, mainly in the ratio of payments between HUF 5,000–10,000 and HUF 10,000–15,000) was larger.

Chart 23: Distribution of the number of card purchases among the value categories and annual percentage point change in the distribution in the quarters of 2020



In order to ensure that payments without physical contact can be made in as many cases as possible, the MNB initiated the raising of the HUF 5,000 limit for contactless payments without a PIN code to HUF 15,000. This limit increase alone already represented larger penetration by 20 percentage points compared to the pre-pandemic periods and the impact was further strengthened by the fact that as a result of the changes in payment habits, caused by the virus, observed from the second quarter of 2020, the HUF 5,000 limit would have resulted in lower penetration than before. Thus increasing the limit to HUF 15,000 represented by 28 percentage points higher penetration than it would have been under the HUF 5,000 limit. Accordingly, payment without physical contact was feasible in 91 per cent of card payments.

When examining the distribution of the various payment methods by value categories (Chart 24) we found that at higher value payments the proportion of card payments is typically higher than at lower value payments, but this trend reverses above HUF 50,000 and the proportion of cash payments increases again. This surprising phenomenon is presumably attributable to the fact that when making higher value purchases part of the population use their cash savings. Looking at changes over time, there has been a strong increase in the share of card payments across all value categories, with an increase of between 4-7 percentage points in the second quarter of 2020 and between 3-10 percentage points in the third and fourth quarters of 2020, compared to an increase of between 3-5 percentage points in the first quarter. (Chart 25).

Chart 24: Ratio of payment methods based on number of transactions within value categories in the half-years of 2019 and 2020

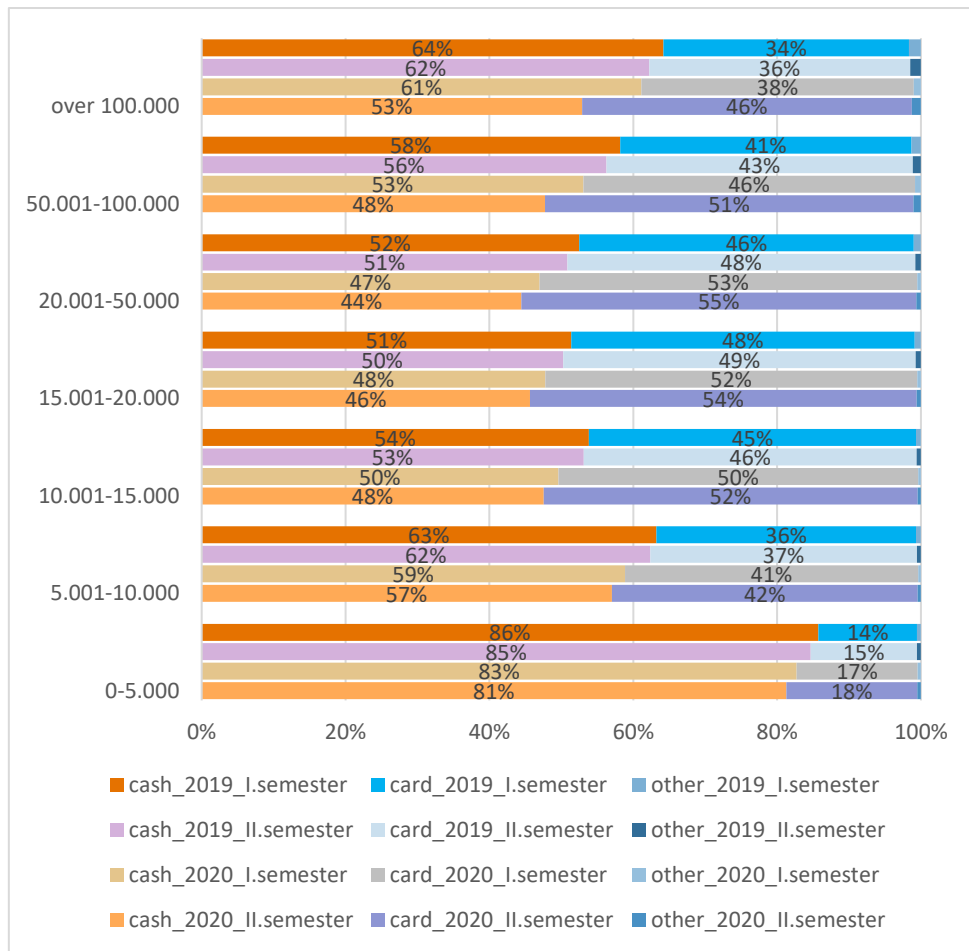
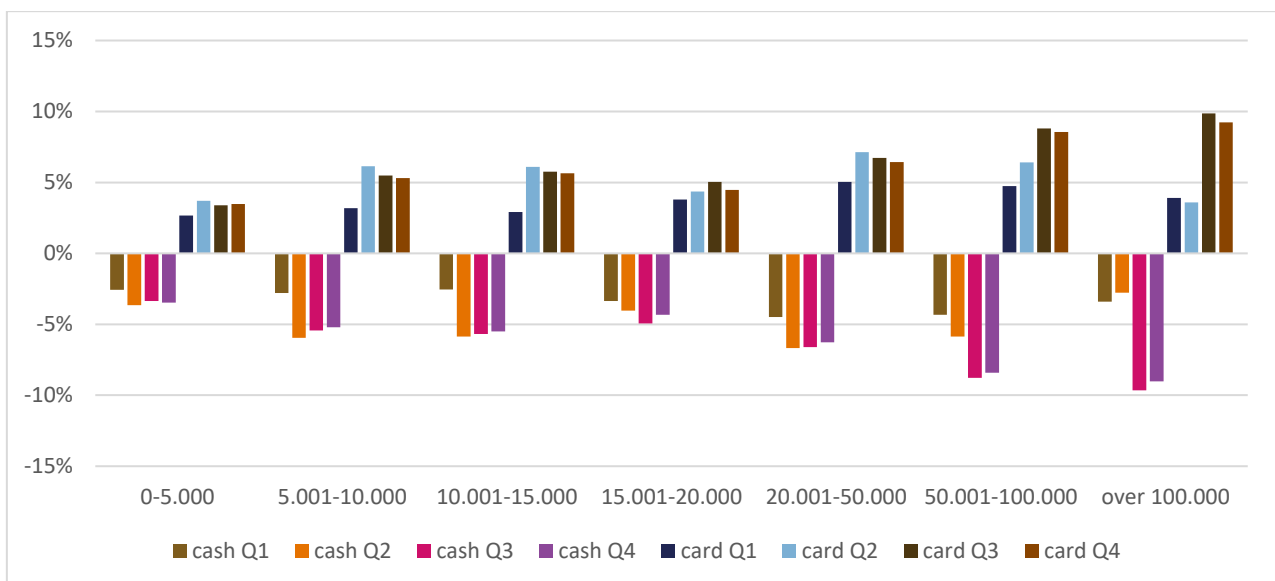


Chart 25: Annual change in the ratio of payment methods based on number of transactions by purchase value categories in the quarters of 2020



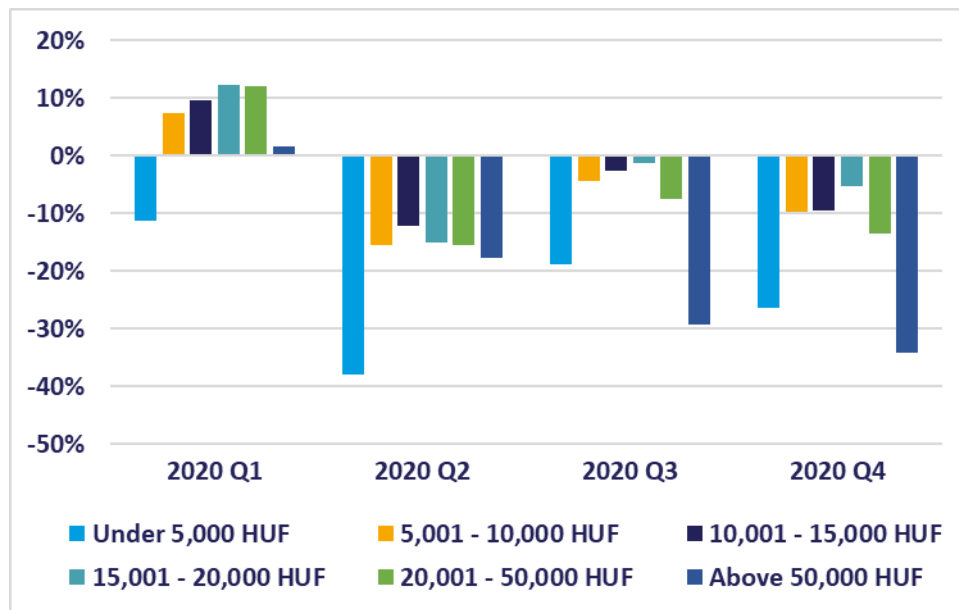
4.4. Impacts of the pandemic on cash payments

In line with the foregoing, the decline in the number and value of payment transactions carried out on online cash registers continued in the second wave of the coronavirus pandemic, and – as result of the restrictions connected to it – also in the second half of 2020, with particularly large impact on cash payments and lower value transactions. Payments with banknotes and coins – contrary to card usage – significantly declined in all months starting from March compared to the same periods of 2019, both in terms of their aggregate value and volume. The decline was less significant in the period between July and September, when no restrictions were in place. However, after the onset of the second wave of the pandemic, in the fourth quarter it reached 25 per cent based on the number of transactions and 18 per cent based on aggregate value.

It should be noted that the major decline is primarily attributable to the general fall in the turnover of sectors using online cash registers, in connection with the general decline in personal shopping, while the spread of electronic payments is only partly responsible for the changes. In addition, as regards 2020 as a whole, cash continues to be the most widely used payment instrument in Hungary, both in terms of volume (77 per cent) and aggregate value (59 per cent). This is also true when considering only the fourth quarter of the year, in which the share of cash transactions reached 75.4 per cent in terms of volume and 57.4 per cent in terms of aggregate value, meaning a historical low point.

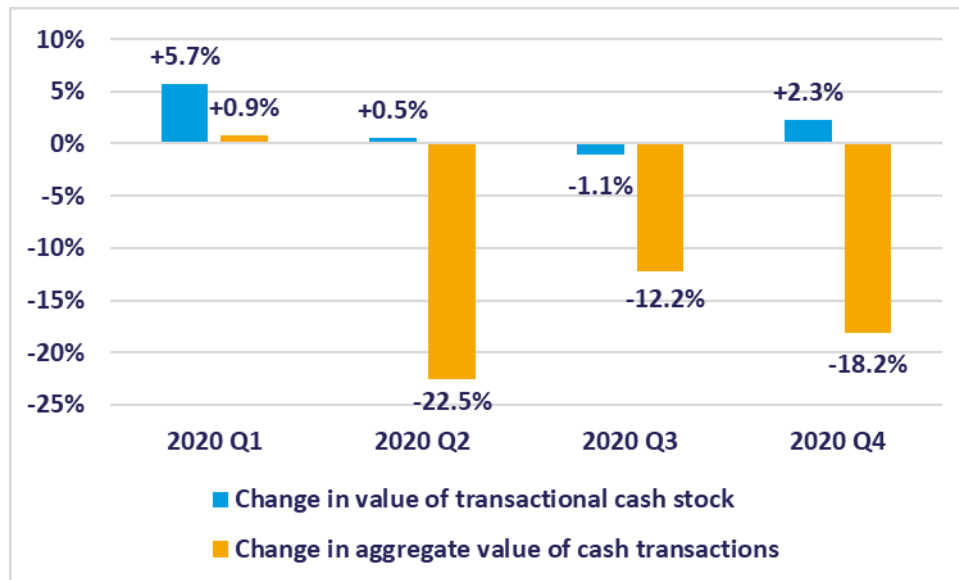
The decline accompanying the onset of the coronavirus pandemic affected cash payments of different value to a varying degree, presumably also due to the fact that the restrictions to contain the pandemic had special impact on ad hoc low-value spending (e.g. newsvendors, snack bars, food and beverage vending machines). The decrease was above average for transactions below HUF 5,000, which accounted for around 90 per cent of total transactions in 2019, but by the fourth quarter of 2020 this ratio declined to 86.9 per cent. All this was also accompanied by a continuous rise in the average value of cash payments, which was HUF 2,404 in 2019 and HUF 2,668 in 2020, representing a rise of almost 11 per cent. For the details of the change in the number of cash payments in the individual value categories see Chart 26.

Chart 26: Annual change in the number of cash purchases within the given value categories in the quarters of 2020



An important lesson for the second half of 2020 is that a sustained decline in the number and value of cash payments does not necessarily imply a noticeable reduction in the stock of banknotes in circulation, even for denominations where savings demand is presumably negligible (HUF 500, 1,000, 2,000 and 5,000 banknotes). The aggregated value of the stock of these banknotes (adjusted for the one-off decrease in stocks due to the withdrawal of the old series of HUF 500 banknotes at the end of 2019) in the fourth quarter of 2020, being the lowest point till now in cash payment transactions, showed an increase of 2.3 per cent, or HUF 6.4 billion, compared to the same period in 2019 (see Chart 27). If the share of the stock of HUF 10,000 banknotes supposedly serving transaction purposes is also taken into account, which, according to conservative estimates, may be as high as 40-50 per cent, the growth rate for this period exceeds 8 per cent. The phenomenon is presumably mostly attributable to the deceleration in the velocity of banknotes.

Chart 27: Average annual change in the average stock of low-denomination banknotes in circulation in the quarters of 2020 (based on aggregate value), compared to the change in the aggregate value of cash transactions



5. HOUSEHOLD SURVEY ON THE IMPACT OF CORONAVIRUS ON PAYMENT HABITS

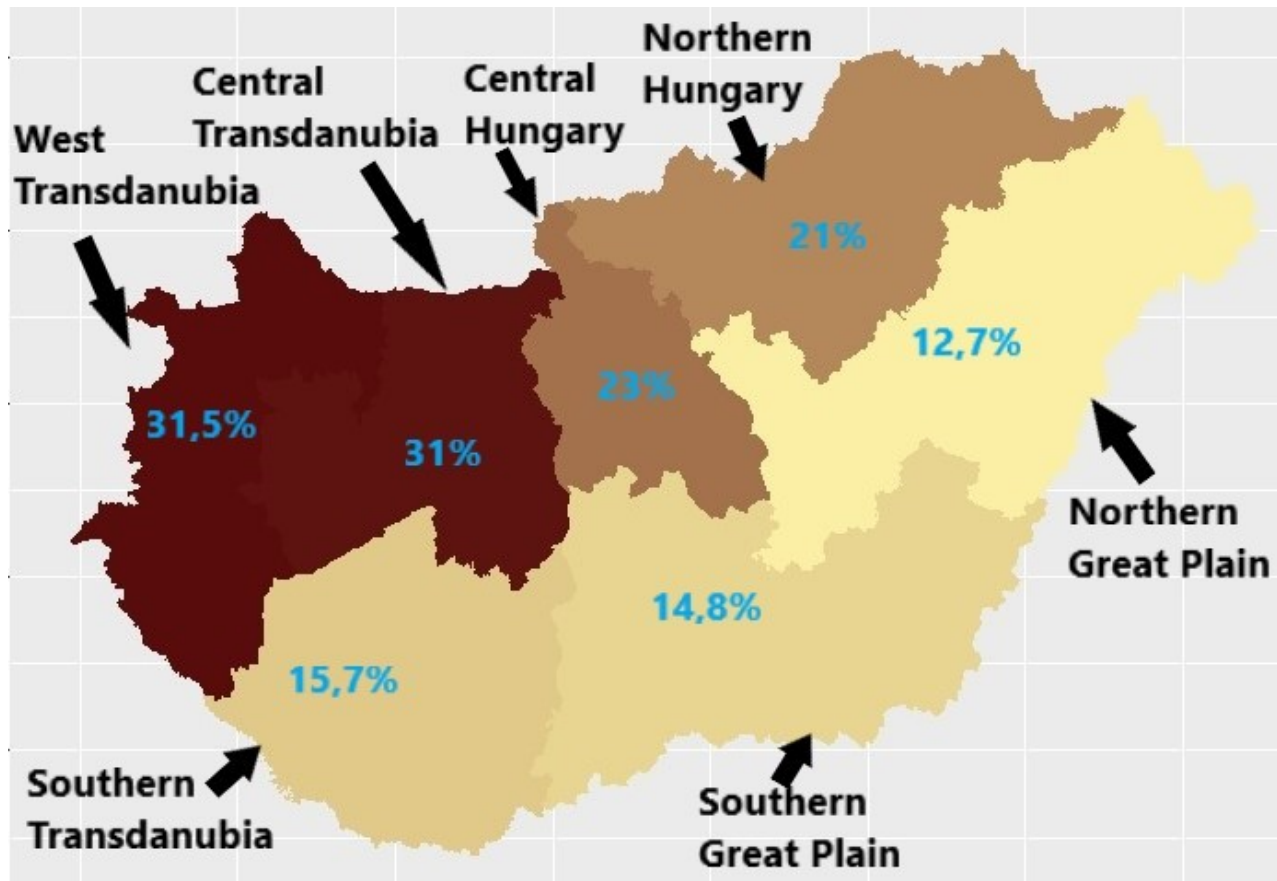
In autumn 2020 the MNB performed a questionnaire-based survey in the population on payment habits, where it also assessed the impact of the coronavirus pandemic on payment habits. The questionnaire was filled in by 1,500 respondents, and the research sample may be deemed representative based on age, sex and place of residence. The survey helps us get a more accurate picture of the impact of the coronavirus pandemic on household payments.

25 per cent of the respondents noted that they do shopping less frequently due to the coronavirus pandemic. Based on our previous analyses, it can be seen that the value of the consumer basket increased and thus the number of purchases also decreased. A larger ratio of the younger generation and high-income respondents reported that they spend less; we may conclude from this that the introduction of the restrictive measures had greater impact on their life-style. Several services and leisure occupations that were typically used by young people or high-income persons (leisure sports, cinema, visiting bars, shopping in malls) were suspended or transformed, which also resulted in a decrease in the number of purchases.

About one fifth of the respondents paid electronically more frequently due to the coronavirus pandemic. When analysed by age, this ratio is slightly higher for those under 60 and slightly lower for those over 60, with 10 per cent of the latter age group saying that they used electronic payment more often. In a breakdown by regions, the pandemic influenced to the largest degree the payment habits of those living in the Western and Central Transdanubia and Central Hungary regions. These are the most developed regions of Hungary both in terms of economic development and the development of the card payment accepting network. Nearly the third of the respondents living in those regions noted that they paid more frequently electronically due to the pandemic. Based on

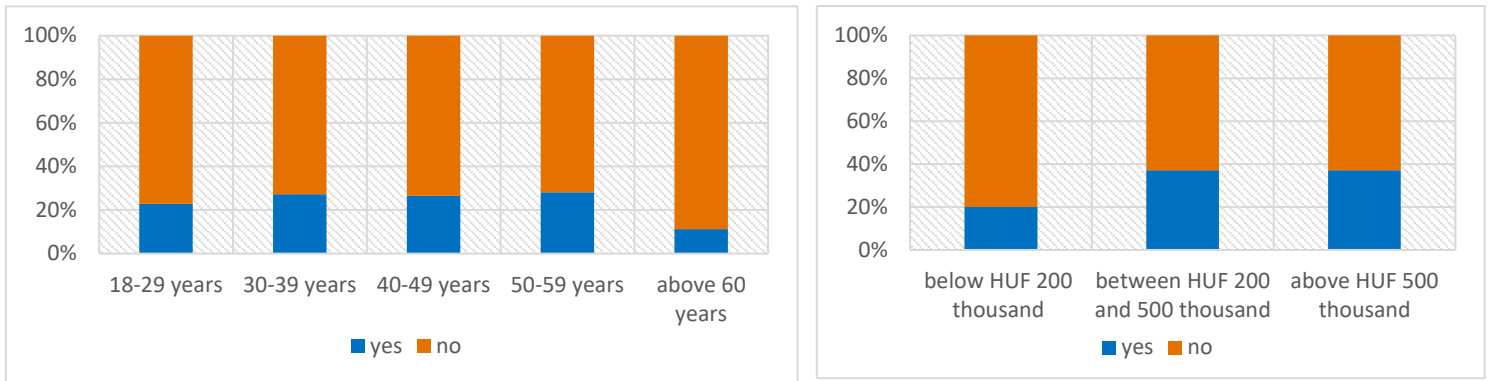
our previous analyses the ratio of shops offering electronic acceptance is high in these regions, and thus consumers usually may choose between electronic payment and cash payment. Accordingly, in these regions the maturity of the acceptance network may have supported the rise in ratio of electronic transactions.

Chart 28: Due to the pandemic situation, respondents pay more often electronically (ratio of respondents paying electronically more frequently)



According to the foregoing, as a result of the coronavirus pandemic the ratio of electronic transactions significantly grew, which is also in line with the results of the questionnaire. Almost one third of the respondents noted that they preferred paying by card where it is possible, that is, irrespective of the pandemic, they give preference to card payment. About 15 per cent of those who previously did not give preference to payment by card noted that due to the pandemic situation use their card more frequently. Accordingly, as a result of the pandemic, even those consumers may have opted for electronic payment who previously had not given preference to this payment method.

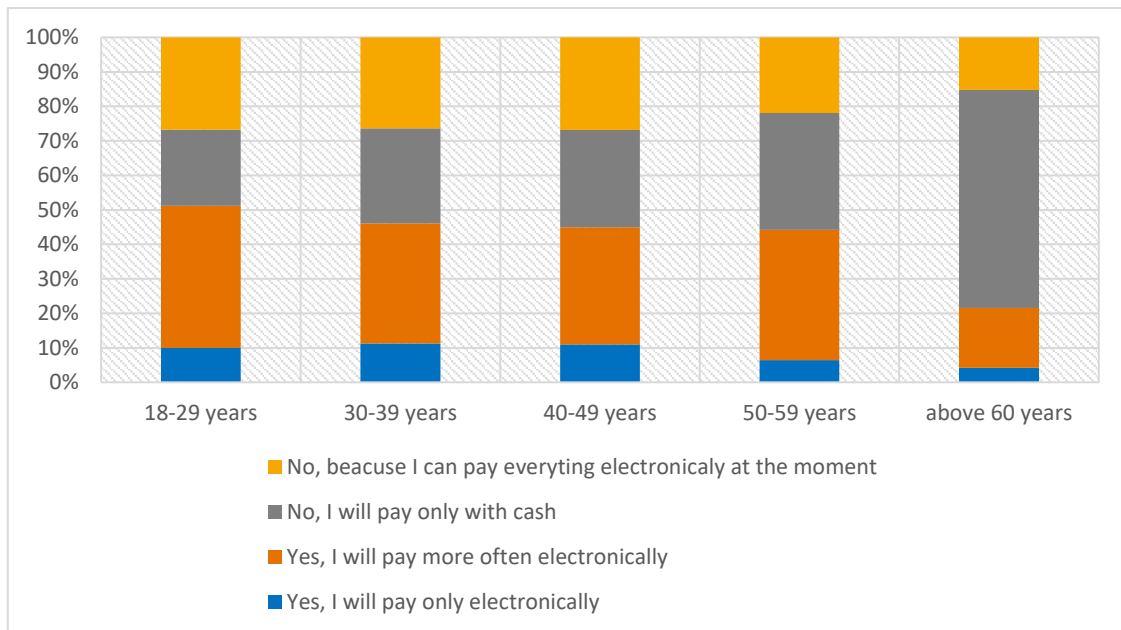
Chart 29: Consumers who due to the coronavirus pandemic paid electronically more frequently than before, broken down by age group and income category



Almost forty per cent of the respondents noted that their payment habits had changed as a result of the pandemic. After lifting the restrictions connected to the first wave of the pandemic, 20 per cent of the respondents paid more frequently by card, 5 per cent of them made online purchases more frequently and 1-2 per cent of them paid to their friends by credit transfer more often. Only the majority of the over-60 age group said that their payment habits had not changed; accordingly, the rise in the number of card, online and credit transfer payments was mainly typical in the age group below 60.

Only 20-25 per cent of the respondents below 60 said that they would continue to pay in cash only; more than a quarter of the respondents (half of the high-income respondents) noted that even before they had given preference to electronic payments wherever it was possible. As a result of the coronavirus pandemic 37 per cent of the respondents below 60 said that they would pay electronically more frequently and almost 10 per cent of them said that they would pay electronically only. Those over 60 were less keen on electronic transactions; 63 per cent of them said that they would continue to pay in cash only. 41 per cent of the respondents said that they had heard that from 1 January 2021 shops with online cash register would be obliged to provide the option of electronic payment, which may increase the ratio of electronic transactions further in the future.

Chart 30: Do you believe that you will pay electronically more often due to the mandatory provision of the option of electronic payment? In a breakdown by age groups



6. SUMMARY

In Hungary the first wave of the Covid-19 pandemic commenced in March 2020, and the state of emergency and stringent restrictions introduced due to this were in force until end of June. After the easing in summer, the second wave of the pandemic commenced in August 2020 and it was accompanied by long-term restrictions of slightly different structure than before. The coronavirus pandemic clearly strengthened the use of electronic payment methods and curbed mostly the low-value cash transactions, although during the first wave a general and significant decline could be observed in all payment methods due to consumers' precautionary considerations and the general decline in economic activity.

In terms of payments, the clear winner of the protracted Covid-19 pandemic was online card payment. The value of internet purchases, especially domestically, grew, exceeding significantly the already strong expansion seen previously. In addition to the drastic fall in the number of cash transactions, due to the general caution on travel and the restrictions imposed, there was a significant decline mainly in cross-border card payments in situations requiring personal presence and in domestic transactions carried out with cards issued abroad. When examining card payment transactions by card type we found that transactions carried out with credit card were affected by the virus to a larger degree: while here a decline was registered both in terms of volume and value, debit card purchases continued to rise in 2020, albeit more moderately than in 2019.

In summer, once the government restrictions have been lifted, the turnover of SZÉP cards, used in the fringe benefit scheme, significantly exceeded the value registered in previous year every month. This may have greatly contributed to the partial compensation of the catering sector, hit hardest by the pandemic, for its lost revenues.

As a result of raising the limit for contactless payments without a PIN code to HUF 15,000, initiated by the MNB, and the persistent change in consumer habits due to the first wave of the pandemic, 91 per cent of card transactions could be paid for without physical contact, which means by 28 percentage points higher penetration than it would have been under the HUF 5,000 limit. This supported card payments also due to the fact that part of the card payments was regrouped from the range below HUF 5,000 into the higher value ranges, probably because of the change in purchasing habits due to the virus. This measure may support the use of electronic payments also in the longer run.

Apart from the first wave, the number of one-off HUF credit transfers grew year-on-year. By contrast, the number of foreign currency credit transfers decreased both during the first wave and in summer. The number of batch credit transfers and direct debits as well as of credit transfer to the Hungarian State Treasury significantly decreased during the first wave and it came close to previous year's level in summer, while the number of transactions once again decreased during the second wave. The large decline in the number of transactions may be caused by the fact that as a result of the moratorium on loan instalments, the tax allowances and wage subsidy, the number of loan, wage and tax payments decreased. In the last months of the year the fall in the number of transactions came close to the decline observed in the first wave. Based on the changes in the value distribution of credit transfers, it is probable that, partly due to the pandemic, a part of low-value cash transactions may have been channelled into the instant payment system launched in early March 2020.

Based on receipt data of online cash registers, the number of recorded purchase transactions significantly declined in 2020, which impacted particularly the cash payments. As a result of this, the ratio of card payments dynamically rose, which was particularly large in April, May and then in December. Thus in terms of value already 40 per cent of the annual purchases were carried out electronically in 2020 and the ratio of card payments rose by 5 per cent to 22 per cent also in terms of number of transactions, being the largest annual growth since the existence of the online cash register database.

Despite a significant decline in the number and total value of cash payment transactions, the volume of cash in circulation increased by almost 10 per cent year-on-year. However, this cannot be deemed exceptional neither compared to the trends of recent years nor in the light of relevant international tendencies. The main driver of growth has been the demand for large denomination banknotes, which is likely to be driven by savings and accumulation of cash, a phenomenon that is common during economic and social uncertainties worldwide and has been experienced in almost all developed economies during 2020. There was a clear decline also in cash withdrawals, while both the number and value of cash deposits rose compared to the same period of 2019. This latter growth presumably was related to the decline in over-the-counter cash transactions.

Similarly to card transactions, as a result of the pandemic, the decrease in cash payments was observed also mostly in the case of small value purchases below HUF 5,000, resulting in a fall in coin demand by almost a third compared to previous years. However, no similar trend was

observed in the area of low-denomination banknotes; moreover, in certain denominations the volume in circulation even rose slightly.

Based on the data of the questionnaire-based household survey, examining specifically the change in shopping patterns, an increasing part of the population opts for electronic payments due to the coronavirus pandemic, which is in line with the results obtained from various databases.

Overall, it can be said that, in terms of the share 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 will be lasting. However, several factors point to the possibility of further increase in the share of electronic payments. First, due to legal requirements, as of 1 January 2021, the possibility of electronic payment must be provided for all payments at online cash registers, which will allow customers in tens of thousands of new stores to choose an electronic payment method instead of cash. On the other hand, since the launch of instant payments in March 2020 – uniquely in the world mandatory for all payment actors, and thus available to all clients of all banks – credit transfer, in addition to card payments, also may represent a real alternative to cash payment in many payment situations. In the fourth quarter of 2020, part of the banks have already introduced solutions built on instant payments. In 2021, more and more banks and other payment service providers will be expected to emerge with new payment services that, based on instant payment, provide convenient, fast and cheap electronic payment solutions for individuals, businesses and merchants as well, for example merchant side QR code generating applications that are alternatives to card acceptance in the area of electronic payments.