MAGYAR NEMZETI BANK

Payments and Securities Settlements

Payment flows of interbank payment and settlement systems in 2009

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The annual report about the payment flows in interbank systems analyses the year 2009 turnover of the systems operated at the MNB and of the ICS operated by GIRO in the following framework:

I. Data and charts relative to all payment transactions (VIBER, ICS, InForex)
II. Data and payment flows of individual payment systems
    1. Payment flows in the ICS
    2. Payment flows in VIBER
    3. Payment flows in VIBER and the MNB's home accounting system
    4. Payment transactions carried out by the Hungarian Post[1]
III. Comparison of the payment flows of individual systems

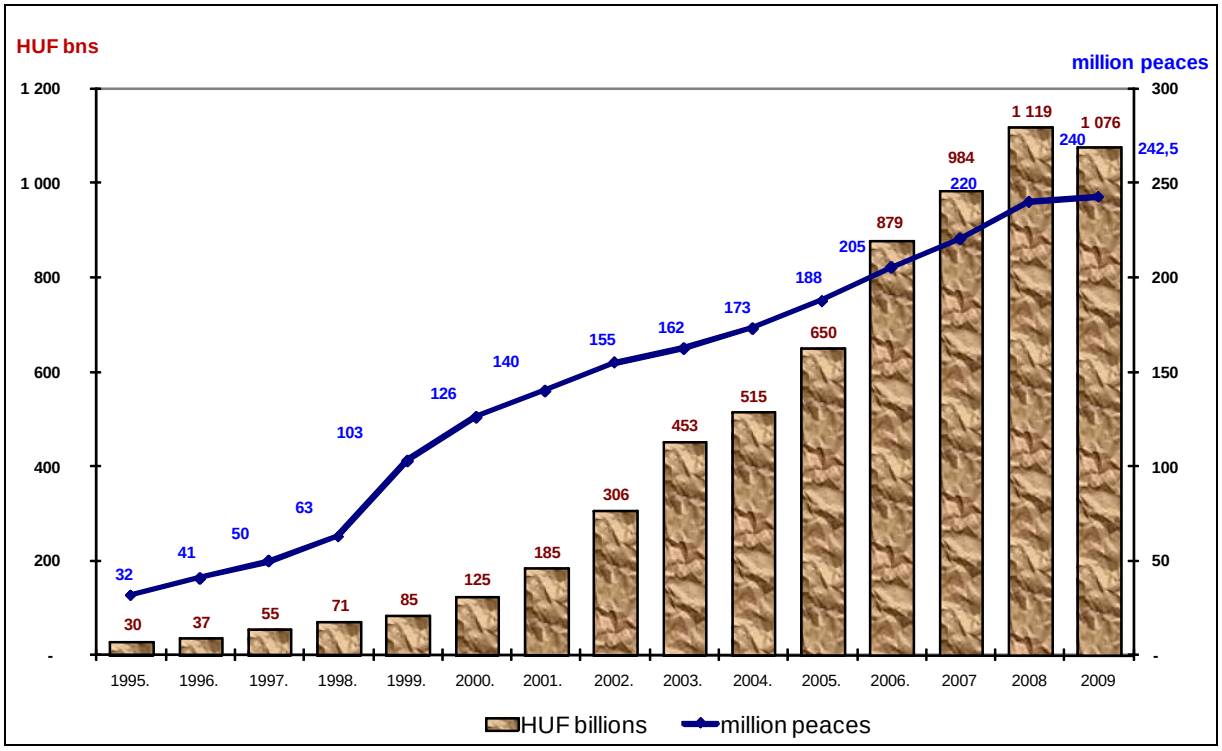
The charts and tables mainly contain time series in annual, quarterly, monthly or sometimes daily breakdowns. In addition to the time series, important parts are the distribution of the turnover from several aspects, the ratio of individual payment types to one another and the intraday distribution of the turnover. This paper discusses liquidity issues, queuing and its intraday pattern. At several points it emphasises the data typical of the five largest banks compared with all the data.

I. Data and charts relative to all payment transactions (VIBER, ICS, InForex)

Interbank payment transactions are carried out in the ICS operated by GIRO Zrt. since 1994 and in the systems of the MNB. Only a home accounting system had been operated in the Central Bank earlier. Real-time settlement of large-value payments has been possible since 1999 in VIBER, which currently settles payments together with the home accounting system (InForex). The task of the ICS is to generate the clearing position of the payment transactions sent to GIRO, settlement is done at the MNB. Chart 1 shows that the total turnover of the three systems together has grown 7.5 times higher in terms of volume and 36 times higher in terms of value since 1995. Initially, the increase in terms of volume was higher, then the value of the turnover grew more and more rapidly, in which foreign bank clients appearing in the turnover of VIBER played a significant role. The effect of the crisis is seen in the payment turnover as well: from 2008 to 2009 the increase in the number of payments considering all the systems was minimal (1%), while the value of the turnover fell by nearly 4%, breaking the earlier increasing trend.

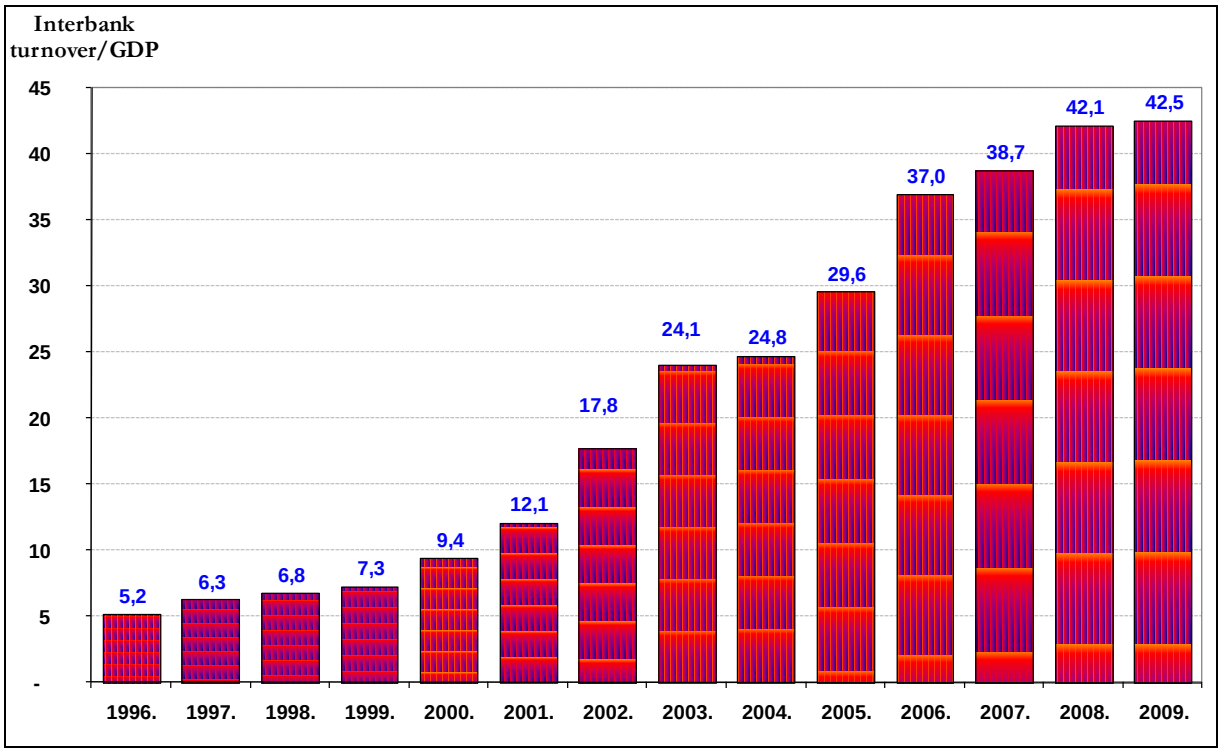
[1] The Post is not considered to be a payment system.

Chart 1: Value and volume of interbank payment turnover (ICS + VIBER + InForex)



The payment turnover in the year under review was 42 times of the GDP estimated for 2009 (earlier data are compared to actual GDP). It can be observed (Chart 2) that there is a slowdown in the increase in this ratio; the minimum growth in 2009 was a result of the fact that compared to the previous year the decline in the estimated GDP was greater than in the payment turnover.

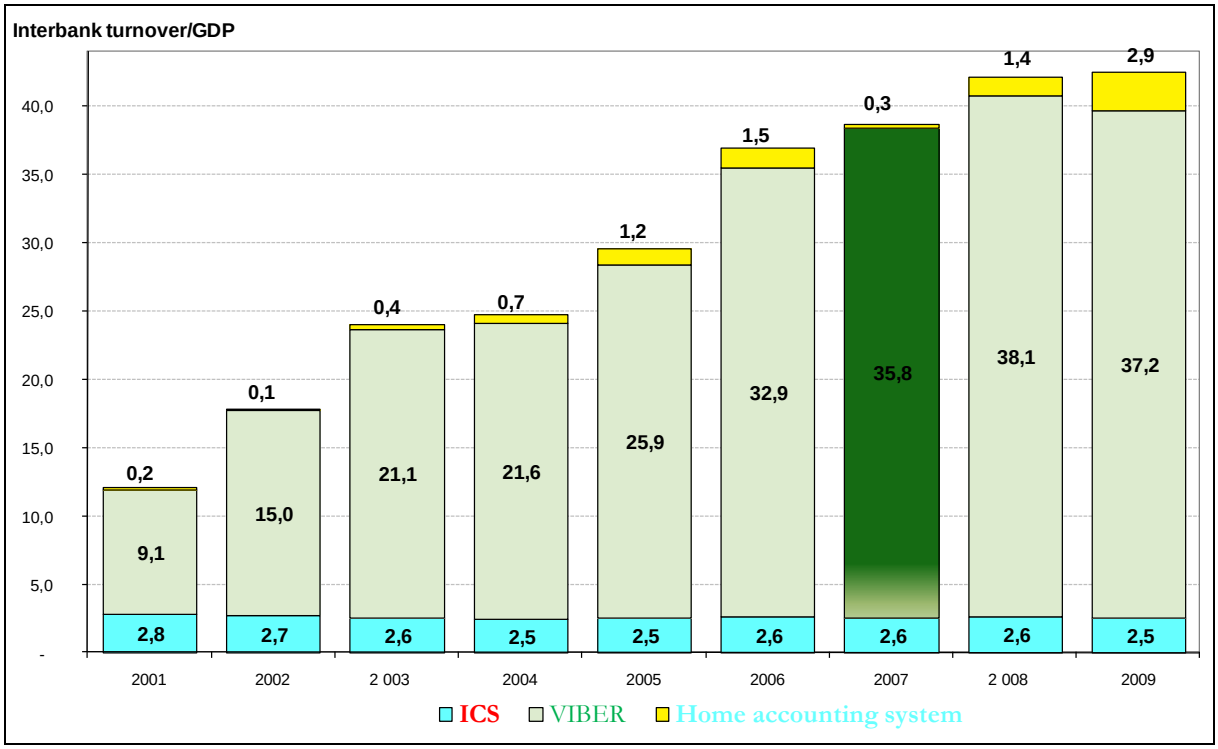
Chart 2: The payment turnover to GDP ratio by all systems (ICS, VIBER, InForex)



Examining the growth as a proportion of GDP for individual payment systems it can be established that the changes in the ratio are mainly influenced by the decline in the turnover of

VIBER, while significant turnover became rechanneled into the MNB's home accounting system (mainly because of the preference for transactions concluded with the Central Bank).

Chart 3: Payment transactions as a proportion of GDP by systems



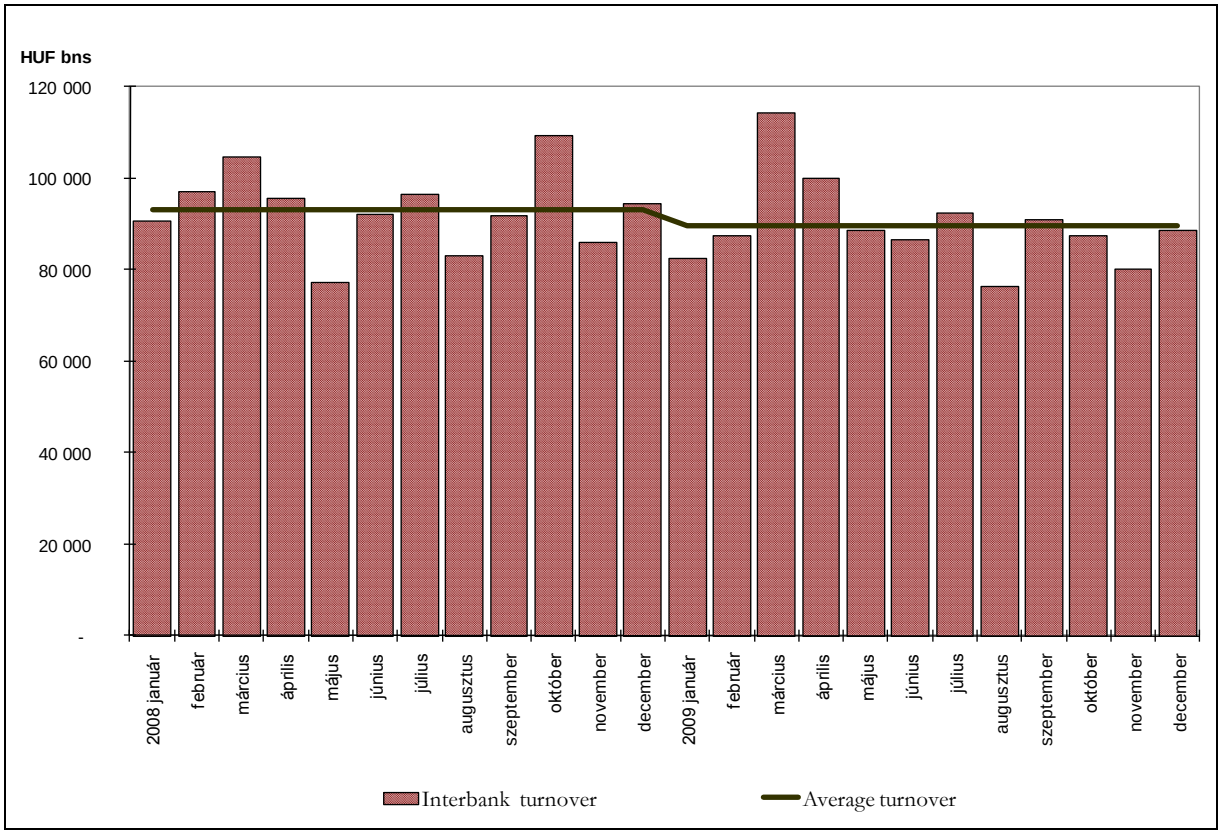
In terms of volume, the overwhelming majority of transactions is settled in the ICS, typically as a result of the high number of low-value customer payments sent to GIRO. However, in terms of value, most of the turnover is settled in VIBER.

Table 1: Changes in payment transactions by systems in terms of volume and value

	2001.	2002.	2003.	2004.	2005.	2006.	2007.	2008.	2009.
	Number of payments thousend								
ICS	139 573	154 482	161 855	172 335	186 732	204 069	219 375	238 586	241 225
VIBER	240	337	430	555	676	809	892	1 241	981
NBH home accou	50	58	71	88	125	178	*195*	236	281
Total	139 863	154 877	162 356	172 978	187 533	205 056	220 462	240 064	242 487
	Value of payments HUF bns								
ICS	42 985	45 074	48 456	51 320	55 610	61 887	65 907	70 335	63 482
VIBER	139 757	258 931	396 633	449 798	568 652	781 645	910 637	1 011 281	939 929
NBH home accou	2 588	1 782	7 622	13 778	26 147	35 339	*7 604*	36 980	72 258
Total	185 331	305 788	452 711	514 896	650 409	878 871	984 149	1 118 596	1 075 669

Examining the value of the turnover in 2008 and 2009 in a monthly breakdown compared to the annual average reveals that the seasonal fluctuation altered; the above-average turnover in March and April is followed by a declining trend, which is well below the average according to Chart 4.

Chart 4: Total (VIBER + InForex + ICS) monthly interbank turnover in terms of value compared to the annualised monthly average



In terms of volume, the fluctuation in 2009 is lower than the annual average, and the turnover in the last months of the year increased more slowly than in the previous year.

Chart 5: Total (VIBER + InForex + ICS) monthly average interbank turnover in terms of volume compared to the annualised monthly average

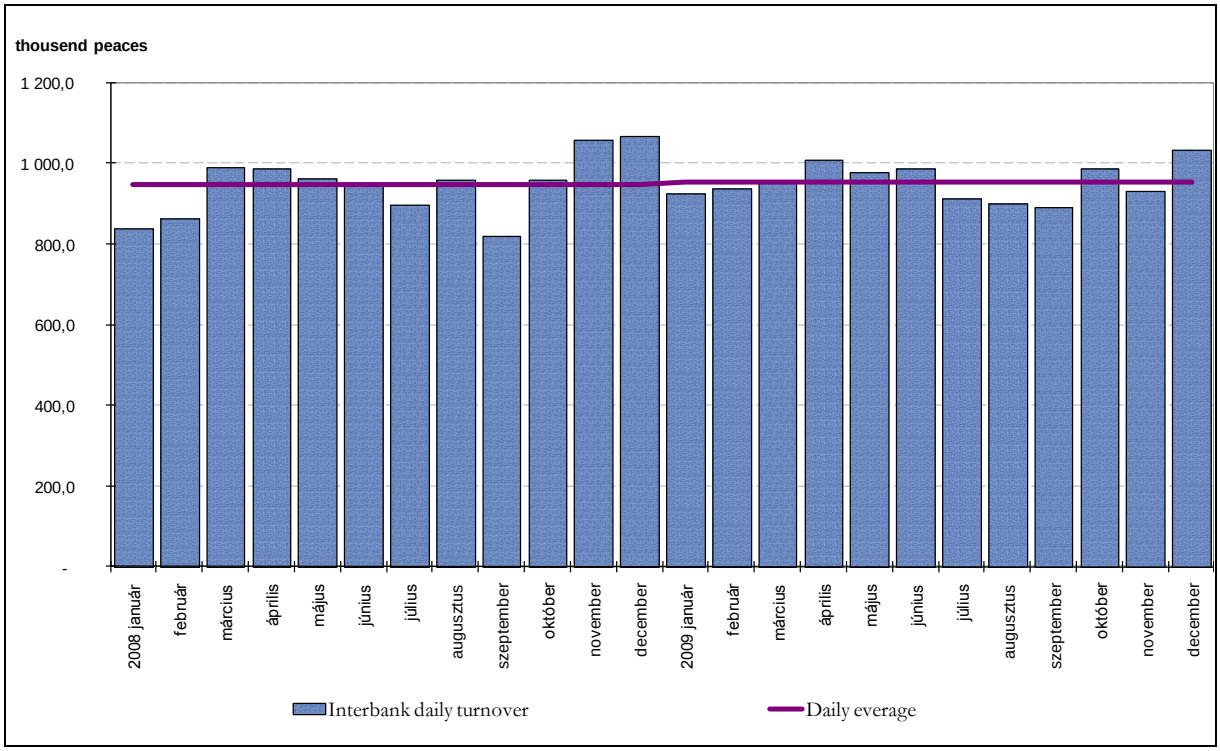
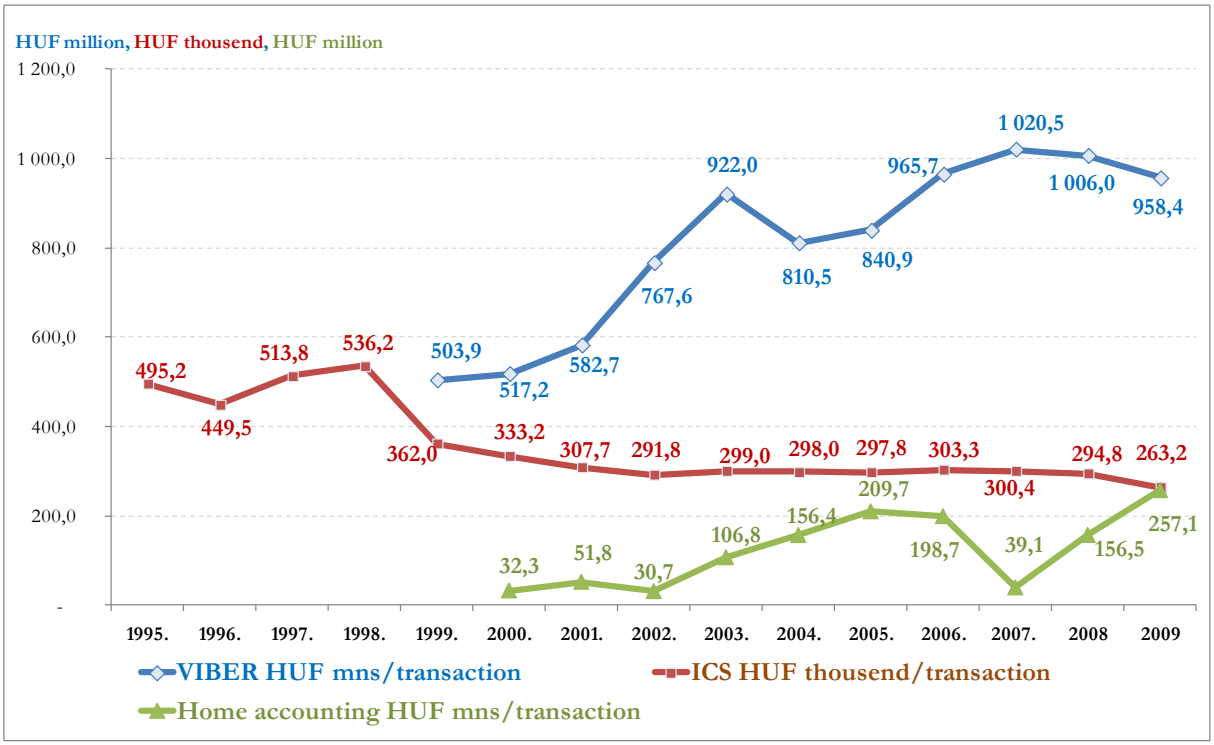


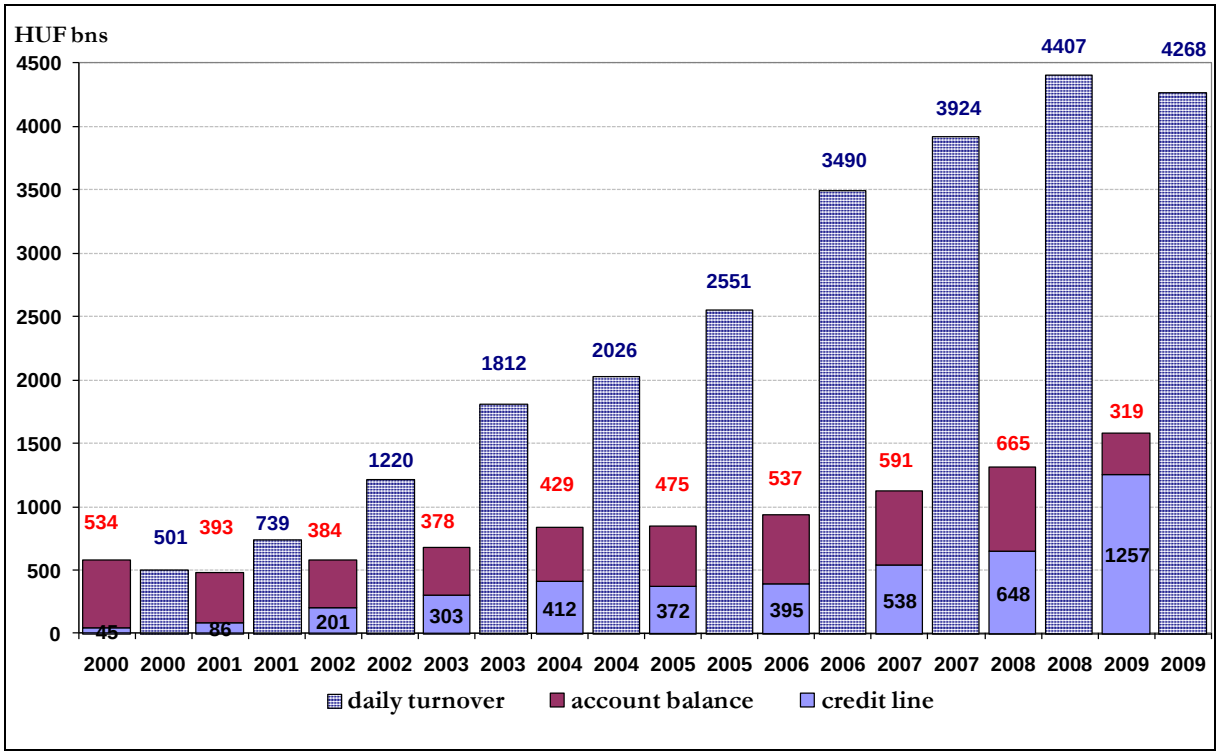
Chart 6 shows the average amount of transactions (in HUF million for the MNB's systems and HUF thousand for the ICS). In the case of VIBER, the earlier increasing trend has already been followed by a decline for two years (the average amount of transactions fell to below HUF 1 billion). A very slight steady decline has been typical in the ICS since 1999. The increase in the average amount of transactions of the home accounting system was the result of the foreign exchange and deposit transactions with the Central Bank.

Chart 6: Average amount of transactions in individual payment systems



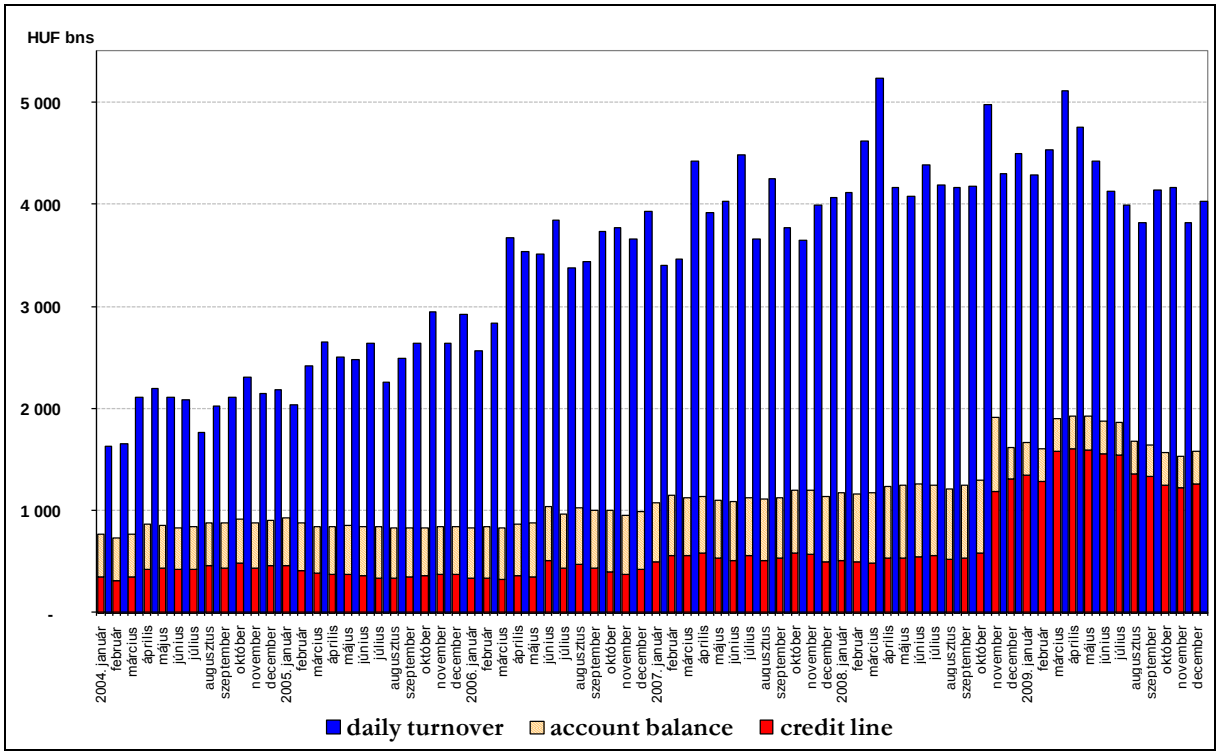
According to Chart 7, in the year following the launching of VIBER the annual average of the total daily liquidity of VIBER members had exceeded the payment turnover to be carried out; then the trend turned, and the turnover kept on increasing compared to the available liquidity. The trend changed in 2009: the still increasing liquidity was coupled with a decline in payment transactions. The payment turnover to liquidity ratio was 3.48 in 2008; this figure changed to 2.71 in 2009. The share of account balance within VIBER members' liquidity declined (as a consequence of the decline in the level of the reserve requirement), while total credit line is increasing continuously. It means that banks were in a more comfortable liquidity situation as a result of the higher liquidity compared to the turnover.

Chart 7: Annual changes in average daily interbank payment transactions (ICS + VIBER + InForex) and liquidity (money on account + credit line) between 2000 and 2009



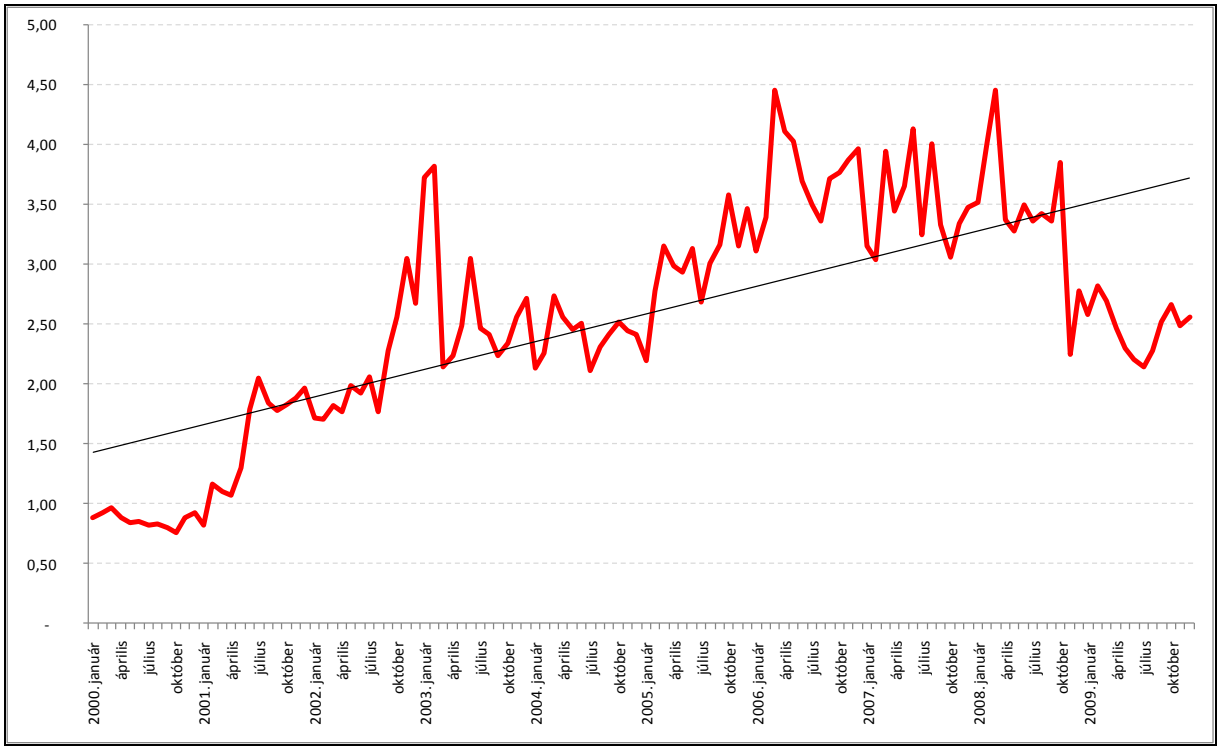
Looking at the monthly data, there is a well visible sudden increase taking place in November 2008 in credit line at the expense of account balance, which is declining continuously in 2009, while payment turnover is clearly falling.

Chart 8: Monthly changes in average daily interbank payment transactions (ICS + VIBER + InForex) and liquidity (account balance + credit line) between 2004 and 2009



The same phenomenon is depicted in the chart following the payment turnover to liquidity ratio, where the decline for 2009 is spectacular.

Chart 9: Monthly changes in the ratio of average daily interbank payment transactions (ICS + VIBER + InForex) to liquidity (account balance + credit line) between 2003 and 2009

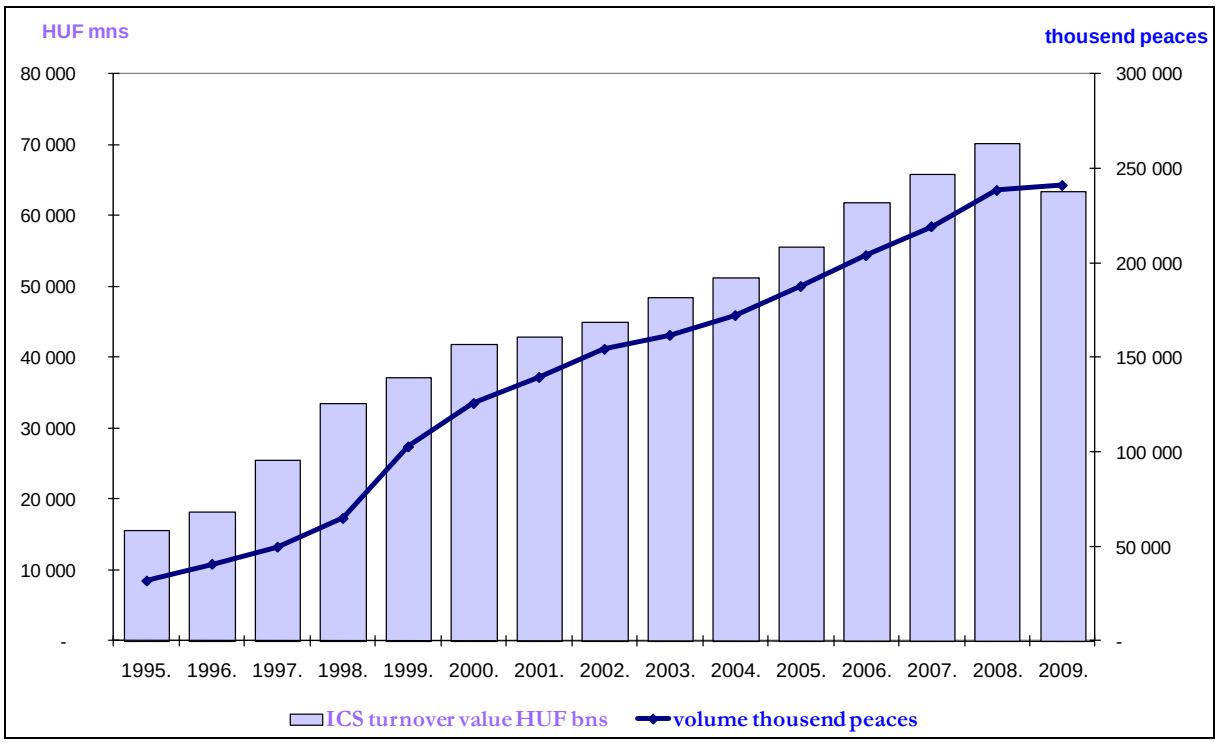


II. Data and payment flows of individual payment systems

1. Payment flows in the ICS

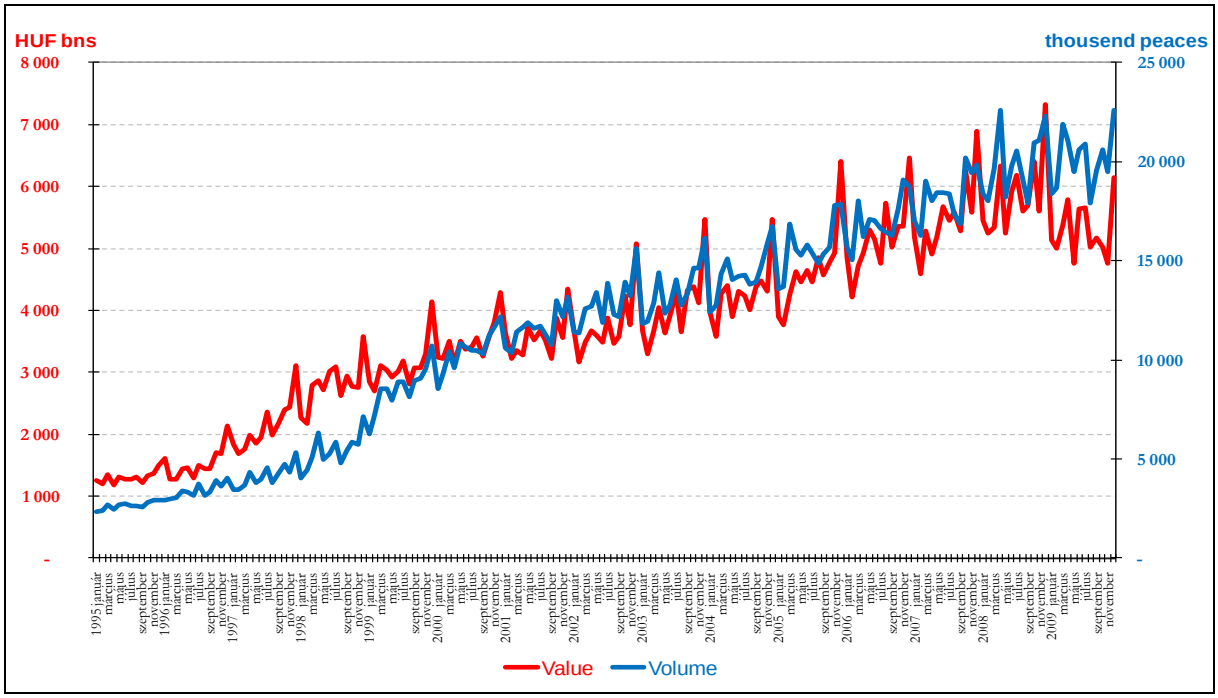
The annual turnover graph of the ICS follows the general trend: by 2009 the continuous growth in terms of volume decelerated suddenly, while a fall in value was recorded.

Chart 10: Volume and value of payments in the ICS



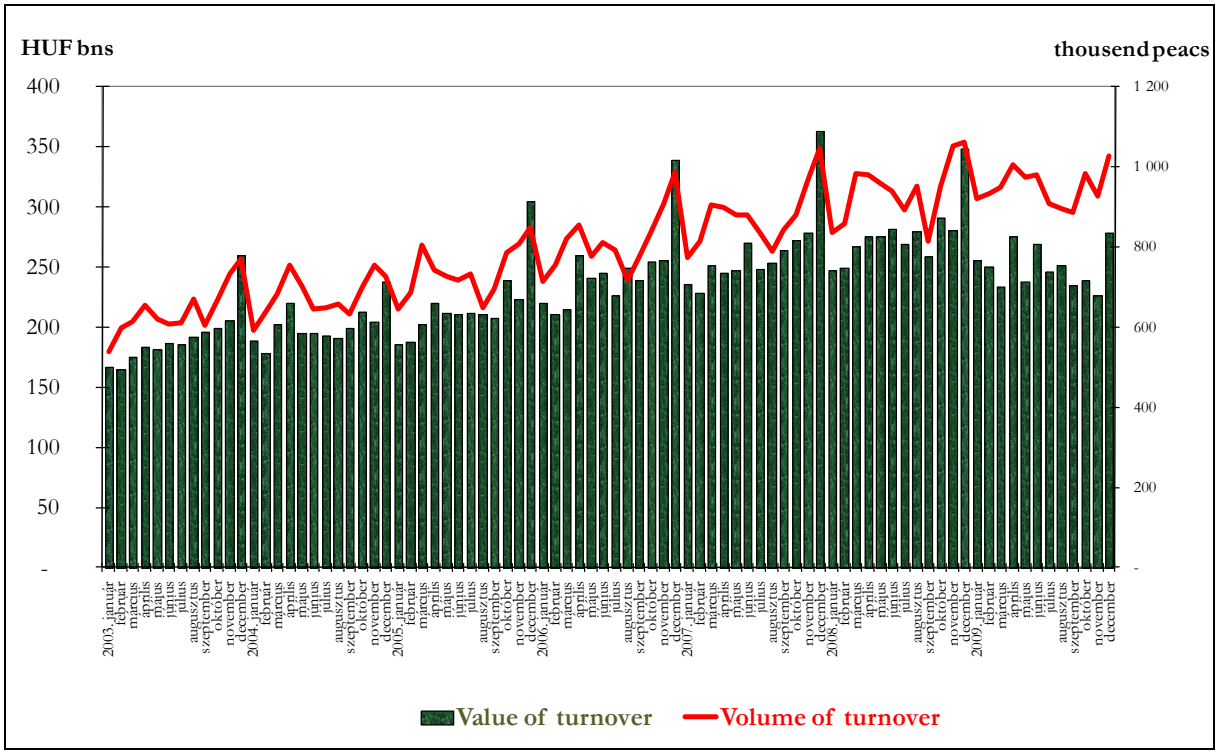
The annual change is reflected in the monthly data, although an express increase in both monthly value and volume is experienced at end-2009.

Chart 11: Changes in the monthly value and volume of payment orders settled in the ICS



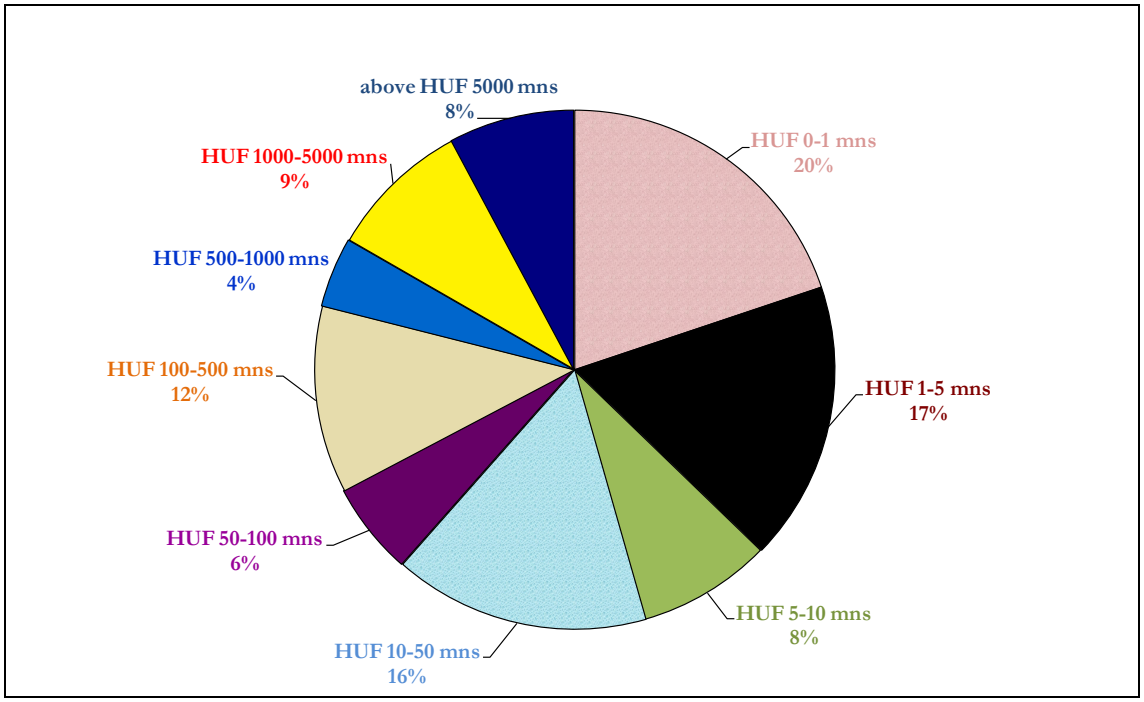
The monthly average of turnover per day also follows the above pattern: the fluctuations in volume show a constant but increasing trend, the increasing trend of the turnover ceased to exist by 2009, and decline is typical until December.

Chart 12: Daily average of the value and volume of payments settled in the ICS every month in 2003–2009



The distribution of the ICS payment turnover by value ranges reflects the intended purpose of the system: it is for settling high volumes of low-amount payments. More than half of the turnover is composed of items with an individual value of less than HUF 50 million, although there are many items with high individual value (e.g. above HUF 5 billion), which would belong to the category of the real-time system.

Chart 13: Payment transactions in the ICS according to individual value in 2009



In terms of volume, the smallest items (below HUF 1 million) are undoubtedly predominant; as the value increases, the number of items decreases.

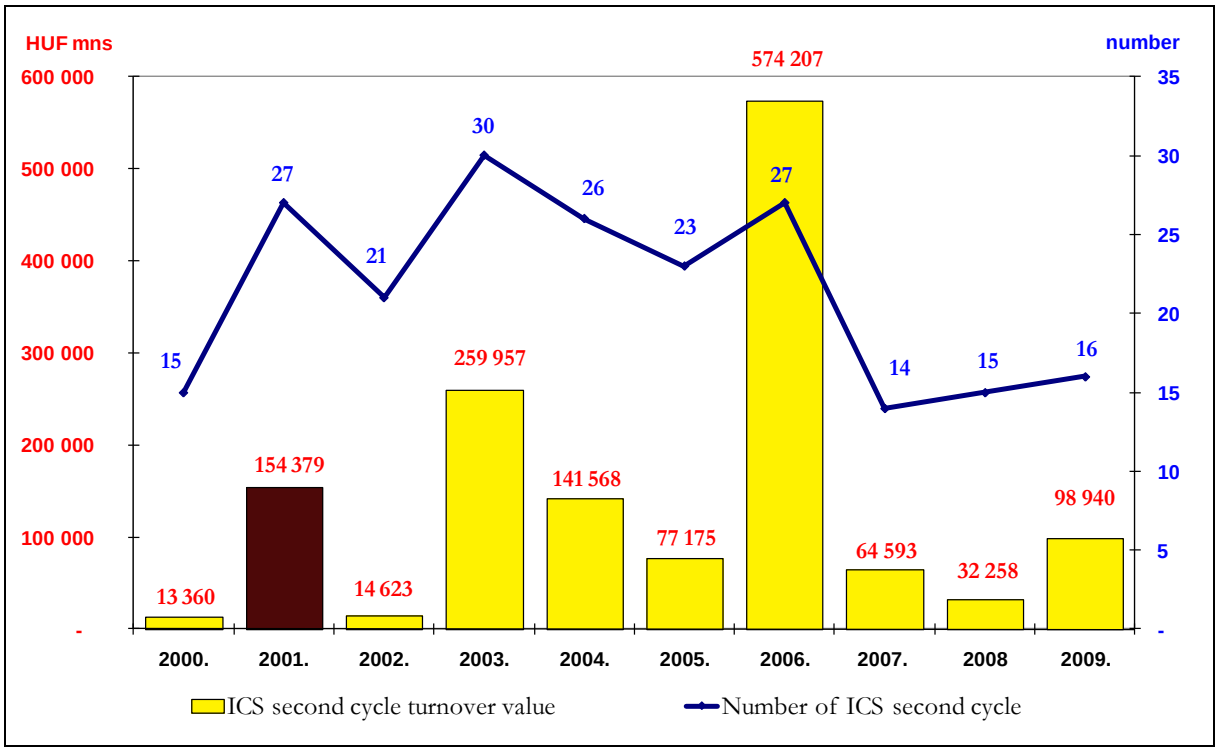
Table 2: Distribution of payments settled in the ICS according to value ranges

Value ranges	Volume of ICS turnover in numbers						
	2003. dec.	2004. dec.	2005. dec.	2006. dec.	2007. dec.	2008. dec.	2009. dec
HUF 0-1 millions	9 192 223	9 324 206	9 667 705	10 191 445	10 964 395	12 437 457	12 684 580
HUF 1-5 millions	447 876	436 547	454 213	466 339	486 470	516 296	467 879
HUF 5-10 millions	60 534	60 794	65 617	68 363	73 304	76 877	66 791
HUF 10-100 millions	46 064	46 004	51 508	52 178	55 655	57 341	51 128
HUF 100-500 millions	3 174	3 086	3 497	3 713	4 035	4 027	3 633
HUF 500-1000 million	355	352	331	380	422	453	353
HUF 1000-5000 millio	210	214	243	263	298	305	245
over 5000 millions	28	35	52	45	42	41	15
total	**9 750 464**	**9 871 238**	**10 243 166**	**10 782 726**	**11 584 621**	**13 092 797**	**13 274 624**

Orders that remain queuing after the night processing or orders transmitted late are processed by GIRO in a second round in the morning if sufficient collateral has been provided. In the last two years it happened 15 and 16 times, respectively; the value of the items that remained in the queue tripled (increasing from HUF 32.2 billion to HUF 98.9 billion).

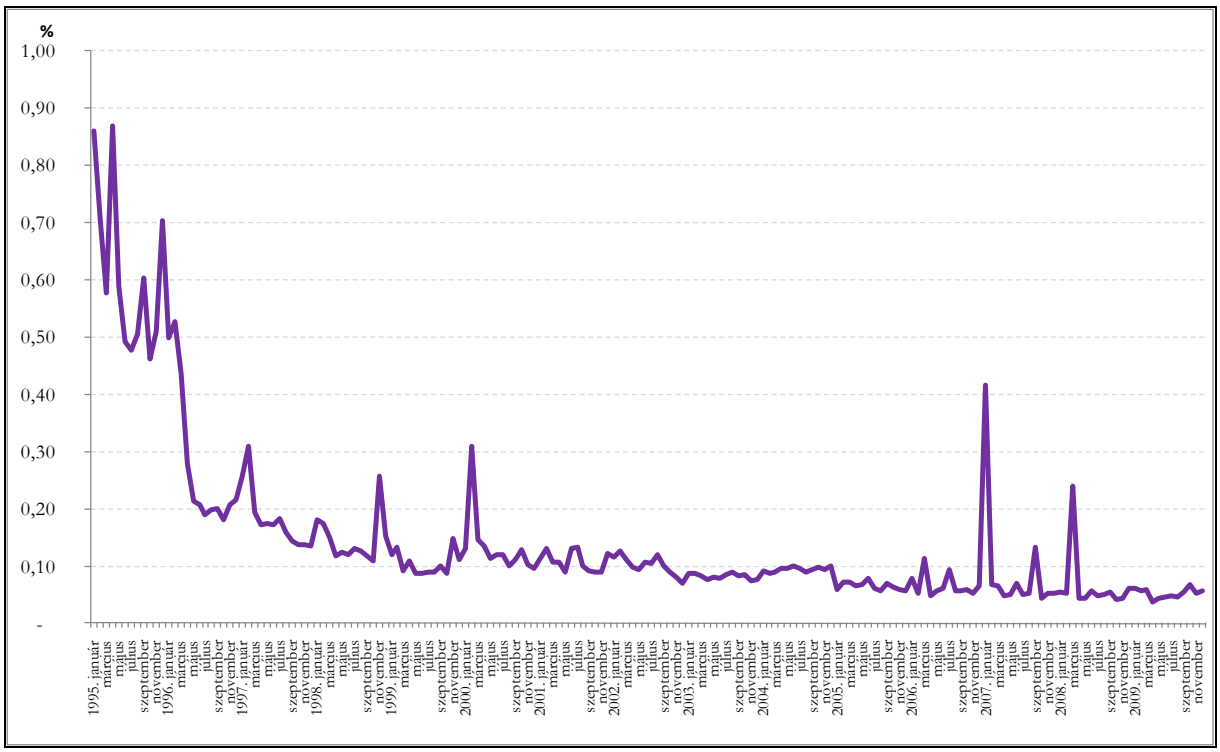
The time series of morning processing is fluctuating both in terms of volume and value. The outlier in 2006 is the result of a large-amount late transmission.

Chart 14: Annual volume and value of processing in the morning in the ICS



In the ICS, the value of rejected payments compared to the total turnover shows a declining trend, which broke in 2007–2008.

Chart 15: The ratio of items rejected in the ICS according to value

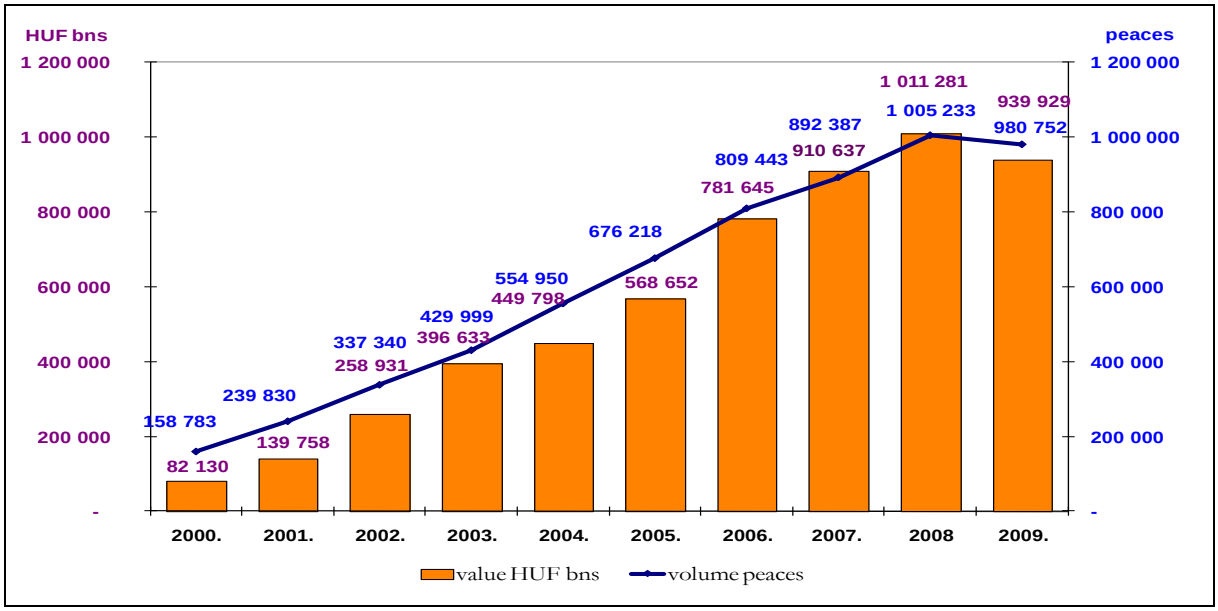


Payment flows in VIBER

There was a significant change in VIBER membership in 2009: as a result of the implementation of the MNB's account keeping strategy, the number of direct members increased to 57; at the same time, indirect membership through the MNB ceased to exist. This had an insignificant effect on the annual turnover as the changes to direct membership took place in the second half of the year, and new members earlier may also have transmitted VIBER orders through the MNB as indirect participants.

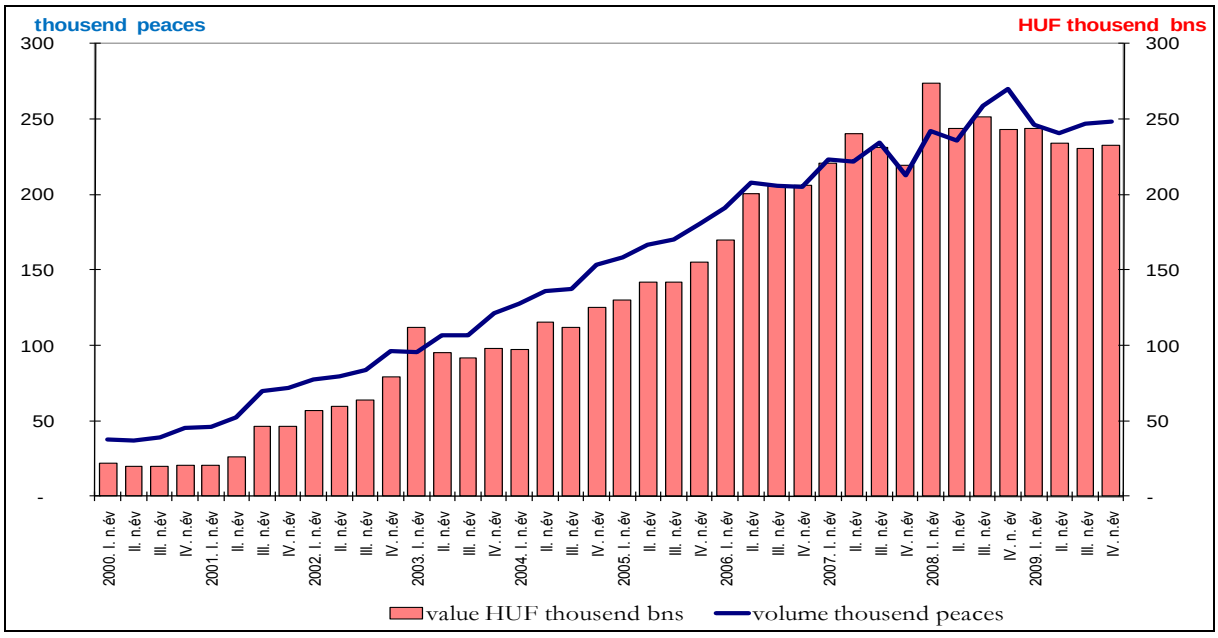
Looking at the time series of the annual turnover of VIBER, the steady growth that had started upon launching came to a halt as a result of the crisis, and for the first time a fall was observed both in terms of value and volume by 2009.

Chart 16: Annual volume and value of payment transactions settled in VIBER



With regard to the quarterly time series, the effect of the crisis resulted in a more declining trend from mid-2008 on.

Chart 17: Quarterly value and volume of payment transactions settled in VIBER



Starting from 2007, the monthly turnover of VIBER shows increasingly strong fluctuations; the declining trend is observed in terms of both value and volume in 2009.

Chart 18: Monthly value and volume of payment transactions settled in VIBER

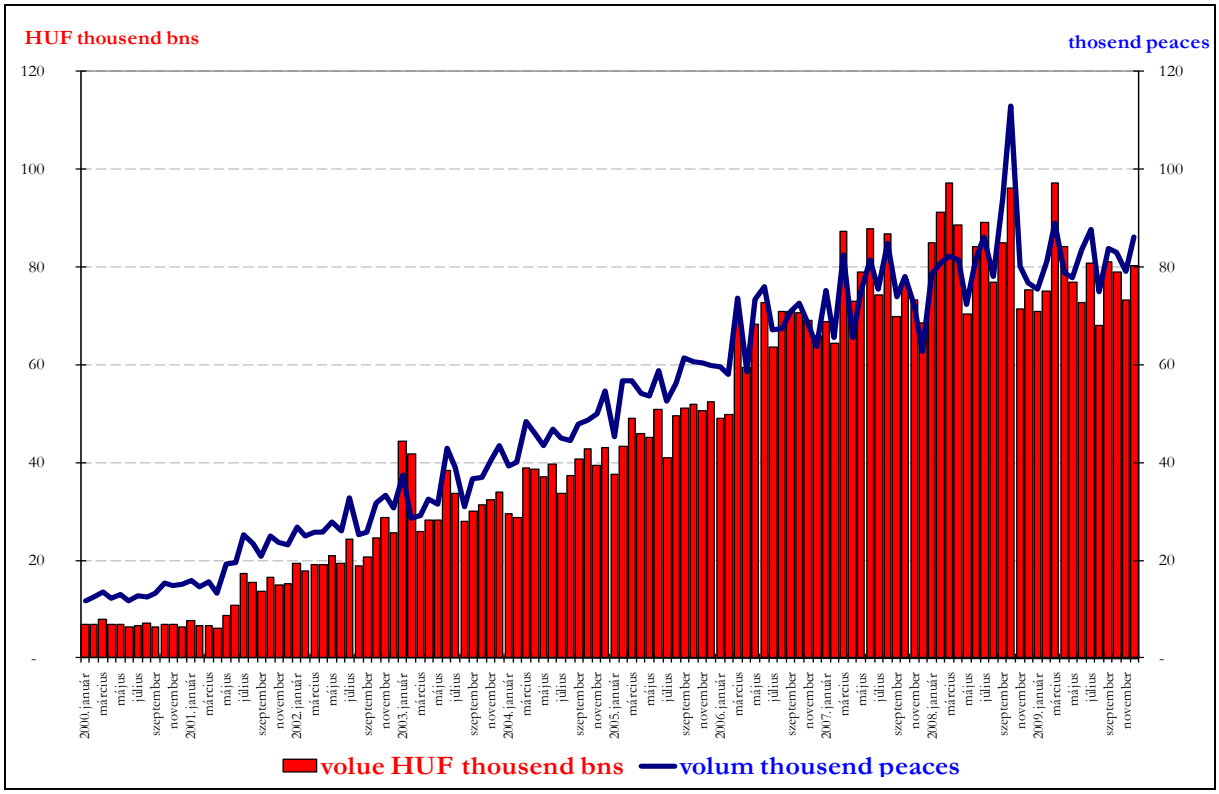
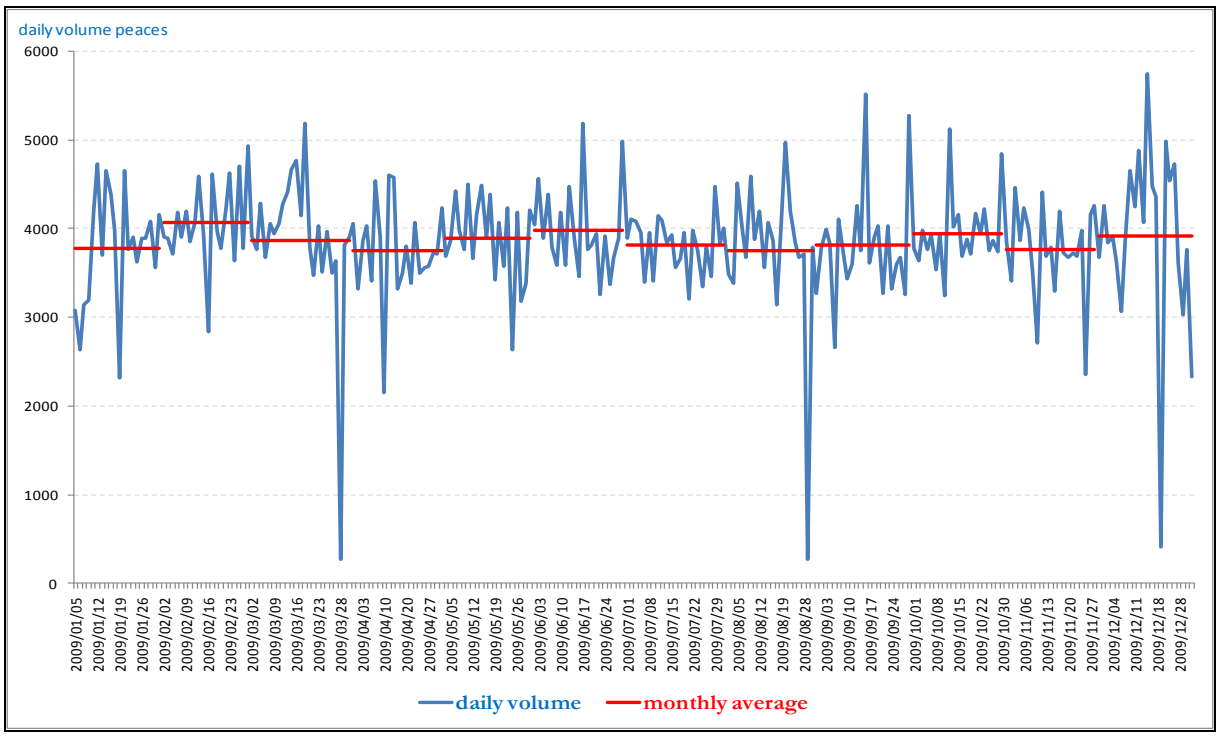


Chart 19 shows the daily number of payment transactions settled in VIBER compared to the monthly average. The outstanding lows in turnover indicate the low turnover of Saturdays that were working days.

Chart 19: The daily number of payments settled in VIBER compared to the monthly average in 2009



An analysis of the value of the daily turnover reveals that there are more outliers above the average than below it. Without exception, the first fifty highest daily turnover values fall on a Wednesday.

Chart 20: The daily value of payments settled in VIBER compared to the monthly average in 2009

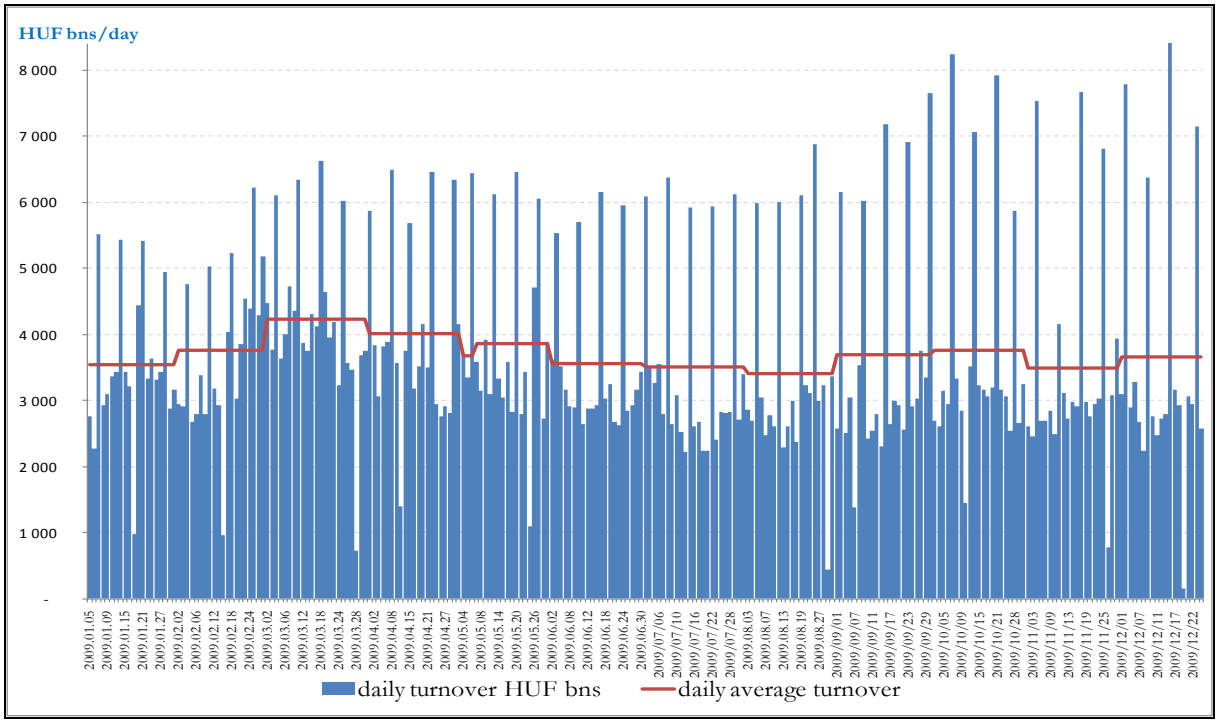


Chart 21 shows the monthly turnover of banks in an order of magnitude according to their average monthly turnover. The annual turnovers of 19 banks exceed 10 thousand payments per year; other banks have a lower turnover.

The monthly developments in VIBER turnover are determined by the pattern of the five banks with the highest turnover.

Chart 21: Changes in the turnover of the five largest banks compared to the value of all the payments settled in VIBER

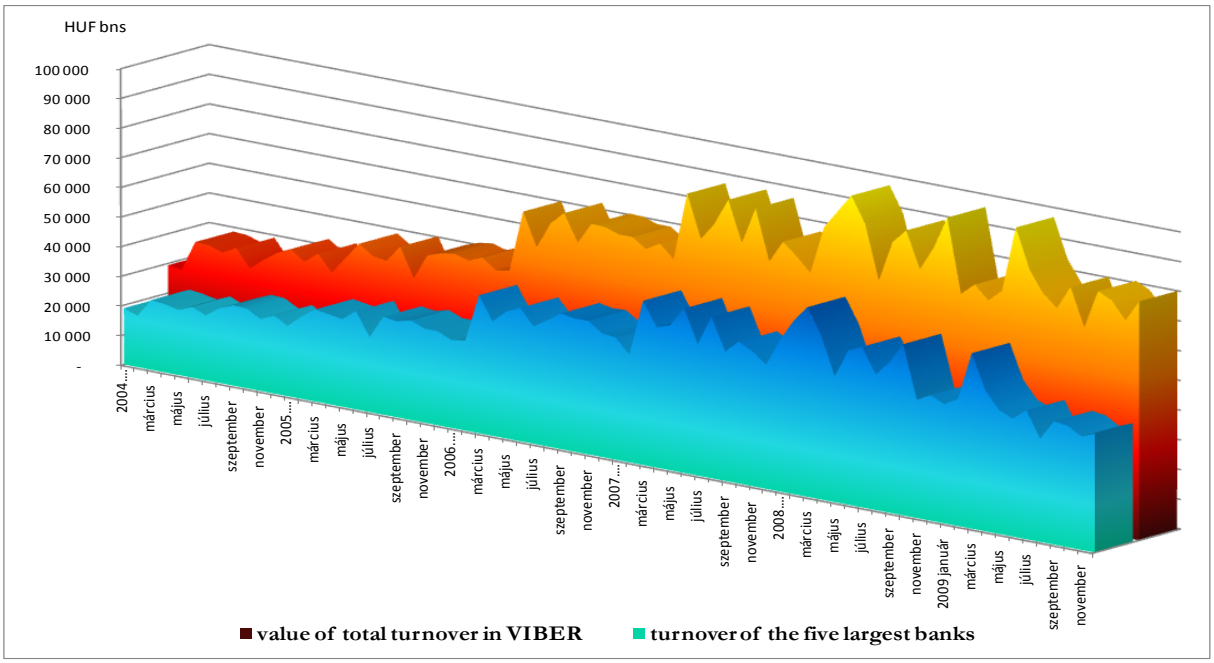
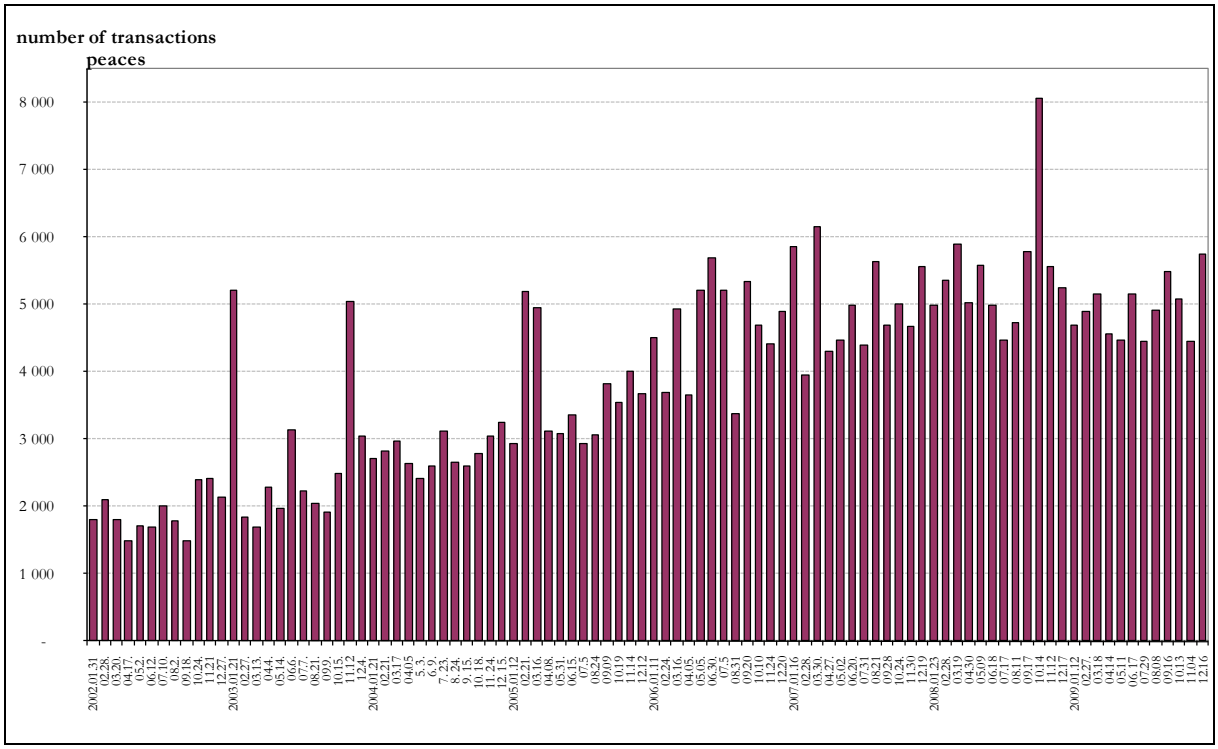


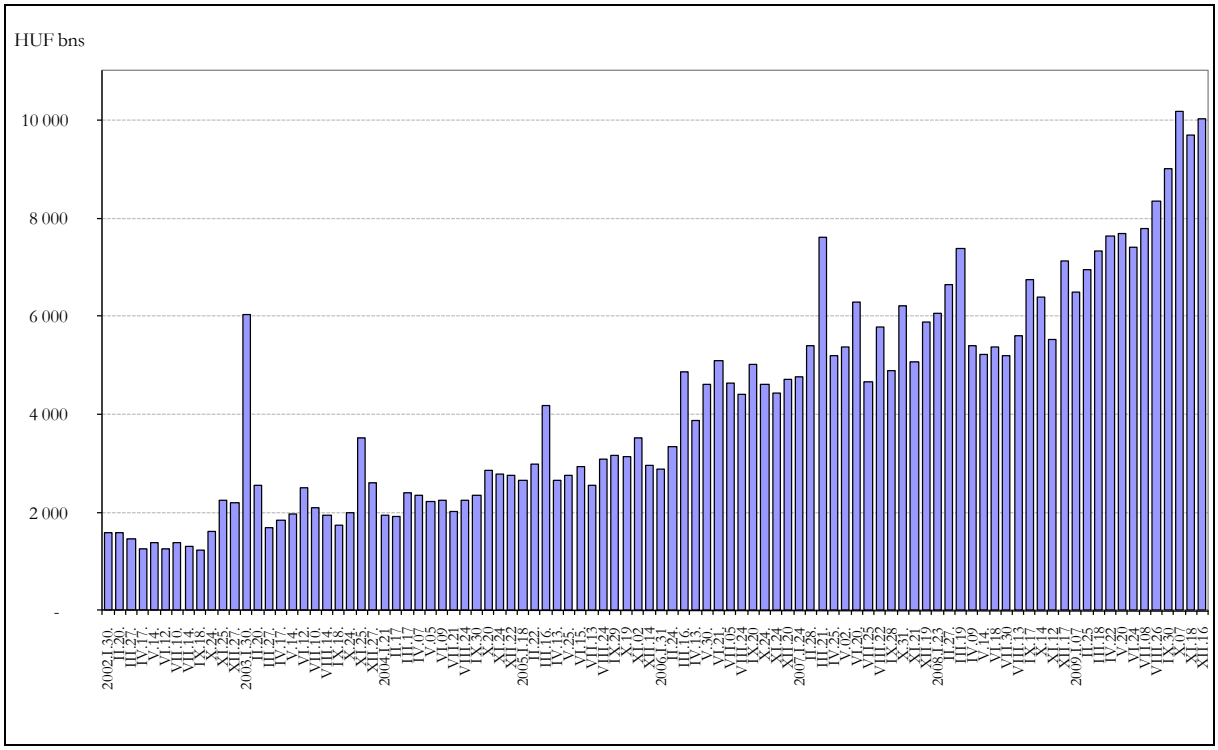
Chart 22 depicts the time series of the monthly peak days in terms of volume. To date, the largest volume of payments on a single day was recorded on 14 October 2008 with 8 054 transactions.

Chart 22: Number of transactions settled in VIBER on monthly peak days



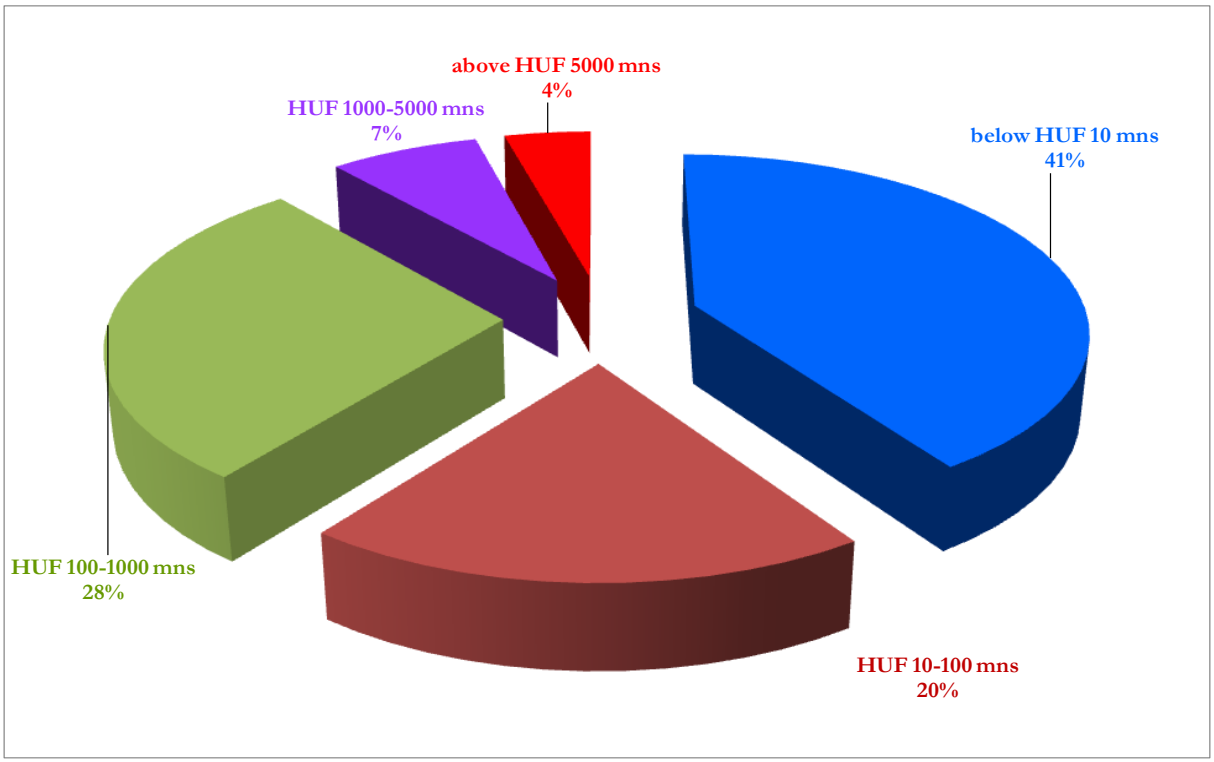
In terms of value, VIBER reached the record of monthly peak days on 7 October 2009 with a daily turnover of HUF 10 174 billion.

Chart 23: Value of transactions processed in VIBER on monthly peak days



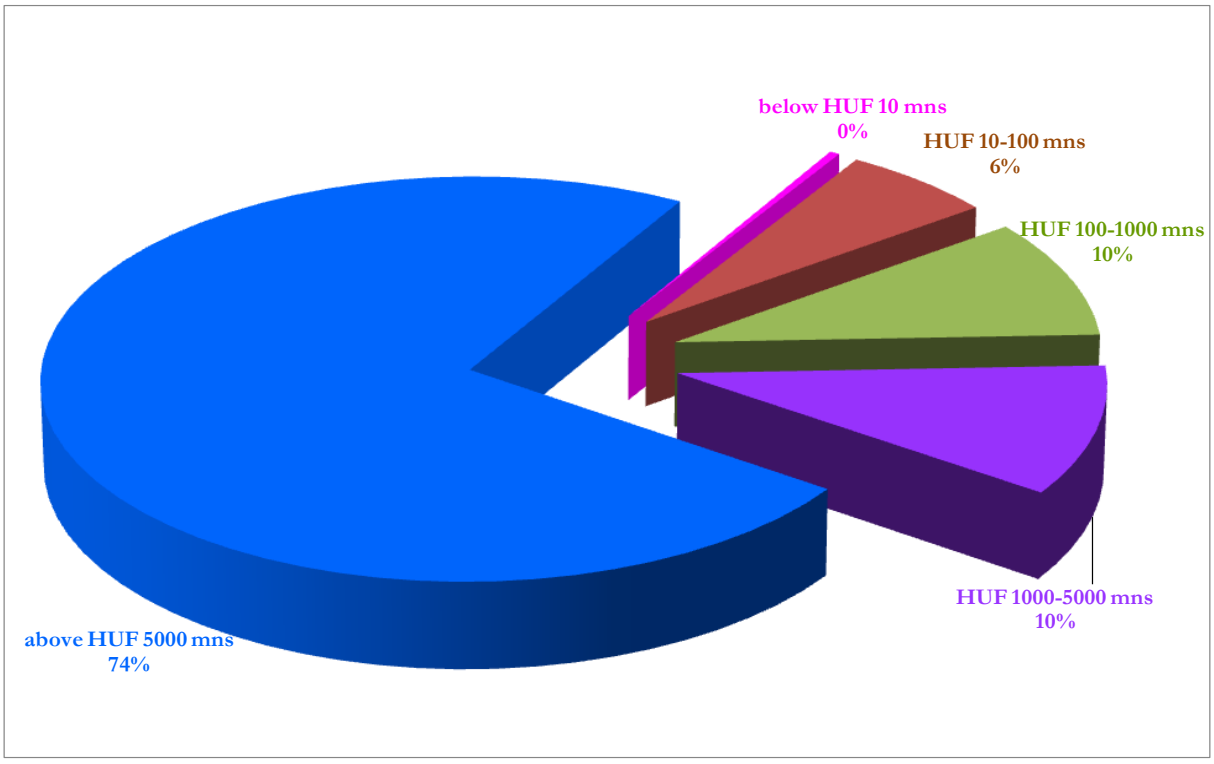
The distribution of the number of VIBER transactions according to value ranges shows that more than 60% of orders have an individual value of less than HUF 100 million, and only 4% of the transactions falls in the range of above HUF 5 billion.

Chart 24: Breakdown of the volume of VIBER transactions according to value ranges in 2009



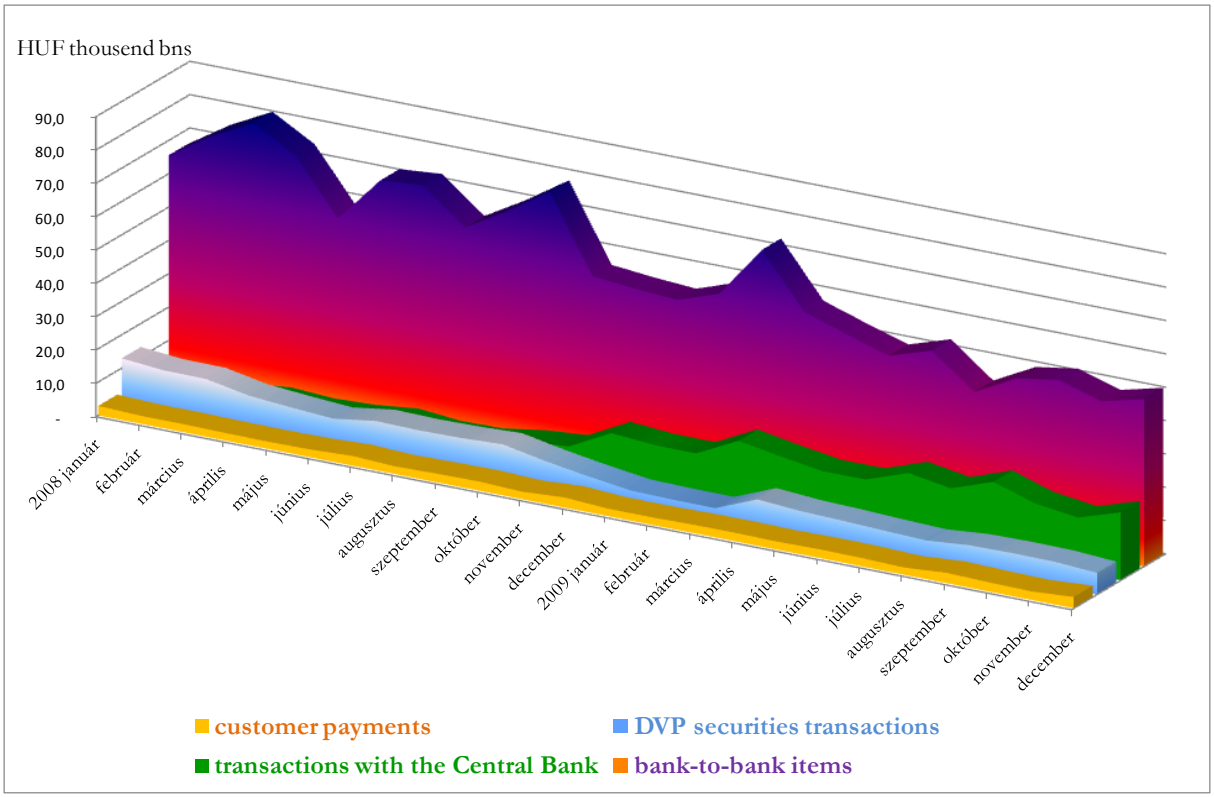
Transactions with an individual value exceeding HUF 5 billion, which only represent 4 % in terms of volume, account for 74% of the value of all VIBER transactions.

Chart 25: Breakdown of the value of payments in VIBER according to value ranges in 2009



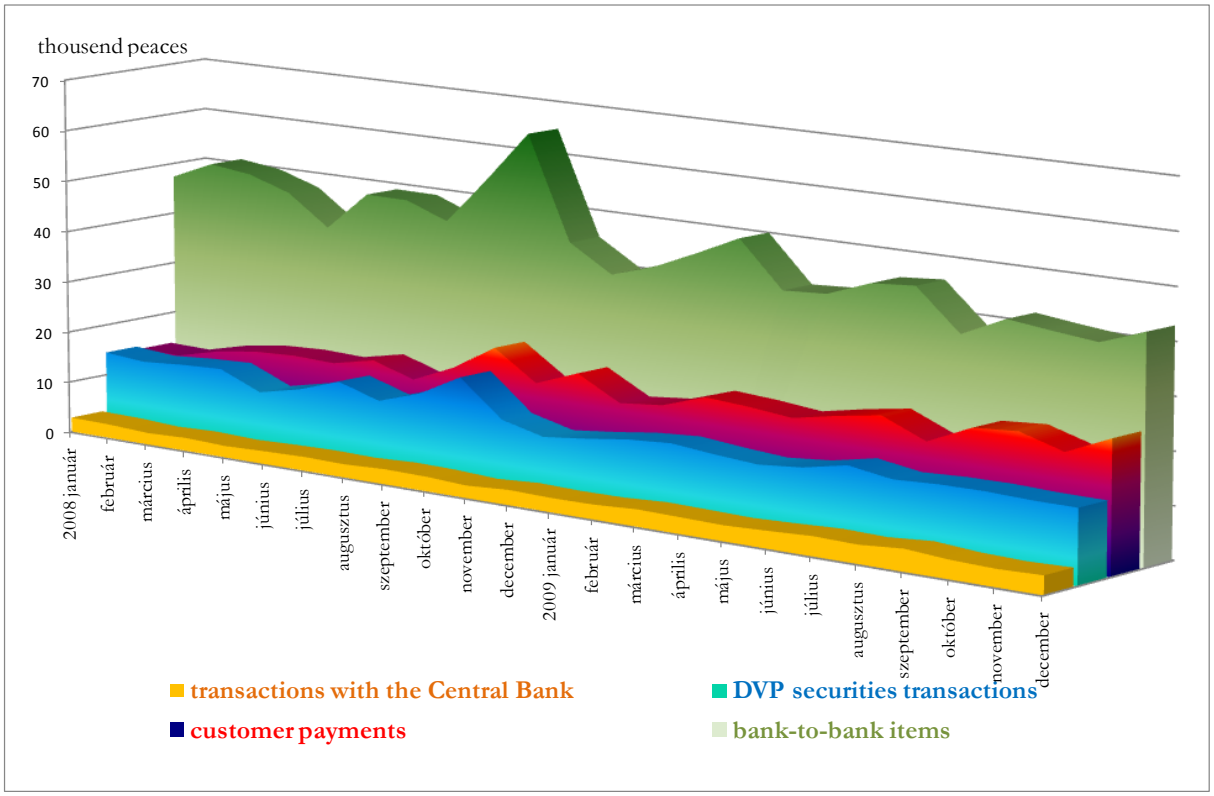
Examining the monthly data of the last two years according to the types of payment orders, bank-to-bank items have the largest share. From the autumn of 2008 it declined continuously (except for the peak in March), while the share of transactions concluded with the Central Bank increased. Compared to the level of 2008 the value of securities transactions on the DVP principle also declined; although the value of the turnover increased by the second half of 2009, it did not reach the level of the previous year.

Chart 26: Breakdown of payments settled in VIBER according to types of transactions, in value



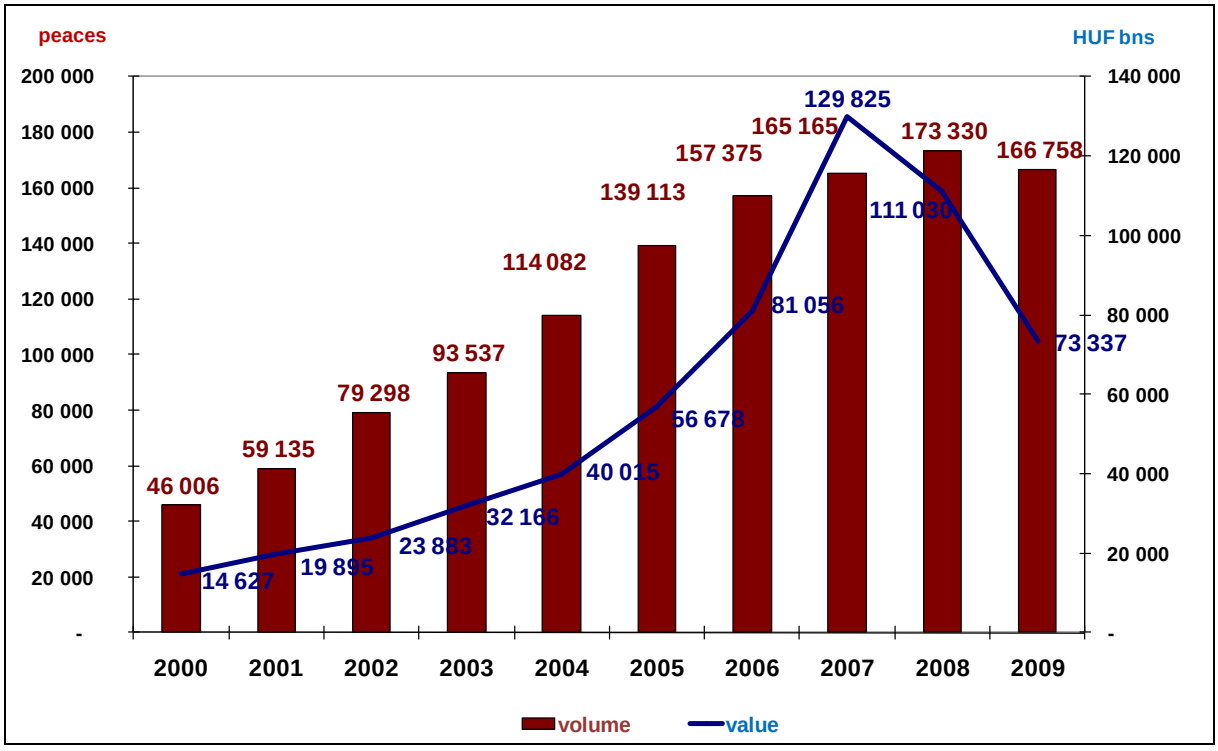
The composition of payment orders by the number of transactions shows a different trend compared to the one by value. As regards the respective shares, bank-to-bank transactions are followed by customer payments; securities transactions have a smaller share, while the number of transactions concluded with the Central Bank is the lowest. In the two years under review, all payment orders were at their peaks in October 2008, followed by a significant declining trend. By end-2009 only the number of customer payments exceeded the peak reached in October 2008, while the number of other types of transactions was lower.

Chart 27: Breakdown of payments settled in VIBER according to types of transactions, in volume



In terms of value, the annual data of securities transactions (excluding MNB bonds) settled in line with the DVP principle show a sharp increase until 2007, followed by a significant (43%) fall by 2009. In terms of volume, the growth lasted until 2008; the decline in 2009 was moderate (3.8%).

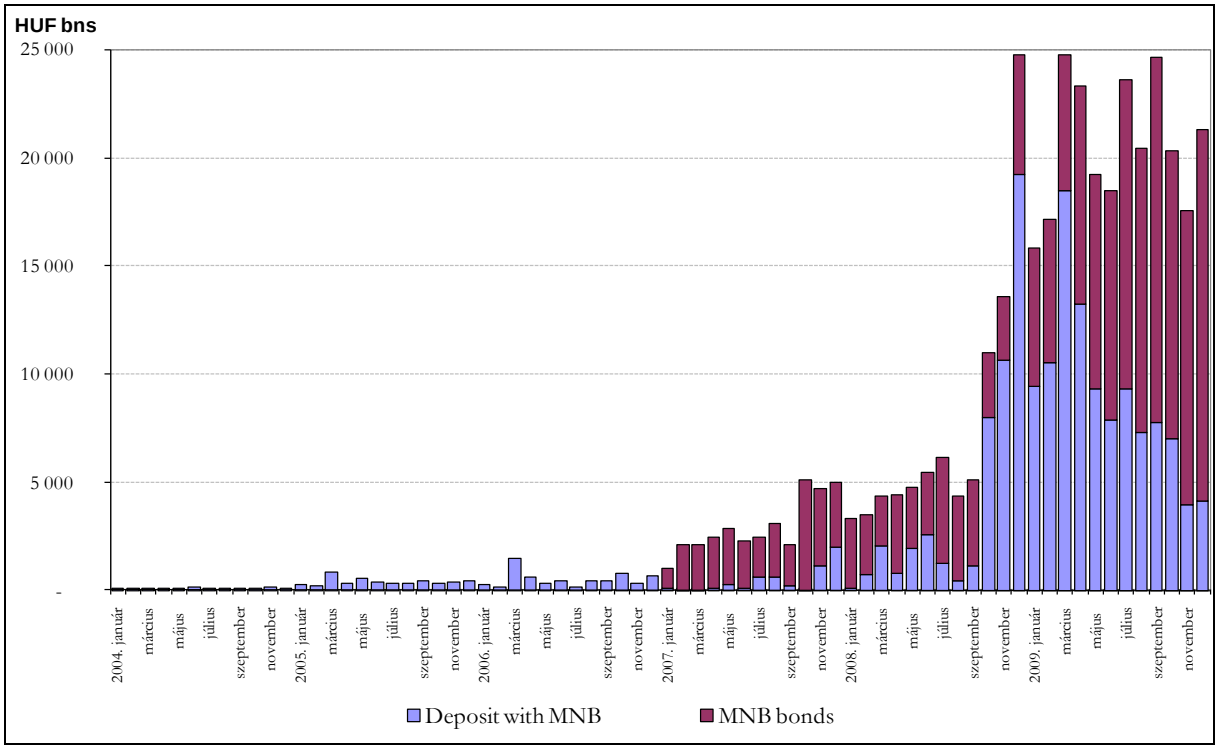
Chart 28: DVP transactions in VIBER, 2000–2009



The examination of the monthly changes in deposit and bond transactions with the MNB reveals that the value of transactions concluded with the MNB before 2007 is not significant. Following

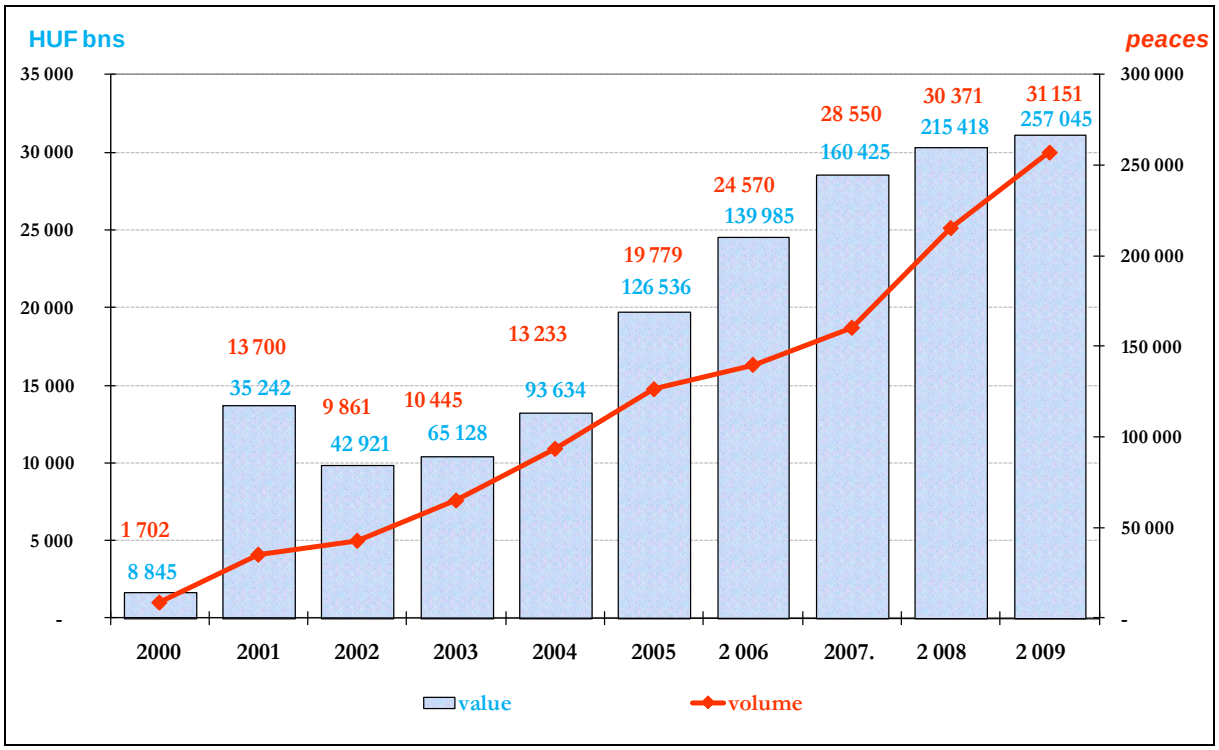
the introduction of the MNB bond in 2007 the value of transactions grew steadily; a sudden change is observed after September 2008. Depositing prevailed at this time, with a subsequent gradual shift to bonds. The total turnover was in the range of HUF 20–25 thousand billion in almost each month from December 2008 on.

Chart 29: Deposit and bond turnover with the MNB in VIBER



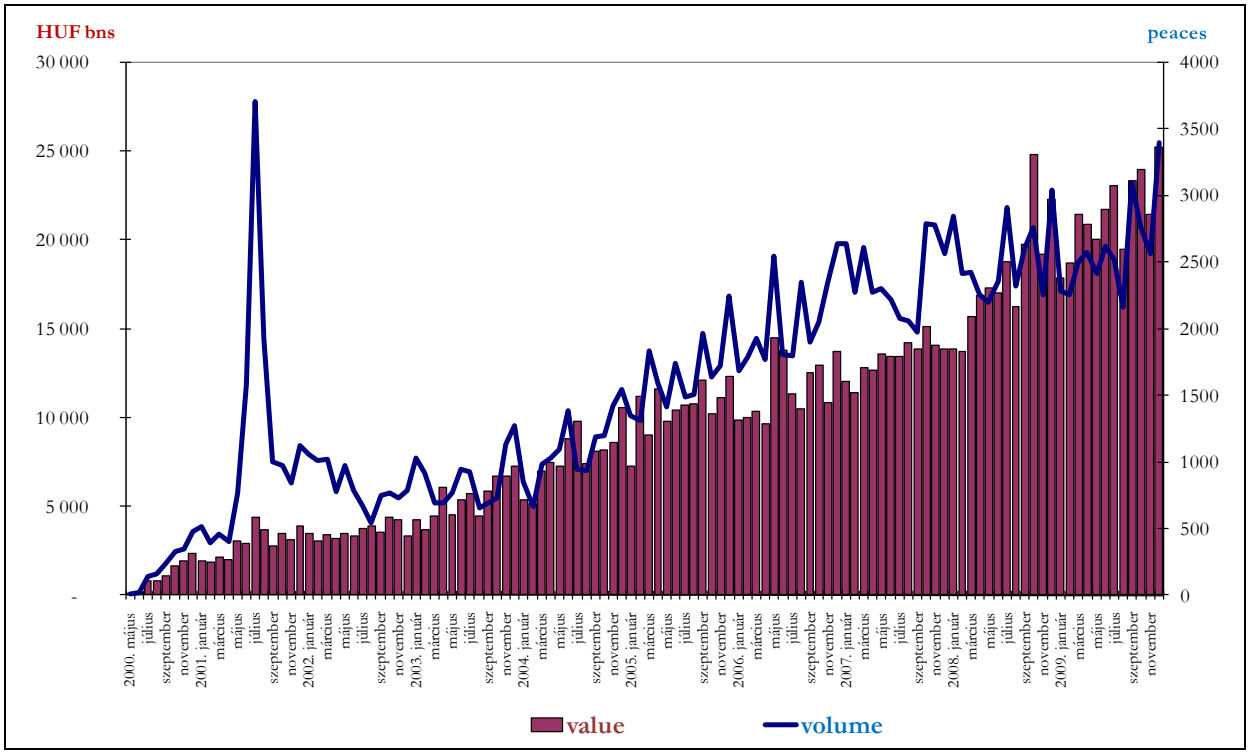
Payment transactions initiated by banks' customers in VIBER show an increase both in terms of value and volume, although the rate of growth decelerated in recent years.

Chart 30: Annual changes in customer transfers in VIBER



The monthly figures of the number and value of customer payments show a fluctuating but increasing trend.

Chart 31: Monthly changes in customer transfers in VIBER



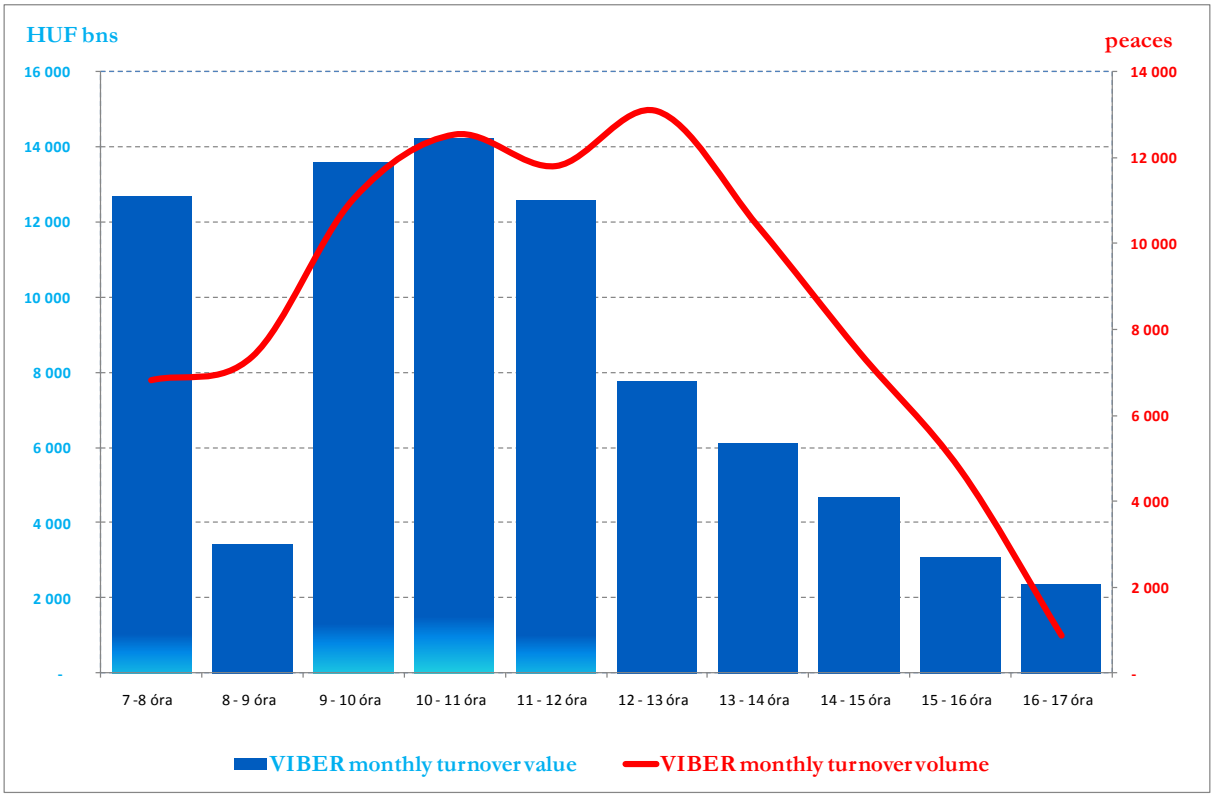
The concentration ratio means the size of the share of the turnover of the five largest VIBER participants compared to all members in terms of volume and value separately. Based on the number of transactions, the concentration of payments in VIBER increased until 2007; it has been significantly declining since then year by year. In terms of value, the growth lasted until 2006; the share of the five largest banks fell to 54.2% since then.

Table 4: Concentration of payment orders in VIBER

volume							value						
2003.	2004.	2005.	2006.	2007.	2008.	2009.	2003.	2004.	2005.	2006.	2007.	2008.	2009.
50,92	52,42	52,57	55,33	57,93	56,41	53,06	57,78	61,72	63,88	66,16	63,26	64,16	54,21

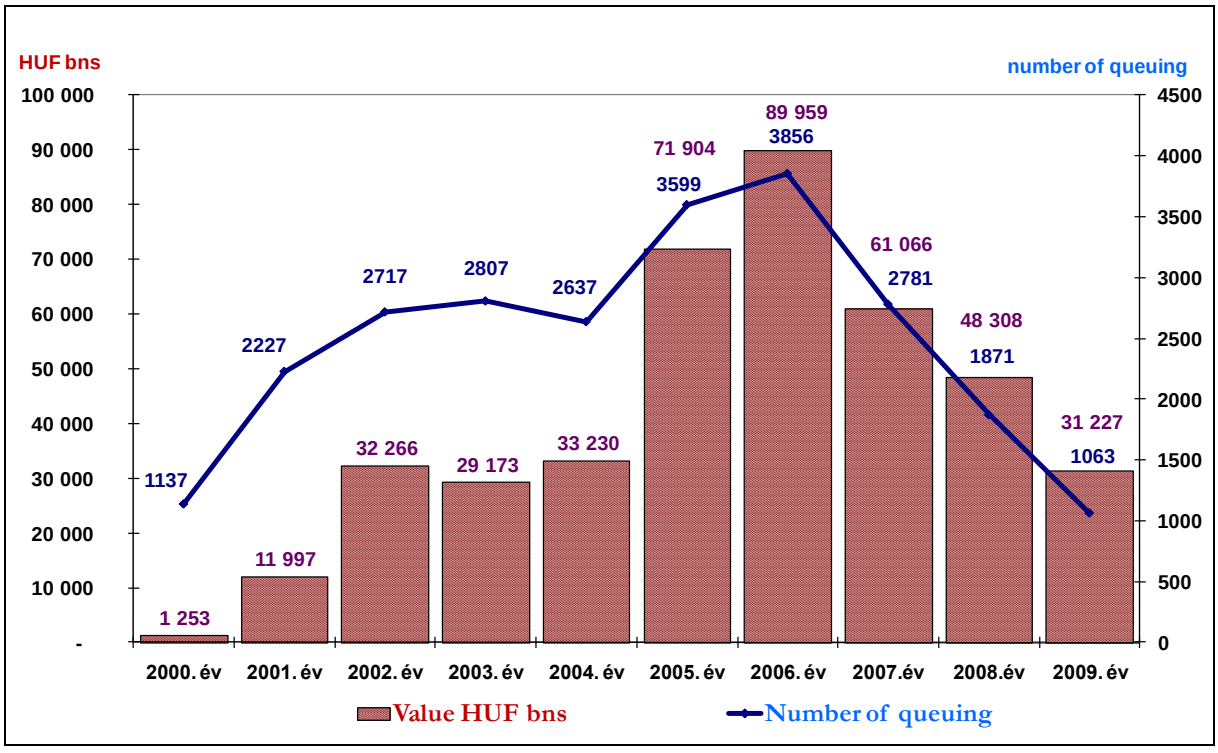
Chart 37 shows the intraday hourly distribution of payments settled in VIBER in value and volume, calculated from December 2009 data including the MNB. The intraday distribution follows a similar pattern: the higher turnover in the morning is a result of payment orders given with a value date and the settlement of overdue central bank transactions. Turnover 'picks up' after 9 o'clock, while the peak hour is between 10 and 11; the turnover declines steadily after that. Very few transactions are performed in the last operating hour.

Chart 32: Intraday distribution of payments processed in VIBER in December 2009



Both the value and volume of payment orders queuing up in VIBER[2] increased considerably before starting to decline gradually from 2006 on.

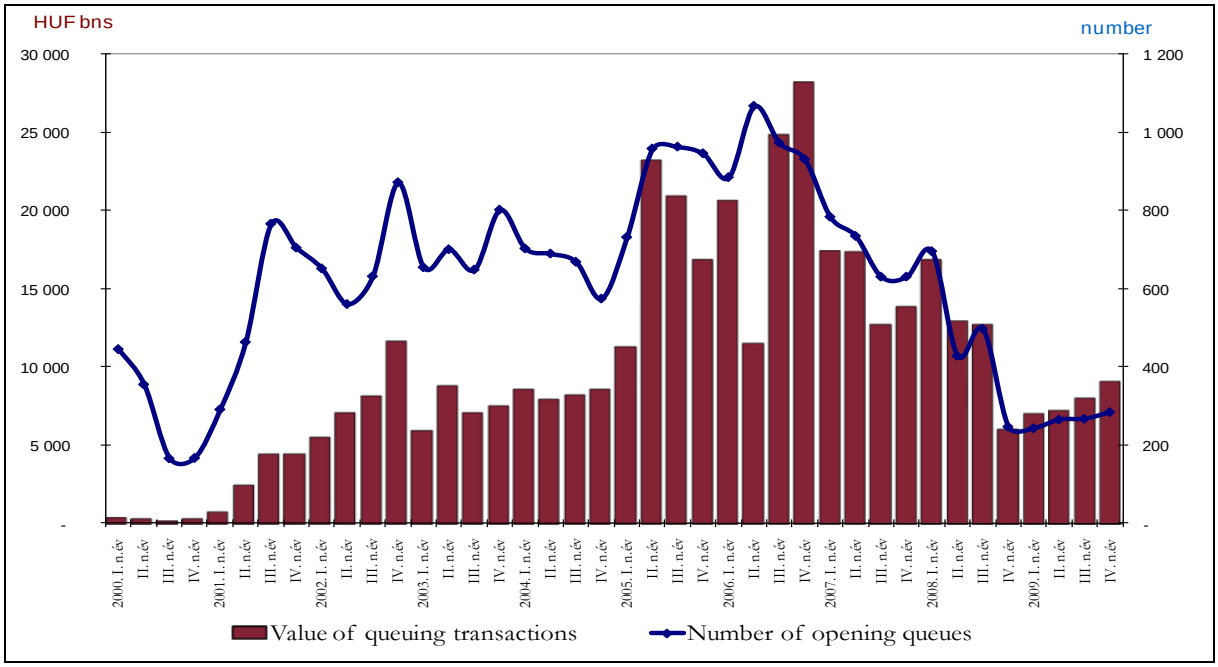
Chart 33: The value of queuing amounts and the number of queuing in VIBER, 2000–2009



[2] Total of the amounts in the messages sent about the items at the front of the queue. In the event that the bank already has a queue, a message is sent about the further items behind it in the queue only if the item at the front changes after 90 seconds (i.e. the number and value of the items queuing up is greater than that).

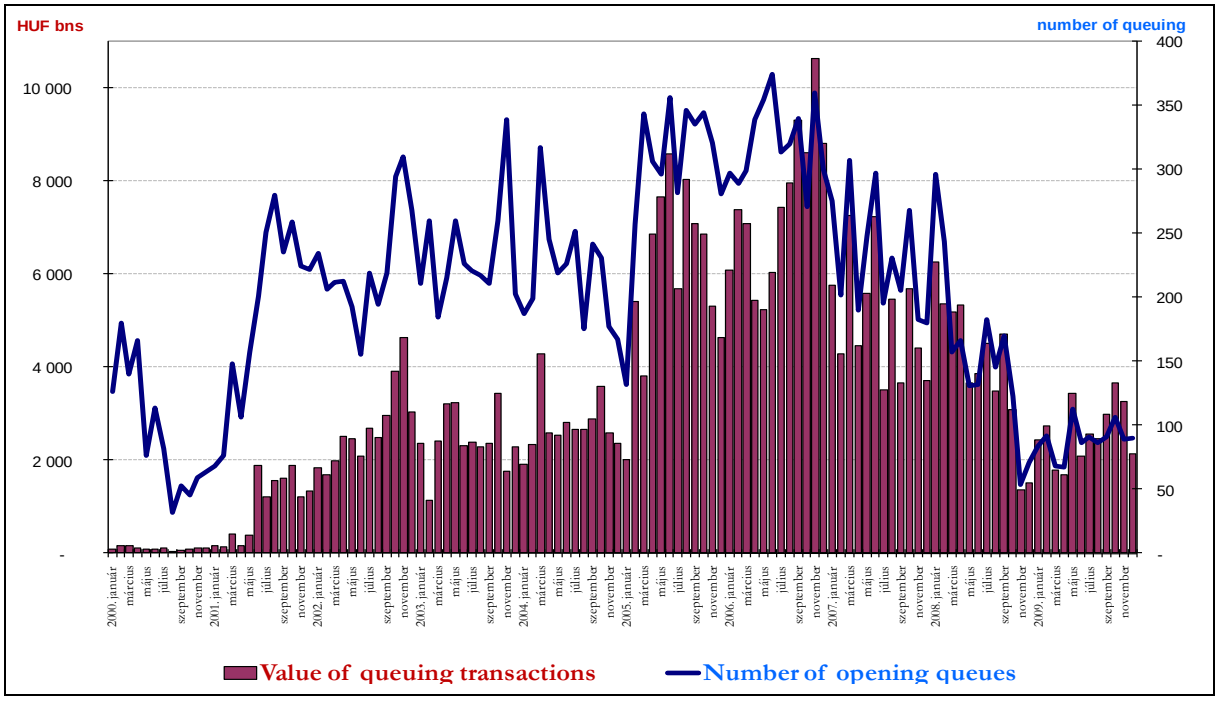
As shown in Chart 34, the declining trend revealed quarter by quarter turned into a slight increase in 2009.

Chart 34: Quarterly volume and value of transactions queuing in VIBER



Monthly data on queuing show that until mid-2005 payment orders had queued up in a larger volume and lower total value, then the value of the queues increased in several waves. In terms of value, the highest queuing was recorded in November 2006 (HUF 10.6 thousand billion), while in terms of volume the peak was reached in June 2006 (queuing at banks evolved on 374 occasions). 2007 was characterised by continuous fluctuations; in 2008 a clear declining trend was observed until November, followed by an increasing trend again. Accordingly, the effect of the liquidity crisis did not result in an increase in queuing measured at a monthly level during the whole period of the crisis (no information is available on the unsubmitted orders queuing in banks' 'drawers').

Chart 35: Monthly volume and value of transactions queuing in VIBER



The comparison of the VIBER turnover and the sum of the queues shows that initially the value of the queues was below 10% of the value of the turnover, reaching the highest value in 2005 Q2 (16.3%). From 2008 on this ratio declined to below 5%, which indicates an improving liquidity situation (there is more liquidity available for conducting payment transactions).

Chart 36: Value of transactions queuing in VIBER compared to the turnover by quarters

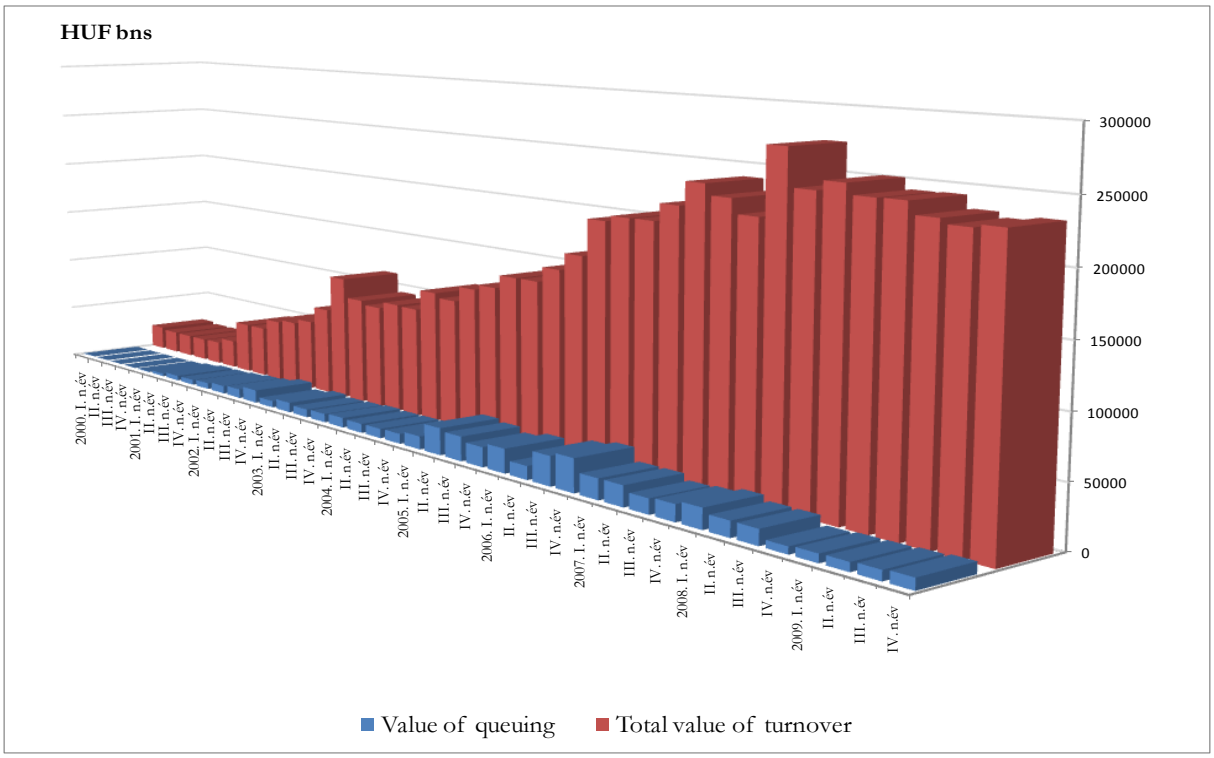
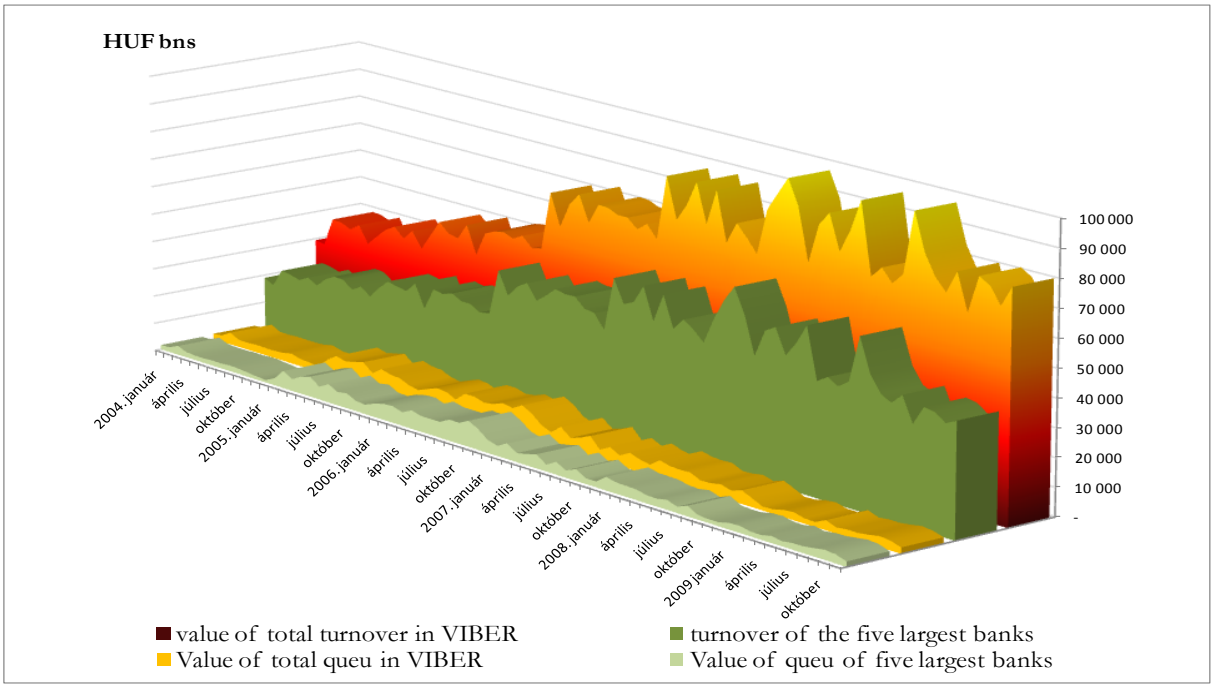


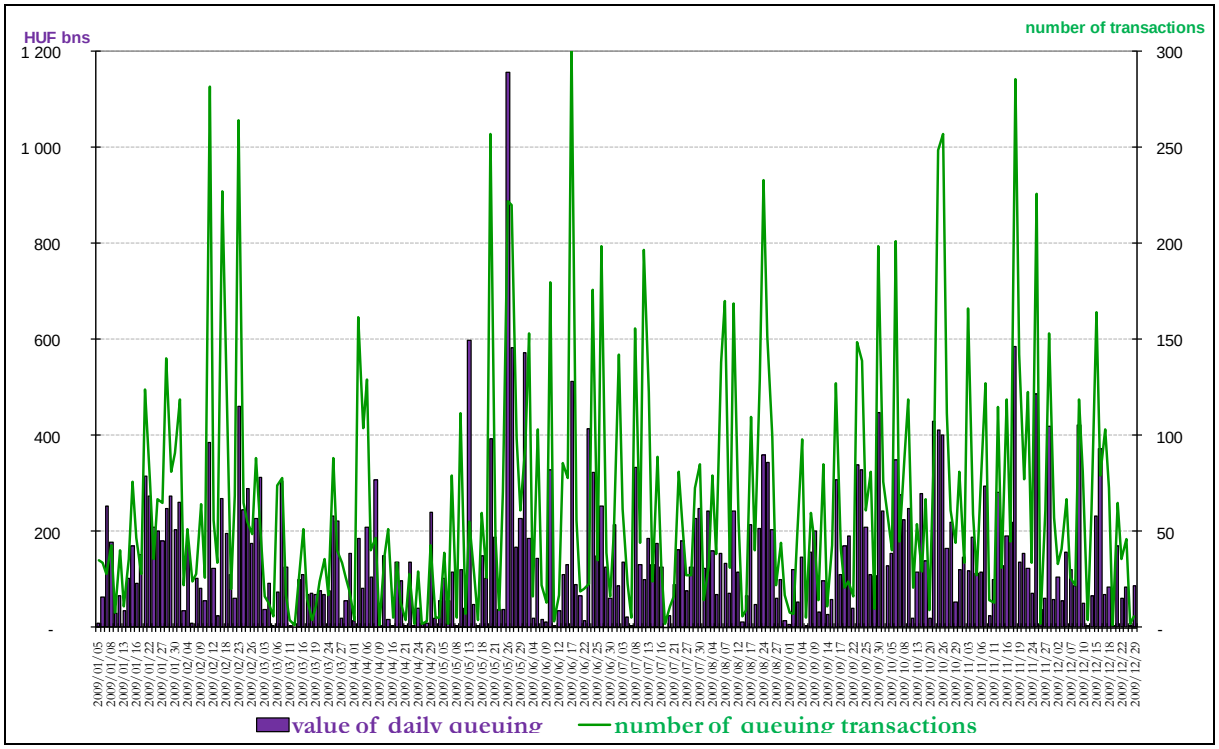
Chart 37 shows that the developments in the turnover of VIBER and the pattern of queuing are mainly determined by the five banks with the highest turnover.

Chart 37: The share of the five banks with the highest turnover in the turnover of VIBER and in the queuing amounts



Payment orders are settled in an average 56.2 seconds in VIBER, and 98% of all transactions are settled within five minutes.[3] In the case of payment orders settled in more than five minutes we presume that they queue up for lack of funds. In 2009 the highest number of queuing transactions (305 ea) was recorded on 17 June with a total value of HUF 511 billion, while the highest amount (HUF 1 158 billion) 'was lining up' on 26 May (222 transactions). The pattern of daily queues by value and volume is shown in Chart 38.

Chart 38: Daily volume and value of transactions settled in VIBER in more than five minutes



The intraday distribution of queuing is shown in Charts 39 and 40. Regarding the value of queues, the beginning of the business day starts 'smoothly'; the critical period is between 10 and 11 a.m. (this same period is the 'rush hour' period of the five banks with the highest turnover). Queuing drastically falls in the next hour, then declines at an even pace towards the end of the day.

[3] Calculated from the June 2009 data.

Chart 39: Intraday distribution of VIBER transactions in value settled in more than five minutes in 2009 (annual data)

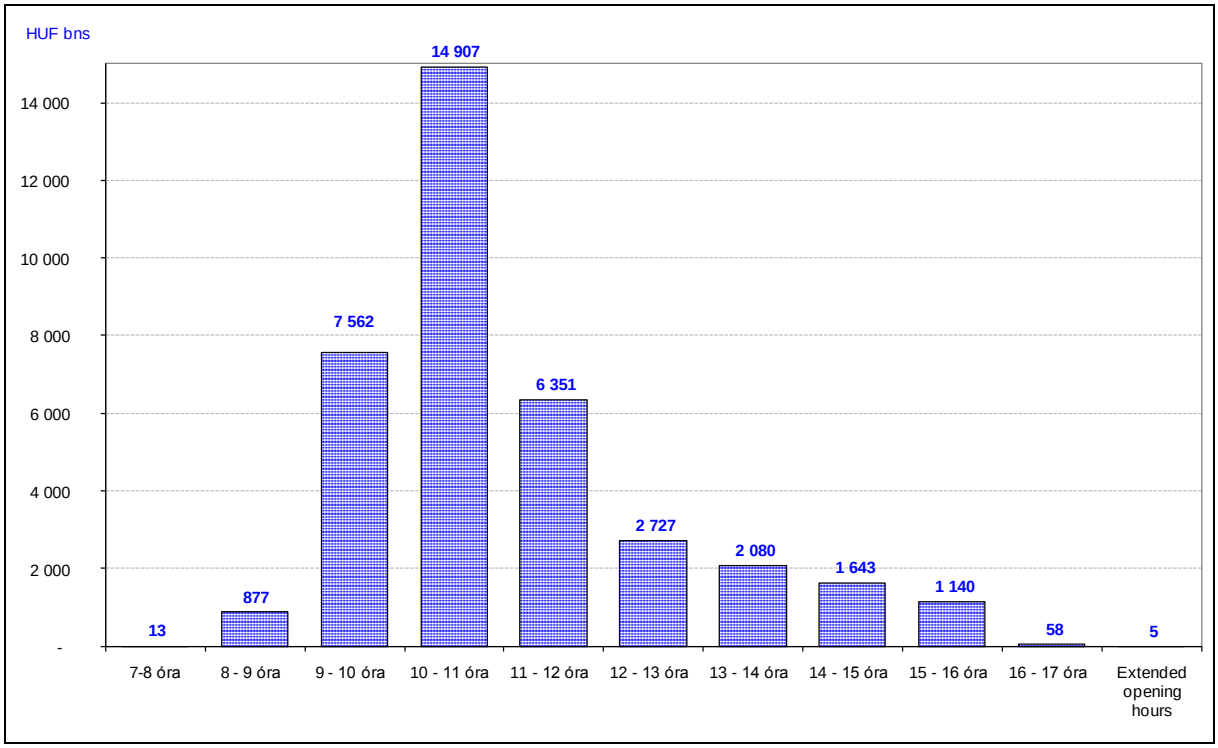
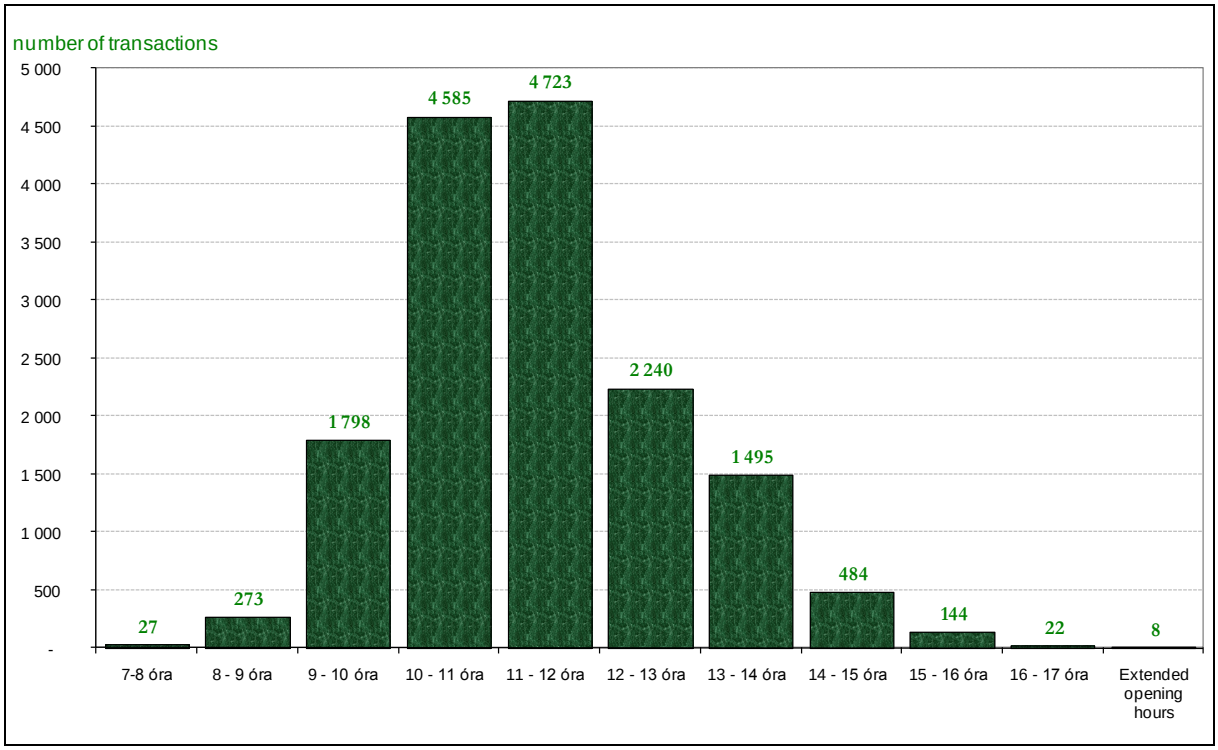
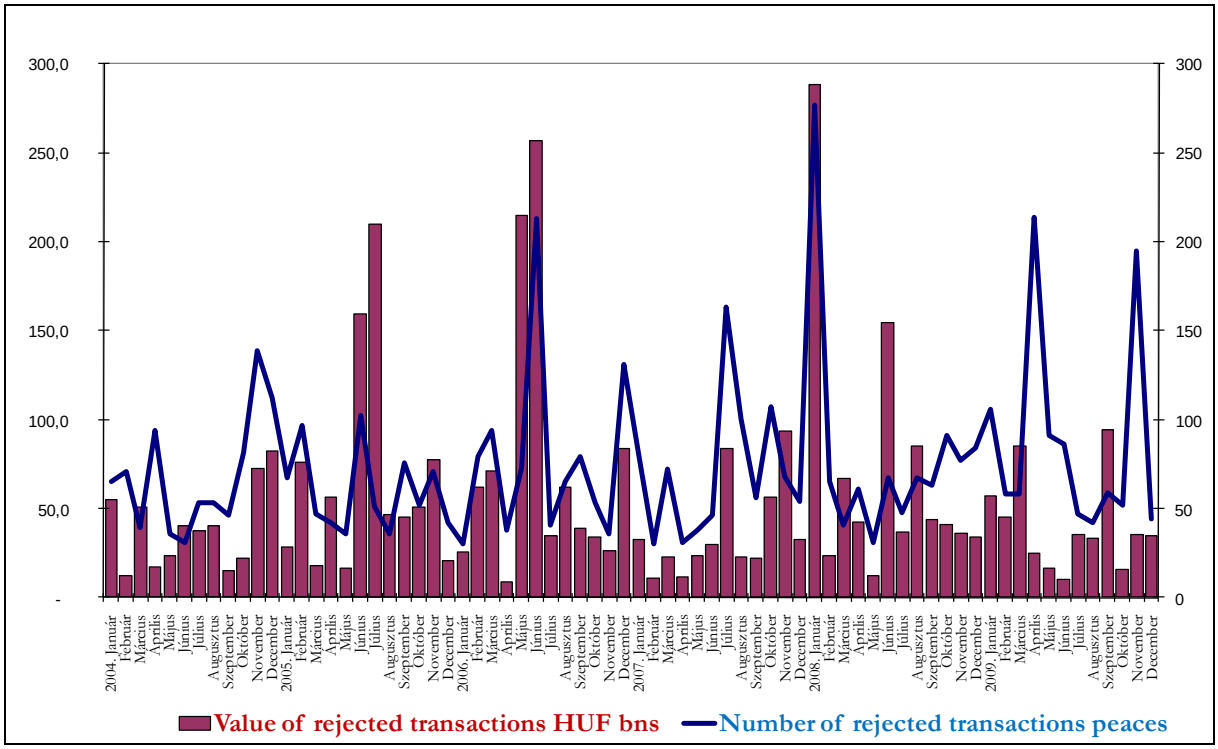


Chart 40: Intraday distribution of VIBER transactions in volume settled in more than five minutes in 2009 (annual data)



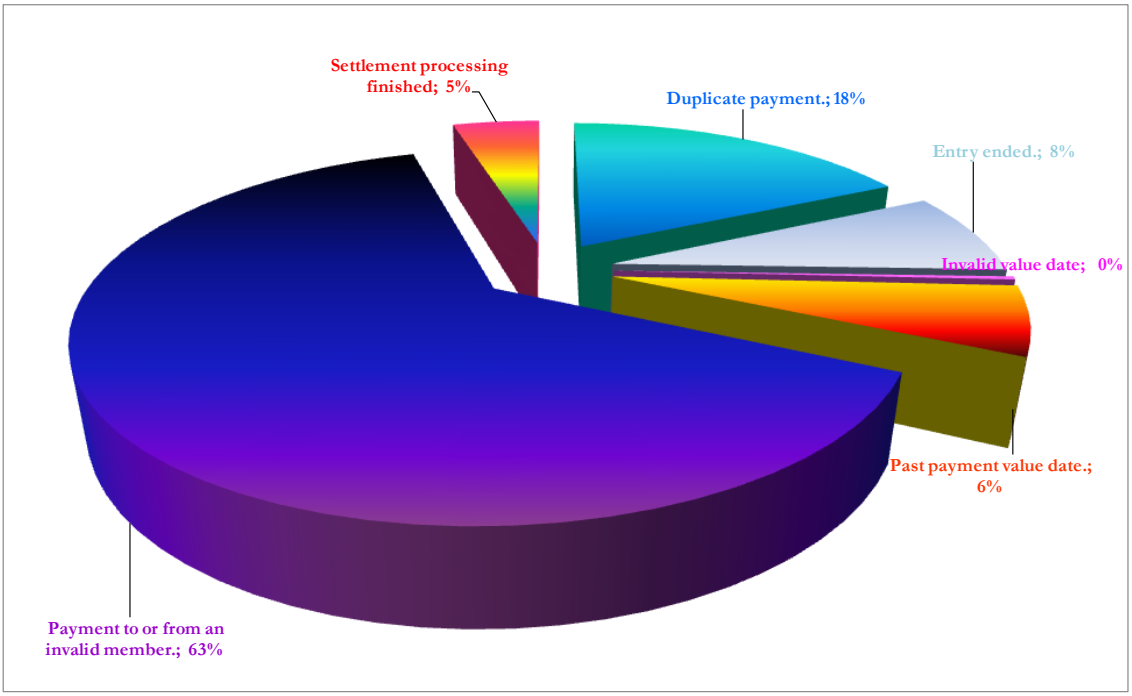
The value and number of transactions rejected because of various errors in the payment orders and not owing to end-of-day lack of funds continues to show strong fluctuations; it did not attain a declining trend especially in terms of volume.

Chart 41: Value and number of payment orders rejected in VIBER



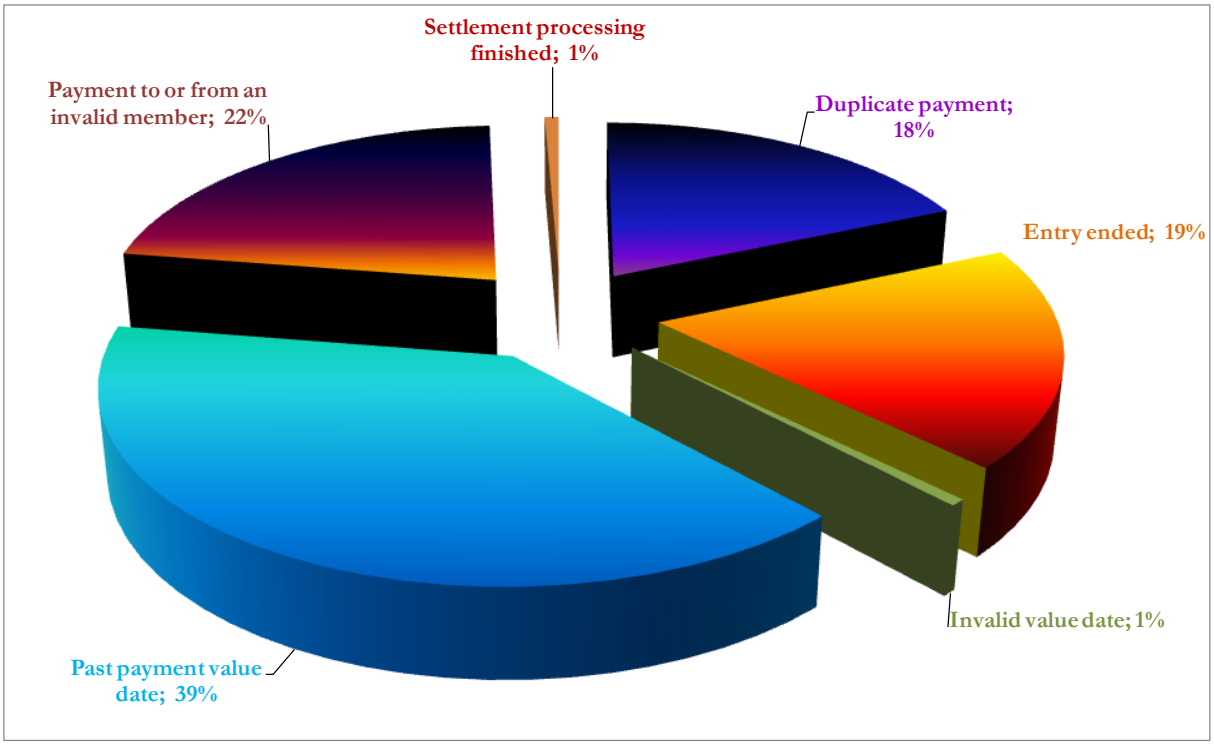
The main reason for rejection is the incorrect identification of the sending/receiving bank (wrong BIC); payments were submitted twice in nearly 20% of the cases, and the wrong setting of operating hours and value date also happens frequently.

Chart 42: Breakdown of transactions in value rejected in VIBER on the basis of the reason for rejection in 2009



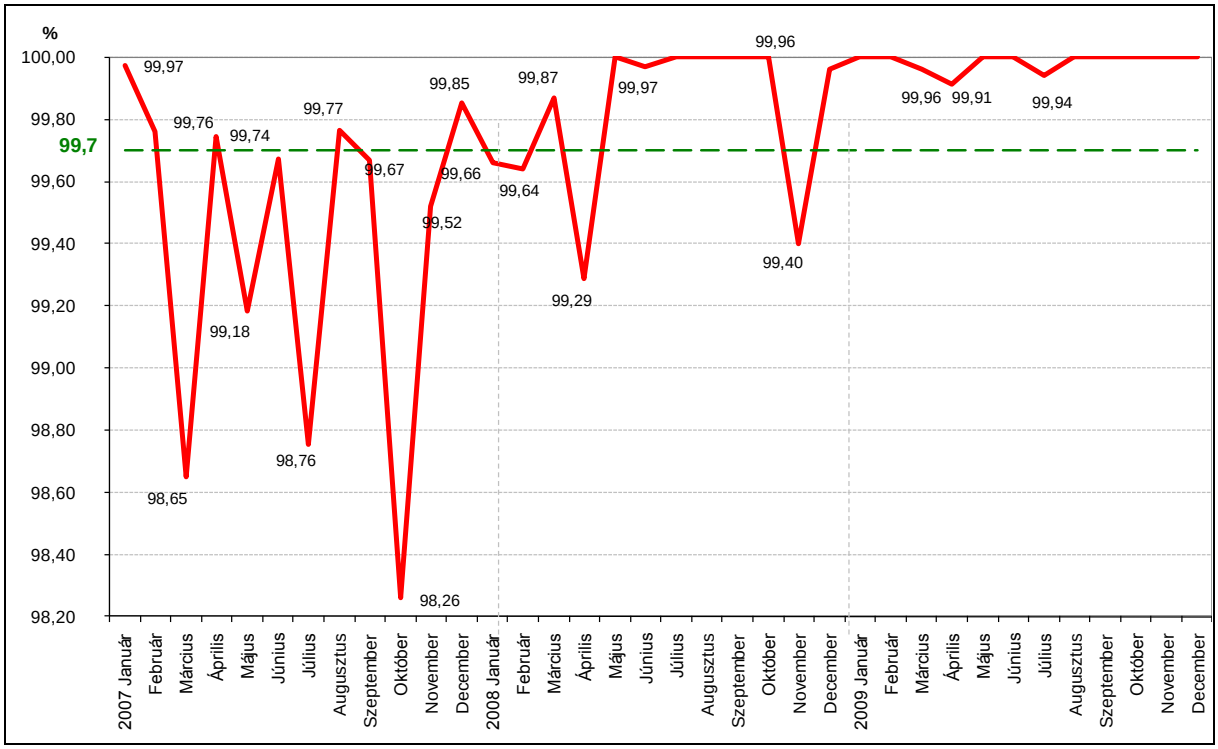
In terms of volume, the wrong value date and overdue cut-off time as well as double submissions cause most of the problems.

Chart 43: Breakdown of transactions by volume rejected in VIBER on the basis of the reason for rejection in 2009



The availability of VIBER (the ratio of operation to total operating hours) shows an improving trend. In 2009 the ratio was continuously above the expected 99.7%.

Chart 44: VIBER availability



2. Payment flows in VIBER and the MNB's home accounting system

As it is depicted in Chart 45, the number of transactions settled in InForex has been increasing steadily since 2001. In terms of value, in 2007 a sudden fall was caused by the changing of the two-week deposit into central bank bond, the settlement of which is done in VIBER. As a result of the crisis, the turnover surged again in 2008 and 2009; banks concluded transactions with the Central Bank instead of bank-to-bank transactions.

Chart 45: Annual volume and value of transaction performed in InForex

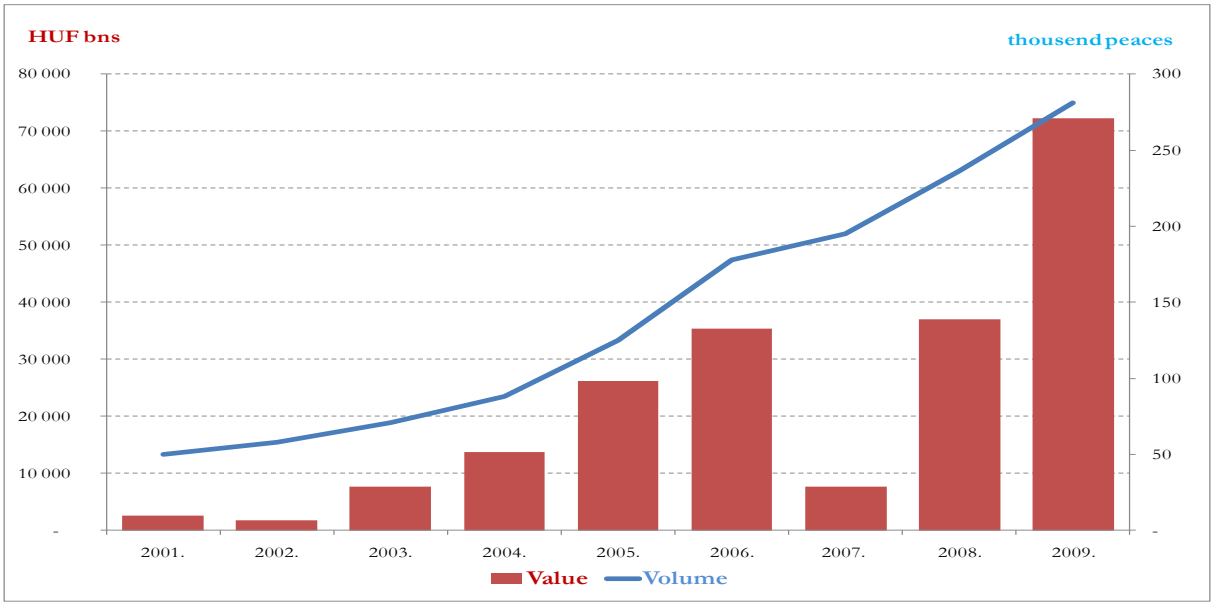
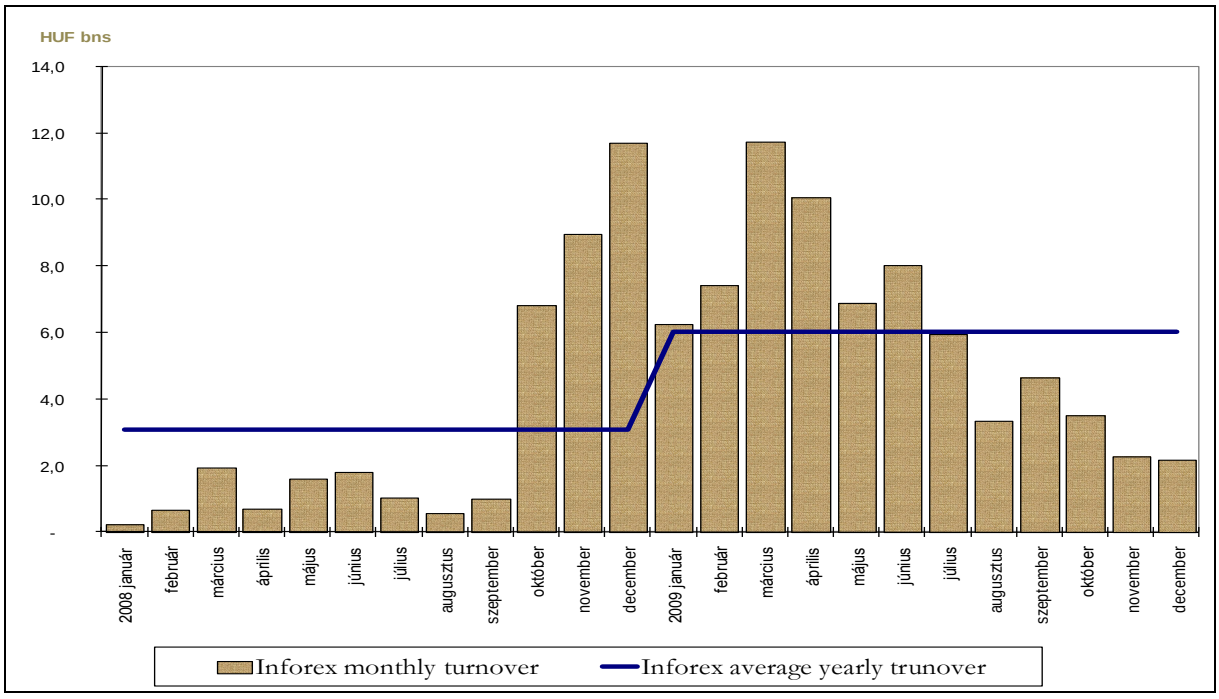


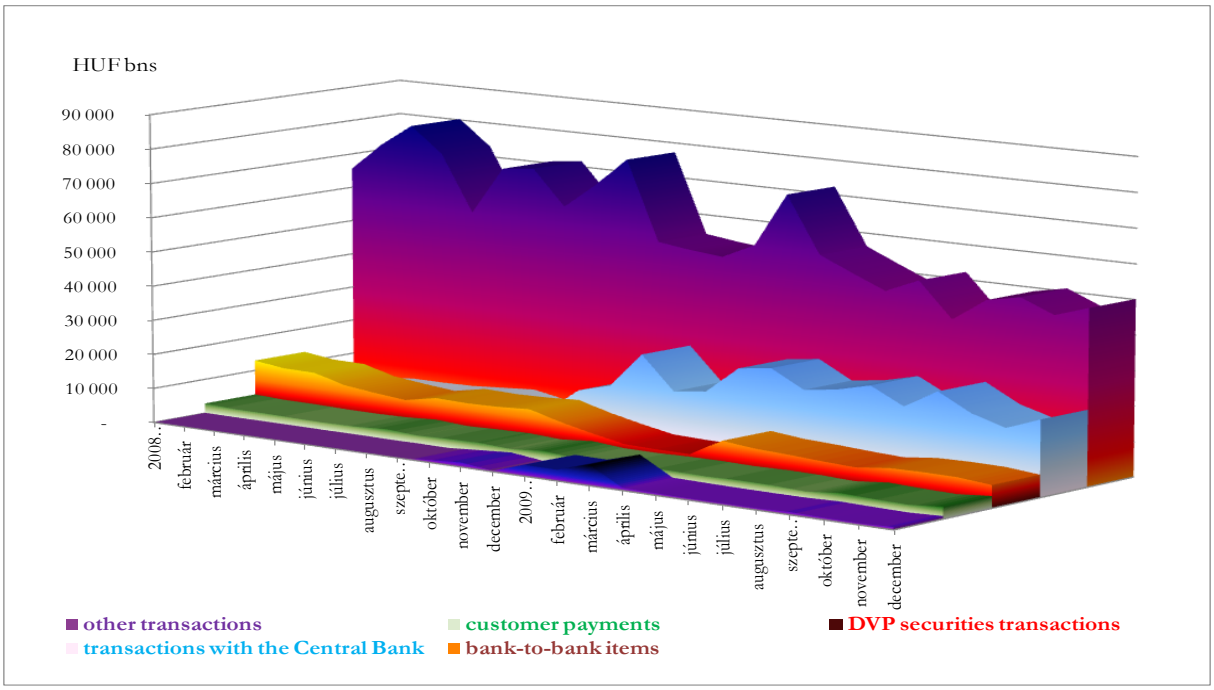
Chart 46 shows the value of transactions settled in InForex in a monthly breakdown. A sharp increase in turnover starting from October 2008 is well visible (while there was a decline in the other systems /VIBER, ICS, Hungarian Post/). Since mid-2009 a declining trend has been observed here as well. The change was driven by the deposit and foreign exchange transactions concluded with the MNB.

Chart 46: Monthly values of transactions settled in InForex relative to the annual average



It is distinctly visible in Chart 47 that examining the turnover of VIBER and InForex together, banks' interbank transactions and the turnover of DVP items also declined, while the value of transactions concluded with the Central Bank increased sharply. The turnover of customer payments is even.

Chart 47: Developments in individual payment order types of VIBER and InForex



From the second half of 2008 the increase in the turnover of the MNB's two-week bond introduced in 2007 had been restrained by the central bank deposit, then, following 2009 Q1, the bond came to the fore. The magnitude of end-of-day credit is negligible compared to the deposit/bond transactions.

Chart 48: Transactions concluded with the Central Bank

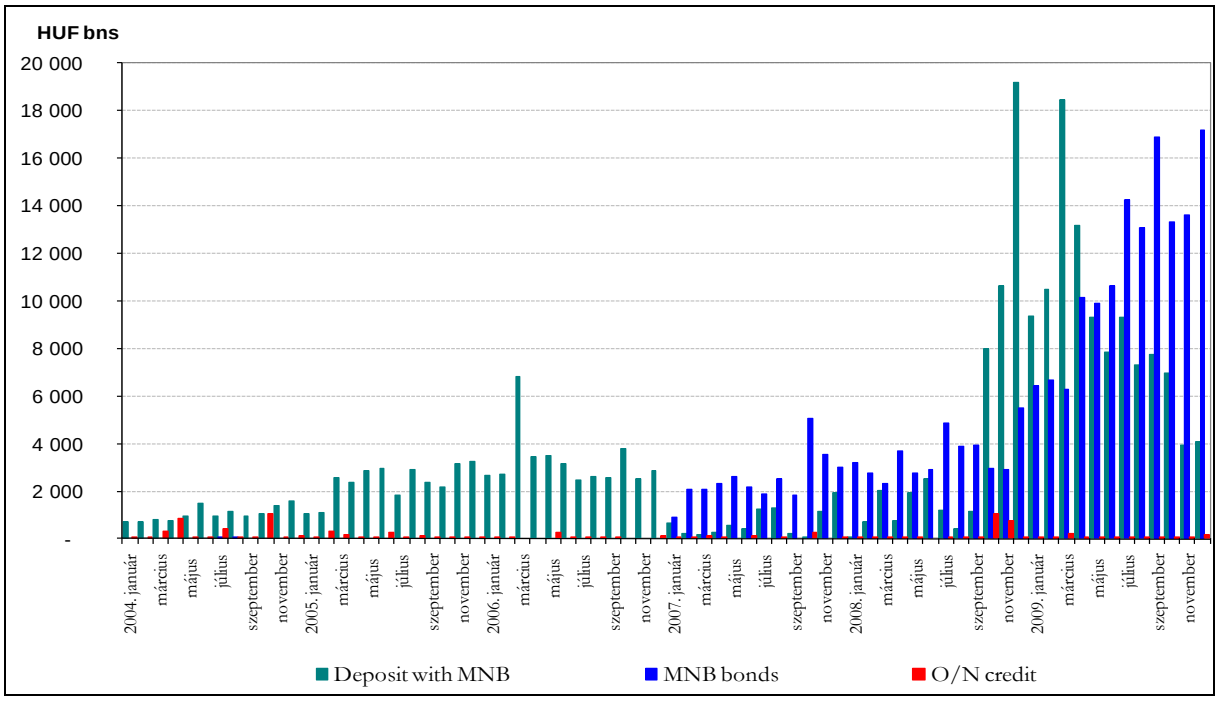
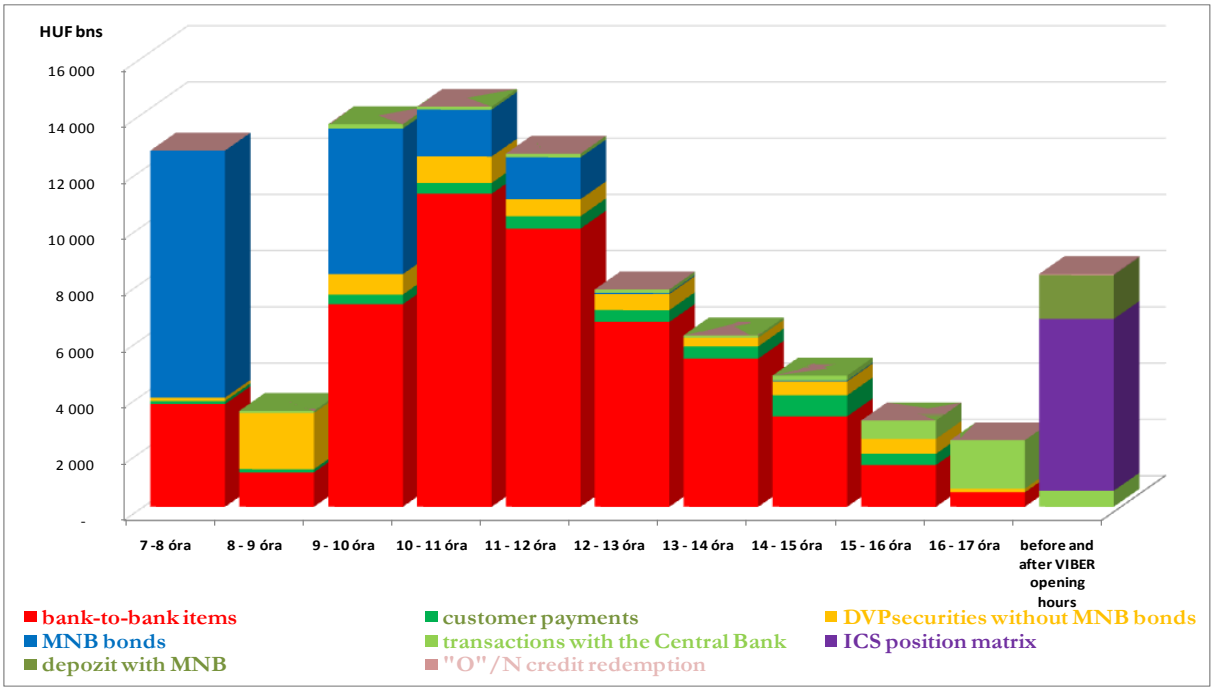


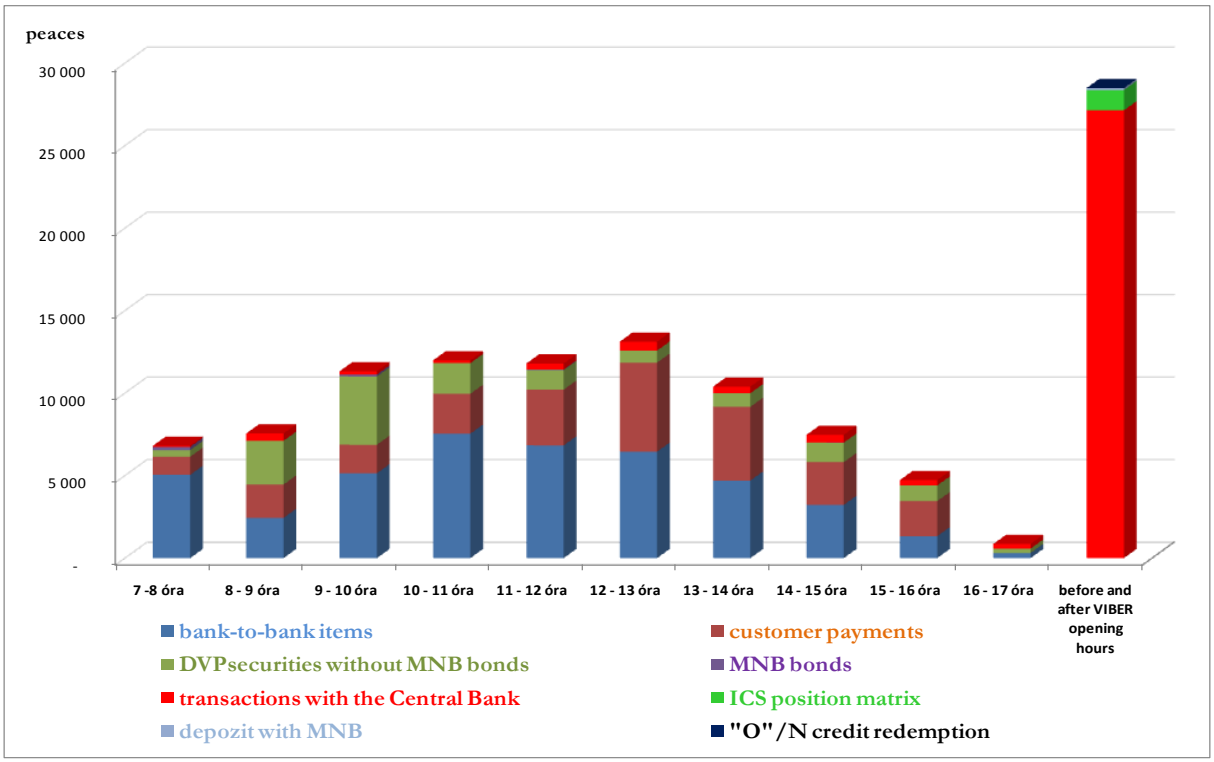
Chart 49 shows the intraday distribution of the payment flows of VIBER and InForex together. The peak turnover following the opening is a result of the maturity of the central bank bond and the value date items. The surge after 9 o'clock is caused by the settlement of the two-week bonds.

Chart 49: Intraday distribution of VIBER and InForex transactions in value by types including the MNB in December 2009



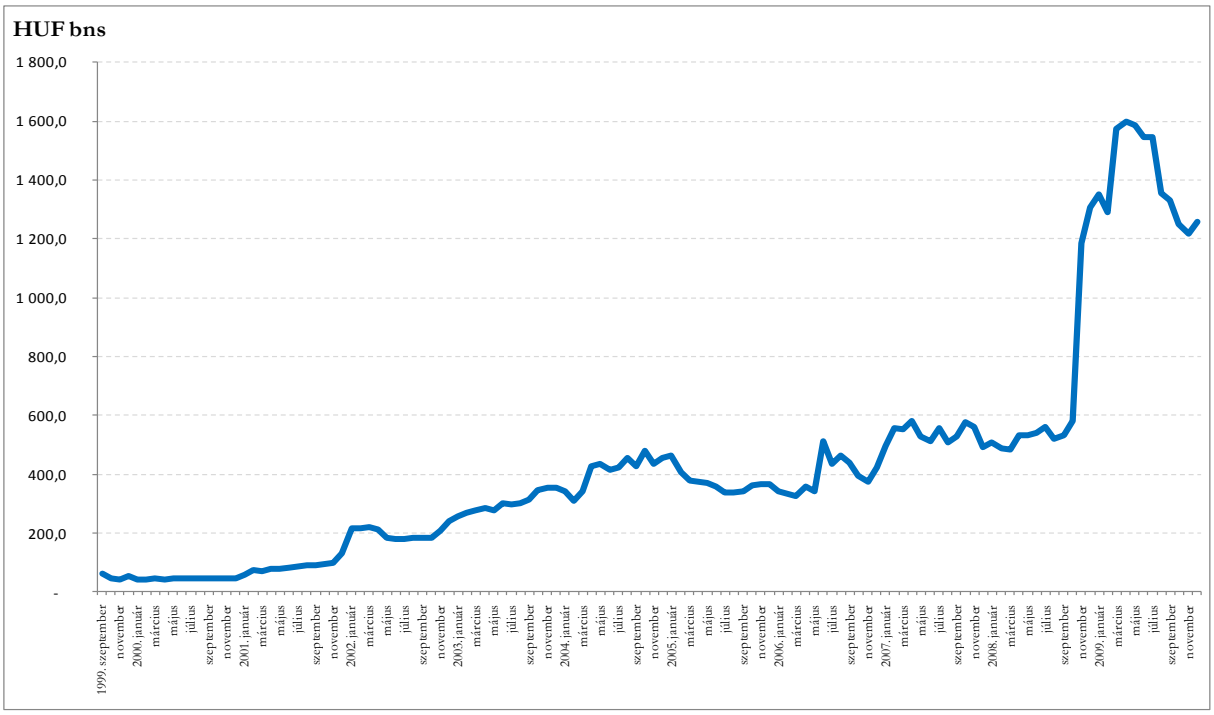
The outstanding number of other items comprises the end-of-day credit/deposit transactions, interests and fees as well as the forint side of foreign exchange transactions.

Chart 50: Intraday distribution of VIBER and InForex transactions in volume by types including the MNB in December 2009



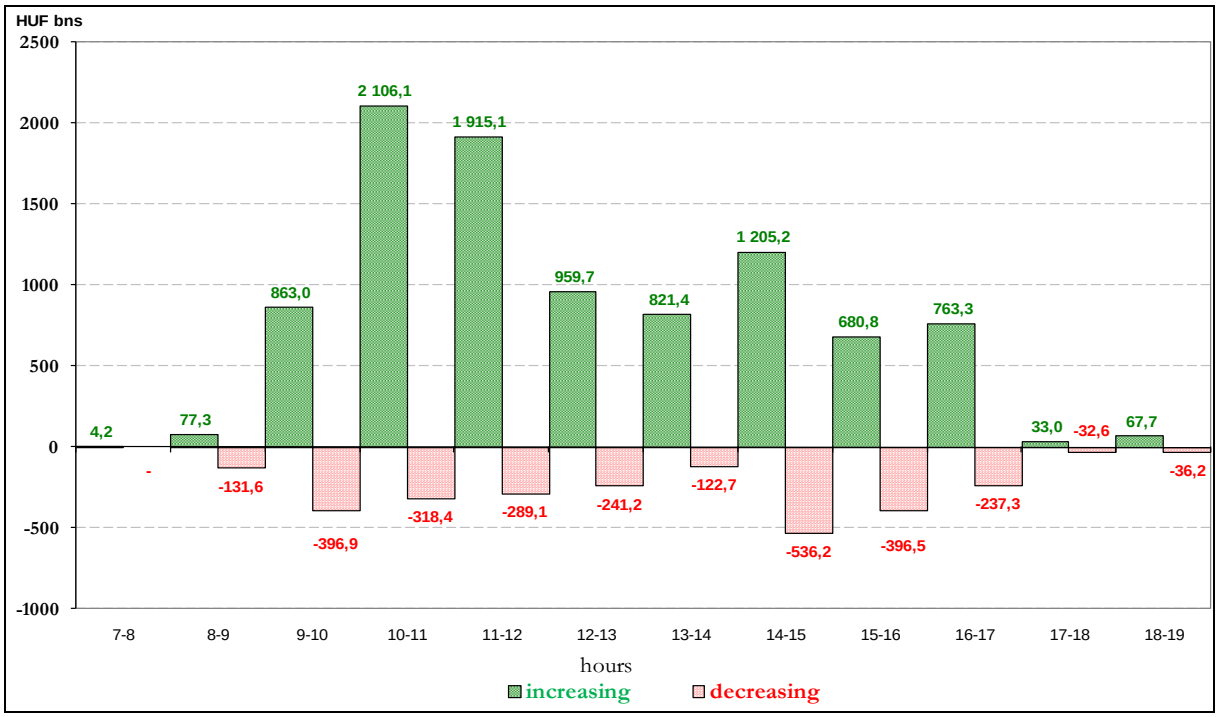
The intraday credit line requested by banks serves the purpose of supplementing the balance account. Its daily amount increased gradually (as a monthly average). The two-week bond introduced in 2007 can also be placed as collateral, which resulted in a slight increase. A sharp increase was caused by the decline in the level of statutory reserves at end-2008: it reached its peak (HUF 1 598 billion) in April 2009, followed by a sudden fall.

Chart 51: Monthly changes in the intraday credit line



The amount of the credit line can be modified in a discretionary manner during the day: it can be increased by providing additional collateral; the free stock can be reduced. The relevant intraday distribution in value for 2009 is shown in Chart 52.

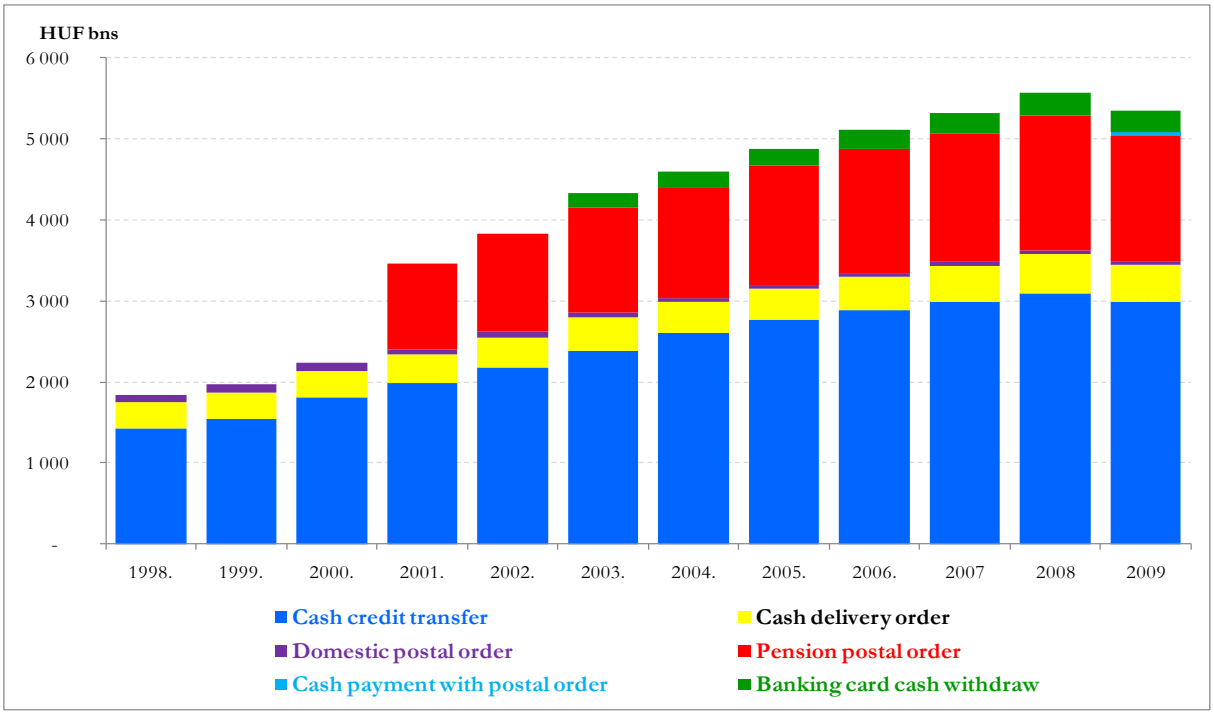
Chart 52: Intraday credit line amendment in value



3. Payment transactions carried out by the Hungarian Post

The growth rate of payments settled by the Post is determined by the steady increase in cash credit transfer, supplemented by the moderate increase in pensions by cash delivery order since 2001. Cash drawing by bank card represents a modest but increasing magnitude. Following the pattern of VIBER and the ICS a decline took place in the postal turnover as well by 2009.

Chart 53: Turnover in value performed the Post by payment types



The number of transactions carried out by the Hungarian Post follows the trend shown in value.

Chart 54: Turnover in volume performed the Post by payment types

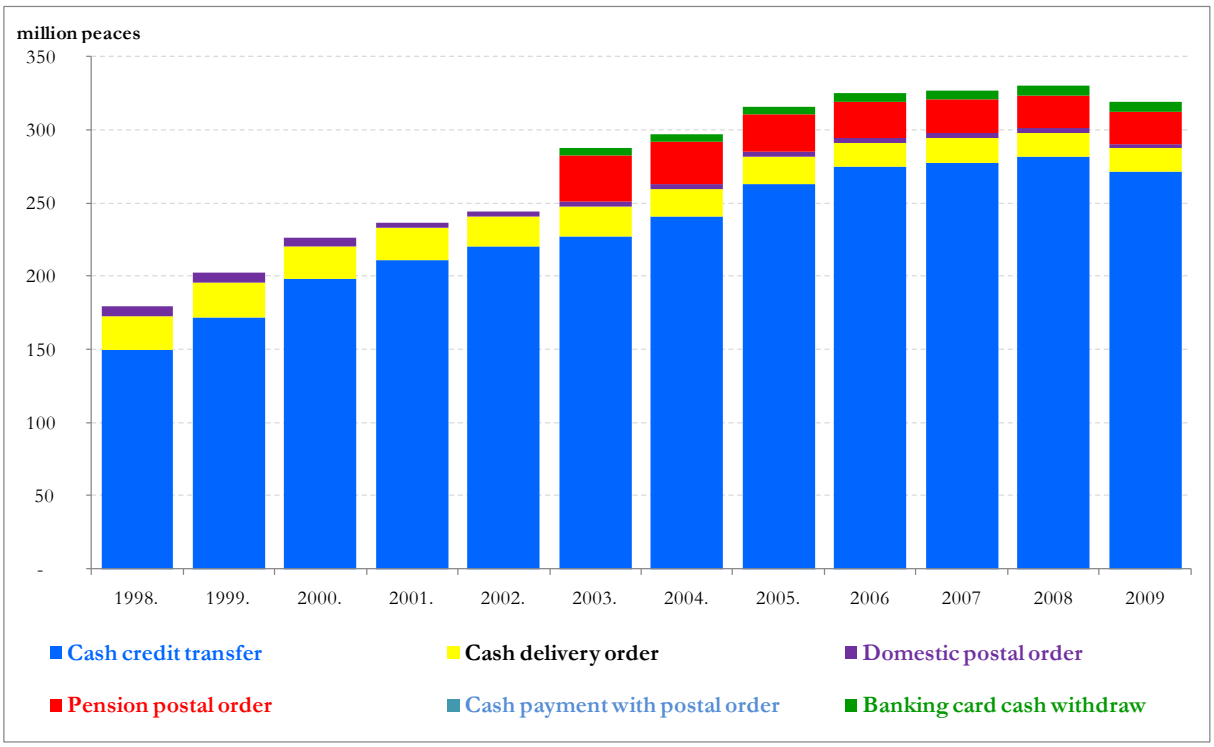
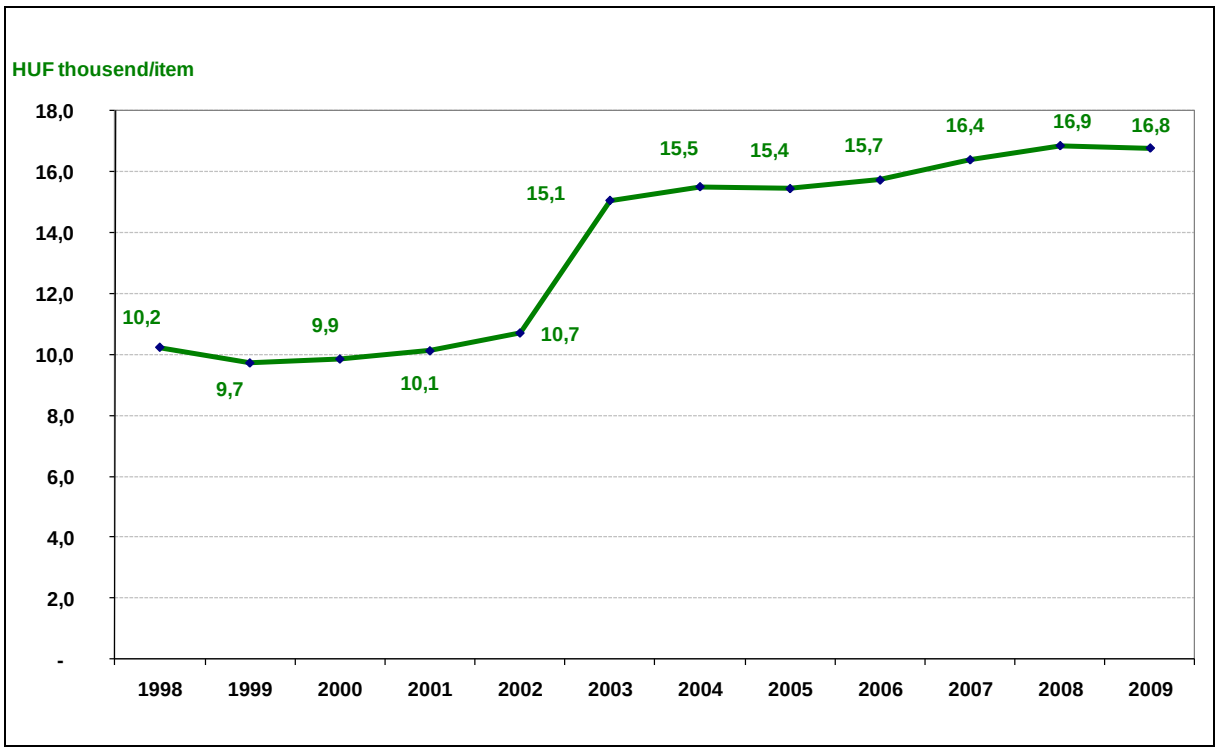


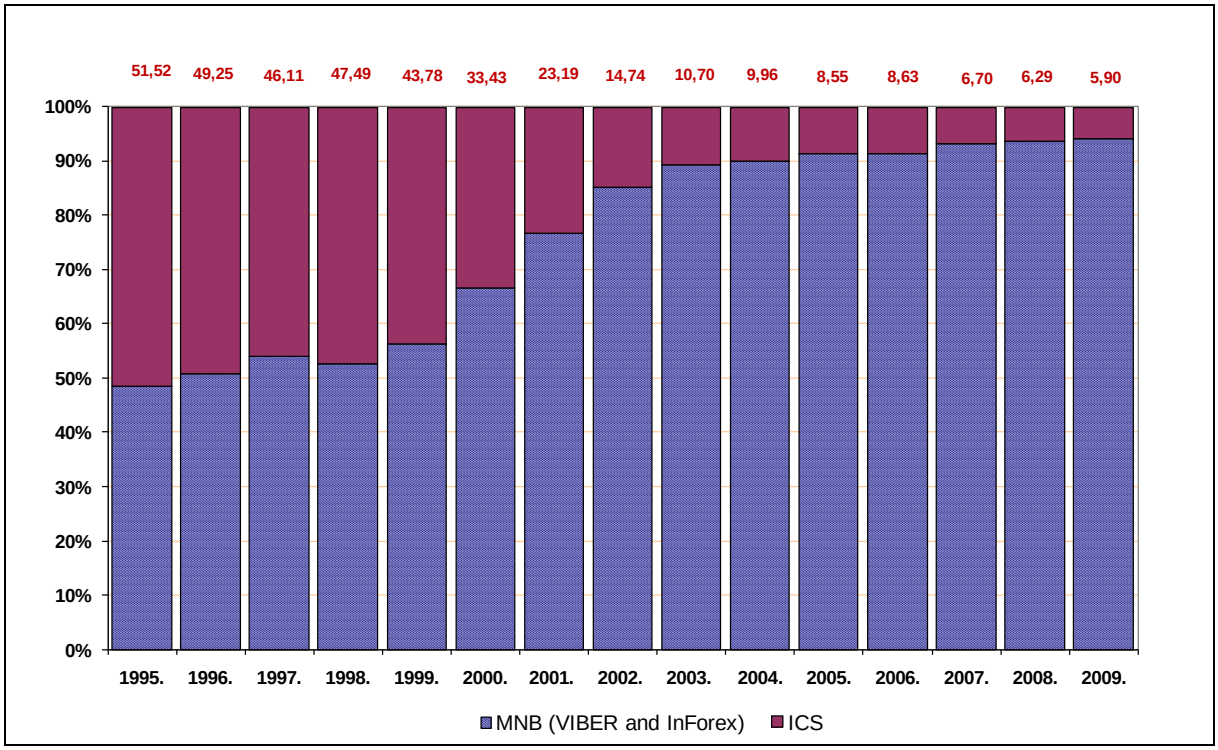
Chart 55: Average amount per item in postal cash payments (1998–2009)



III. Comparison of the payment flows of individual systems

The ratio of payment transactions settled by the GIRO and the MNB was almost exactly 50-50 upon the launching of the interbank giro system (the turnover of the GIRO was 51.52% in value), then, following the launching of VIBER, from 2000 on most of the turnover was settled at the MNB; this ratio exceeded 94% in 2009.

Chart 56: Distribution of the interbank payment turnover between the MNB's systems and the ICS



Following the launching of VIBER only approximately one third of the payment orders with an individual value exceeding HUF 10 million was settled in VIBER; this ratio has increased to above 50% since then. Charts 57 and 58 show the relevant annual and monthly developments.

Chart 57: Annual distribution of customer payments exceeding HUF 10 million between the ICS and VIBER

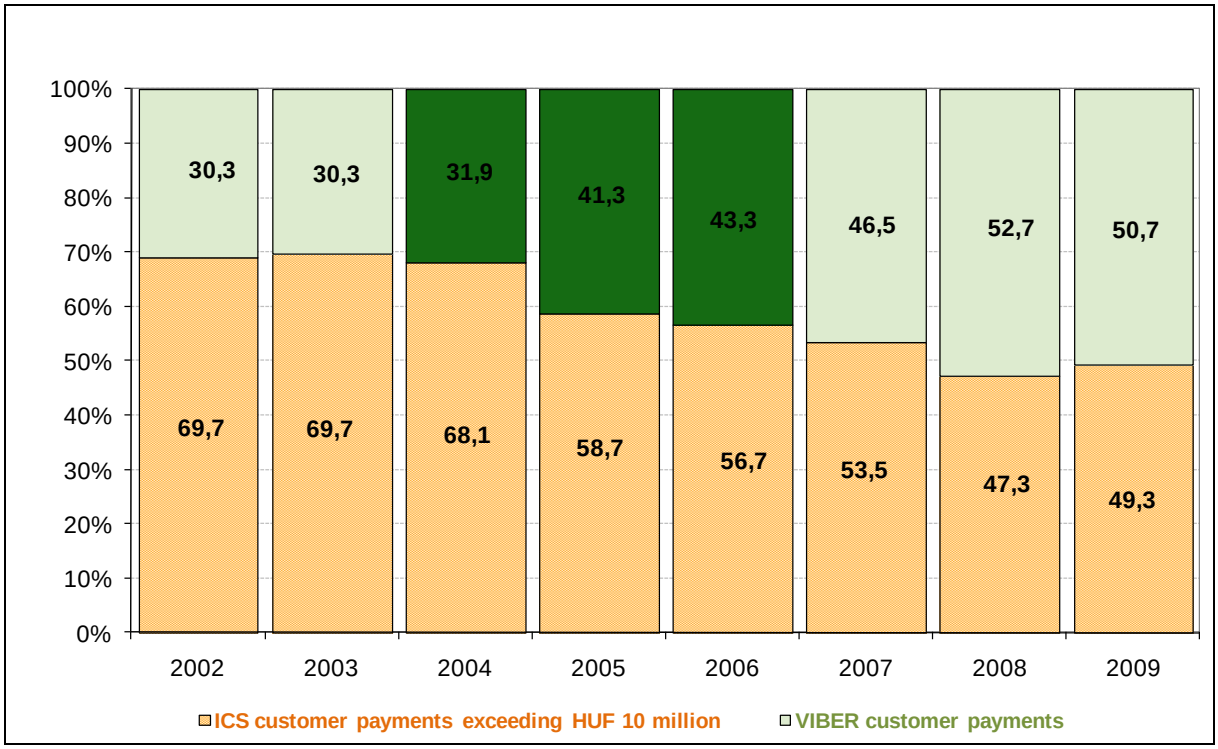
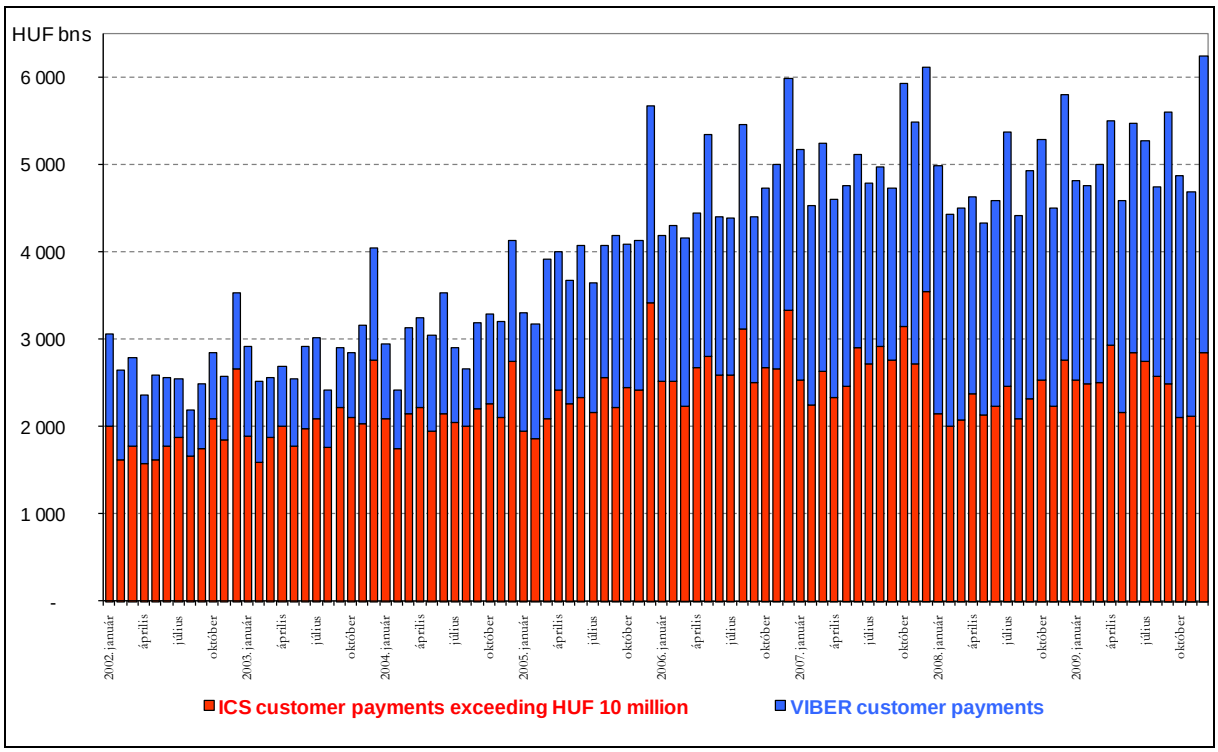


Chart 58: Monthly distribution of customer payments exceeding HUF 10 million between the ICS and VIBER

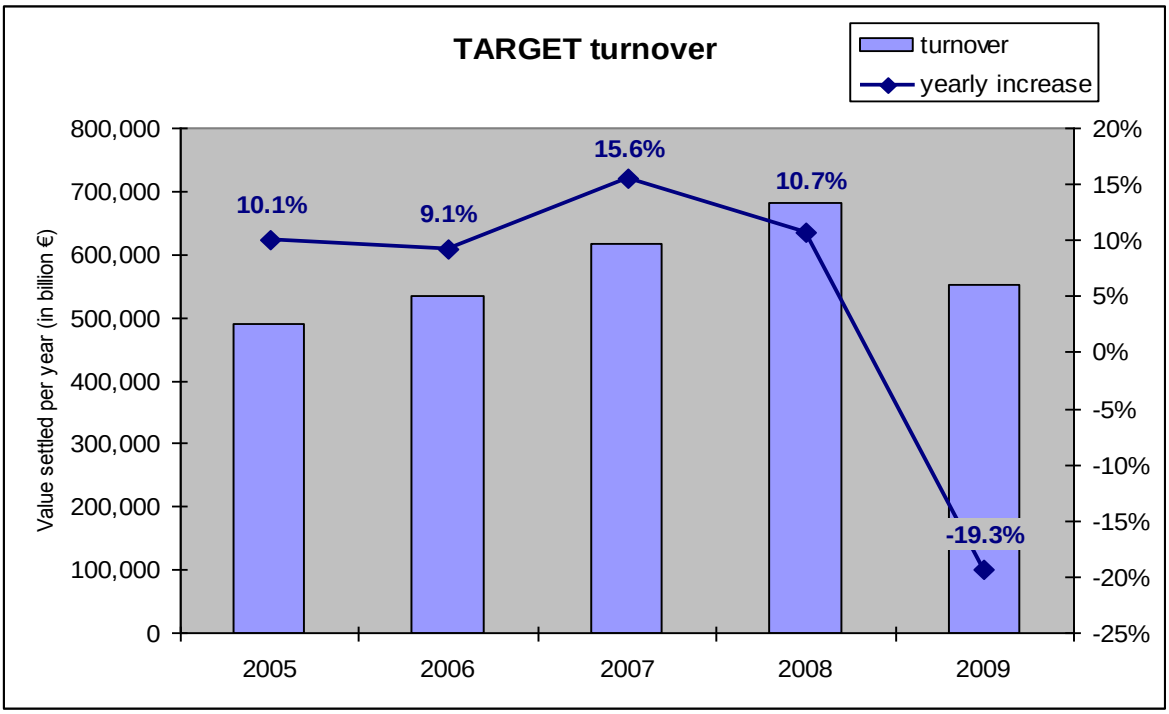


The turnovers in value of both VIBER and TARGET2 (which was launched in three stages between 19 November 2007 and 18 May 2008, and worked in parallel with the gradually terminated TARGET1 system) shows significant fluctuations; in several periods they move in the

same direction, and a declining trend is typical of 2009 (in spite of the increase in the number of TARGET2 member countries: Slovakia joined on 1 January 2009 /and Bulgaria as well in February 2010 as an 'out' country/).

Charts 59 and 60 depict the developments in the annual turnovers of TARGET and VIBER with the change compared to the turnover in the previous year.

Chart 59: Annual payment flows in TARGET and changes compared to the previous year



(Source: TARGET ANNUAL REPORT 2009)

Chart 60: Annual payment flows in VIBER and changes compared to the previous year

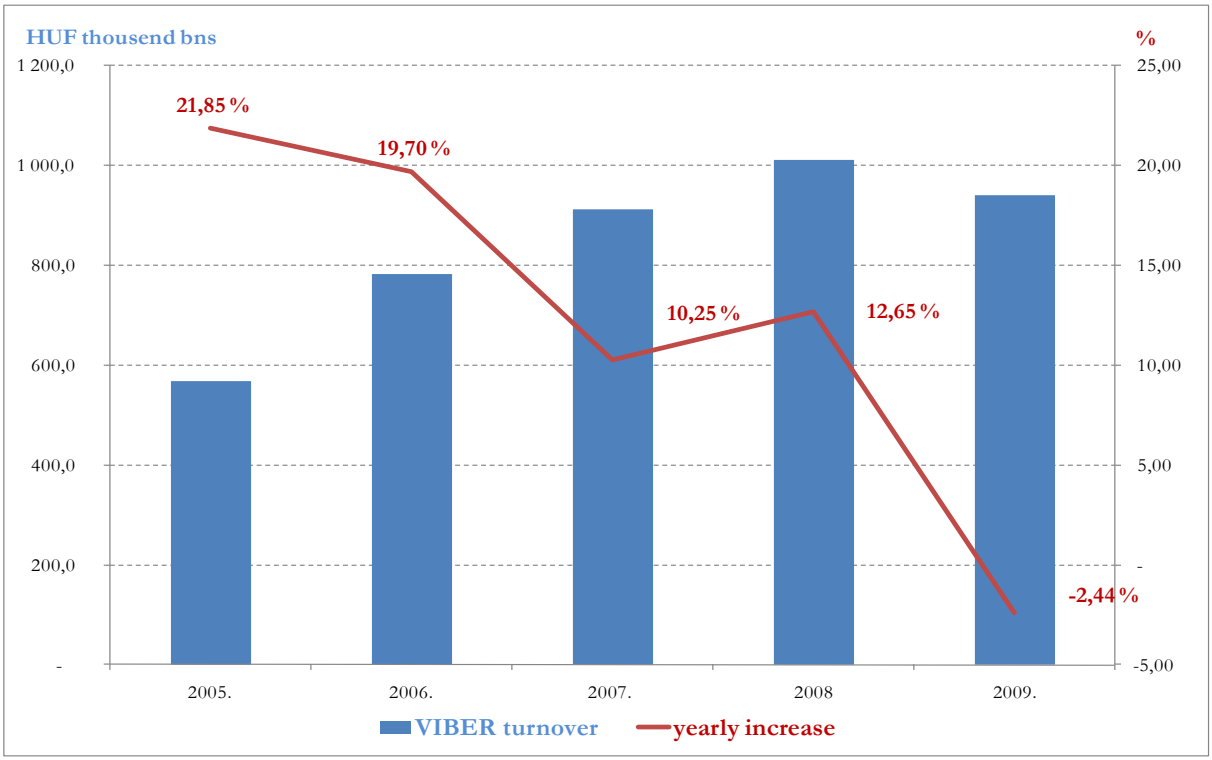
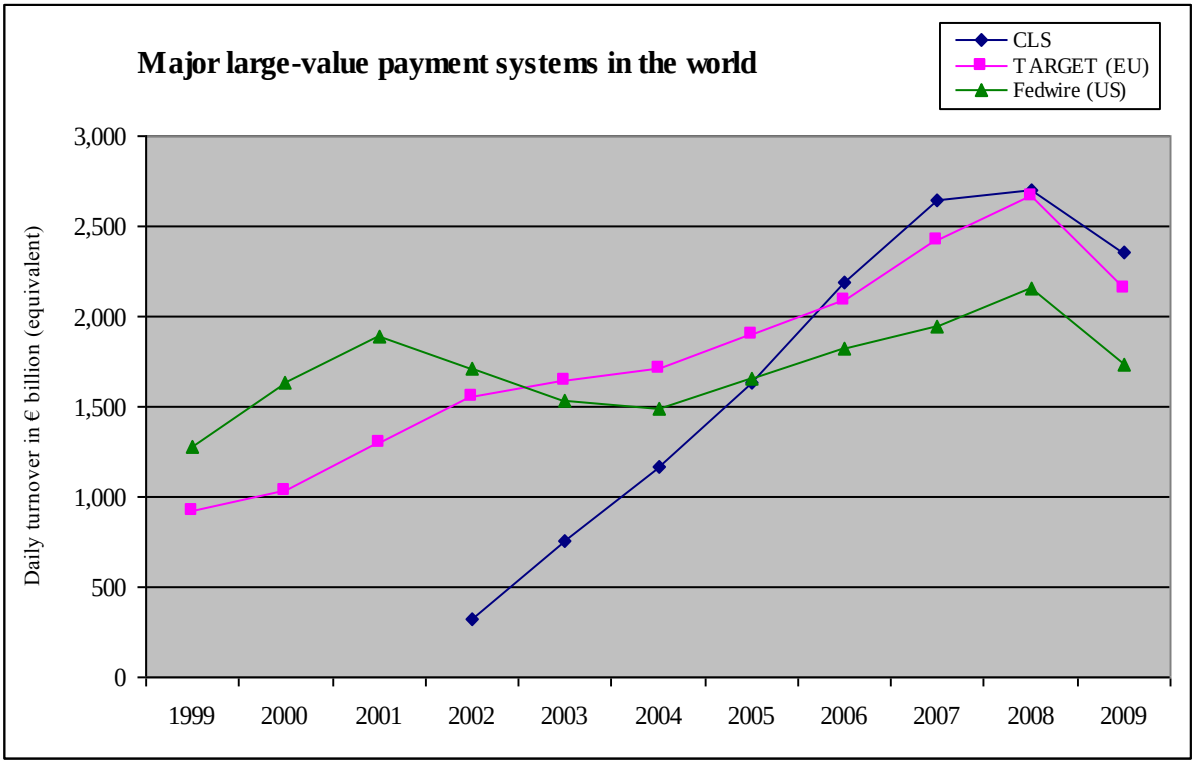


Chart 61: Daily turnover of the largest high-value payment systems by year



(Source: TARGET ANNUAL REPORT 2009)

Chart 62: Average daily VIBER turnover

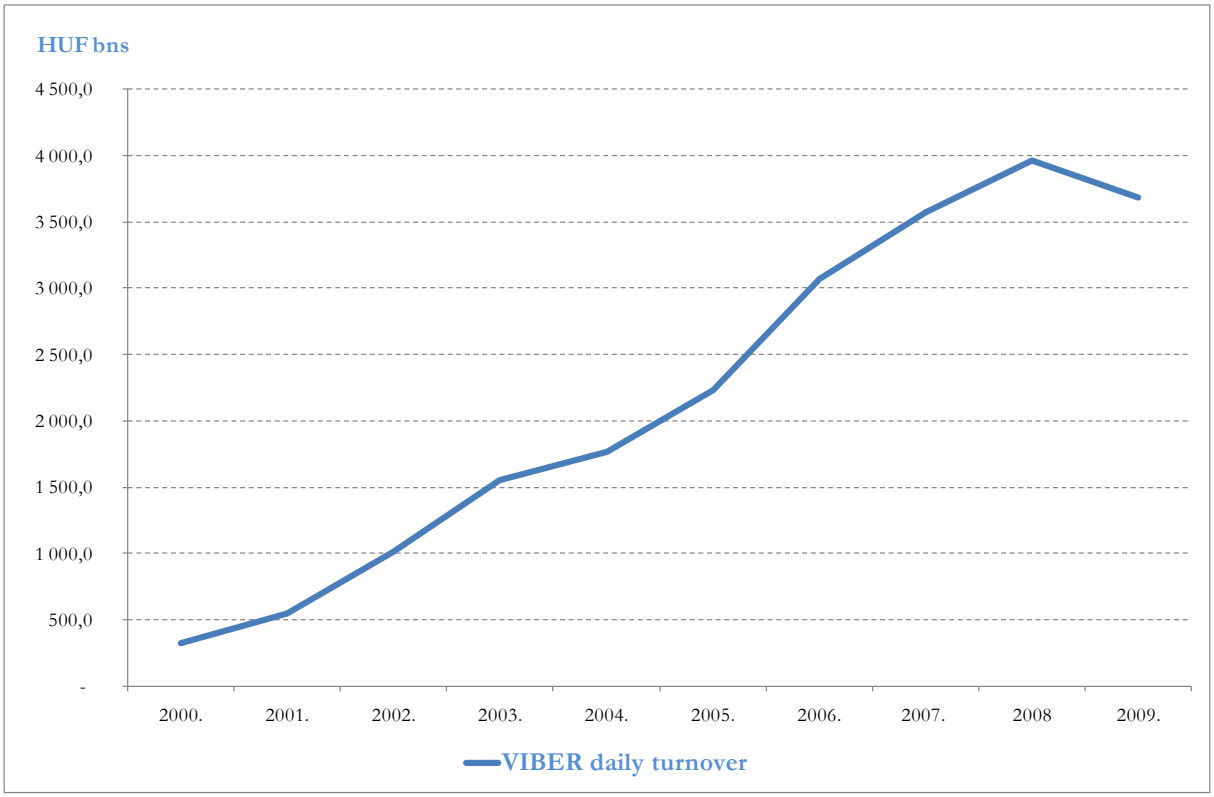
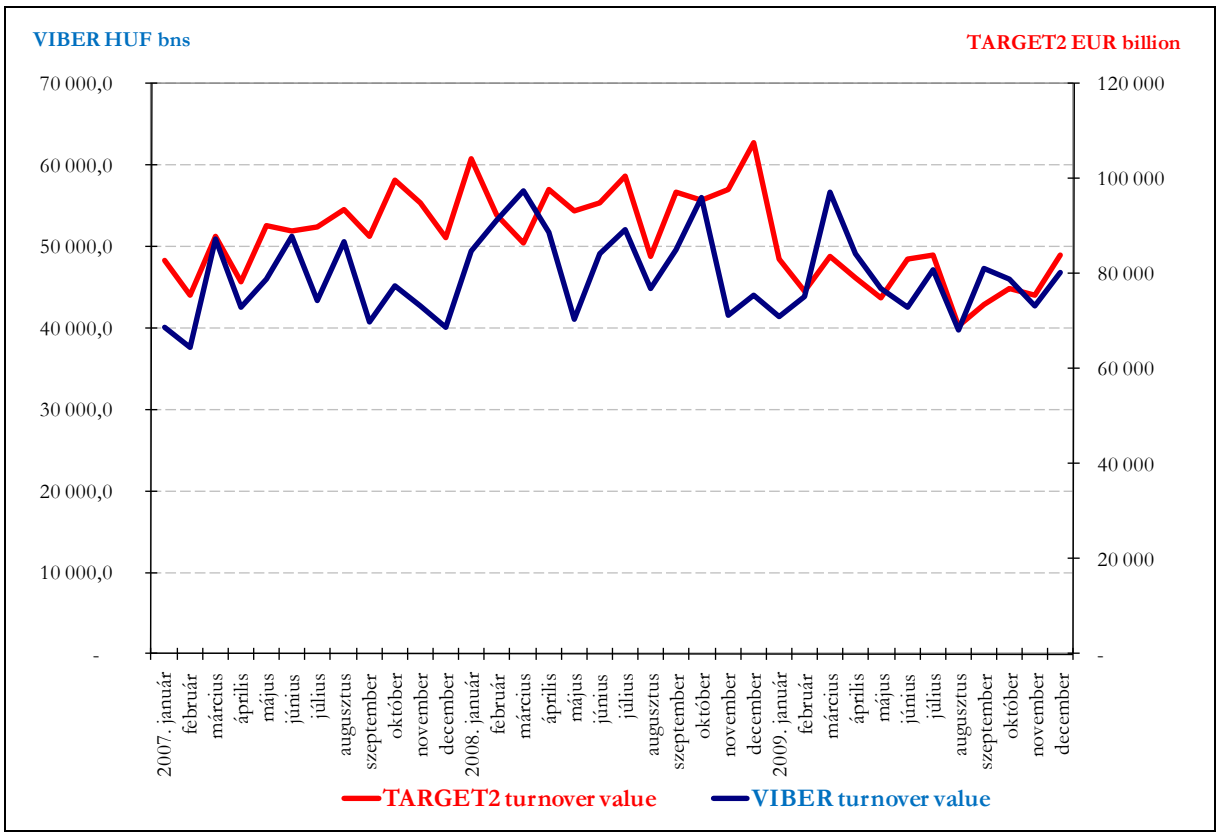
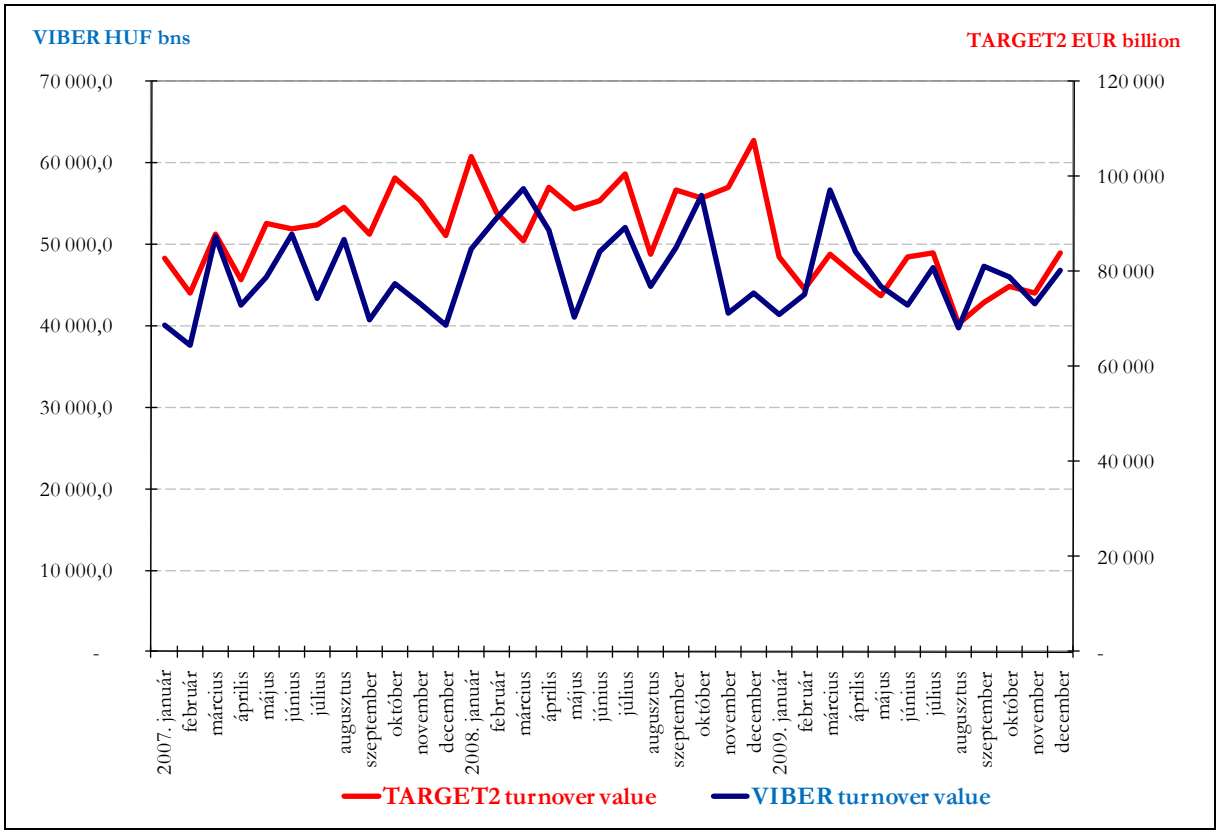


Chart 63: Comparison of the VIBER turnover with the TARGET2 turnover in value, by month



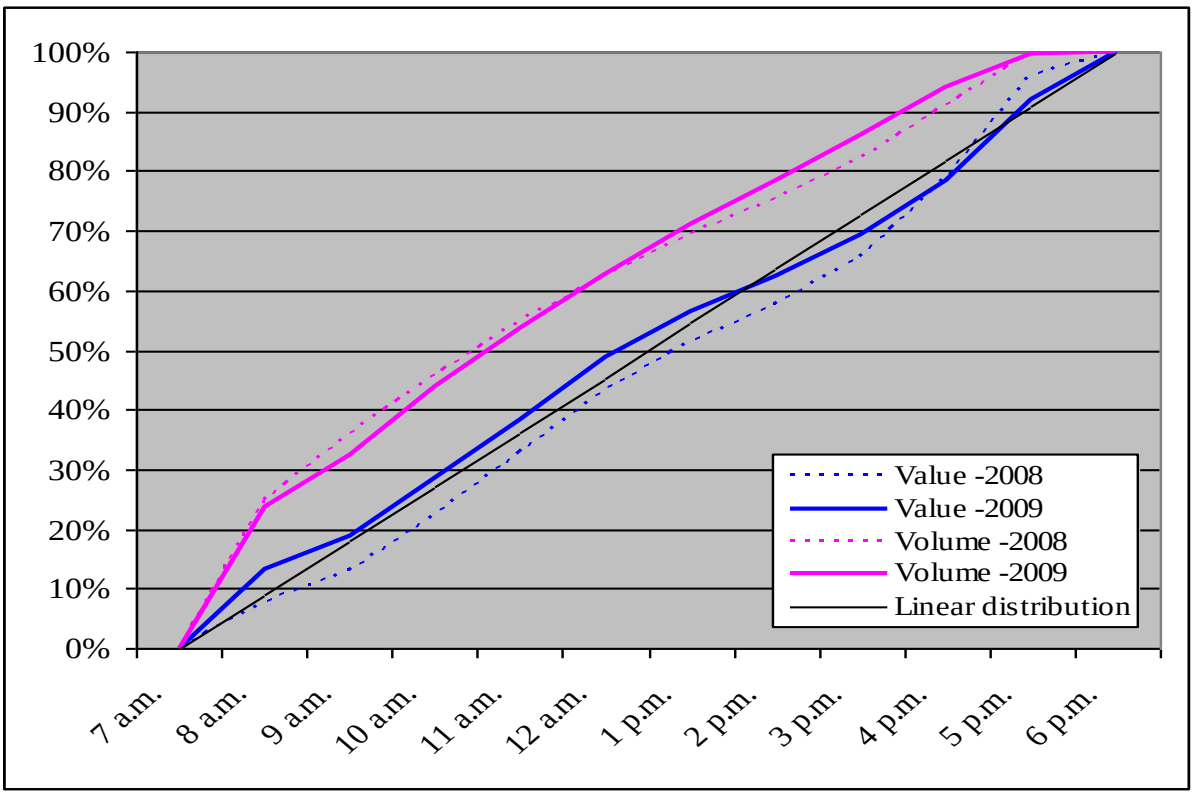
Comparing the two systems in terms of volume reveals a similar trend, but by end-2009 some increase is typical of TARGET2.

Chart 64: Comparison of the VIBER turnover with the TARGET2 turnover in terms of volume



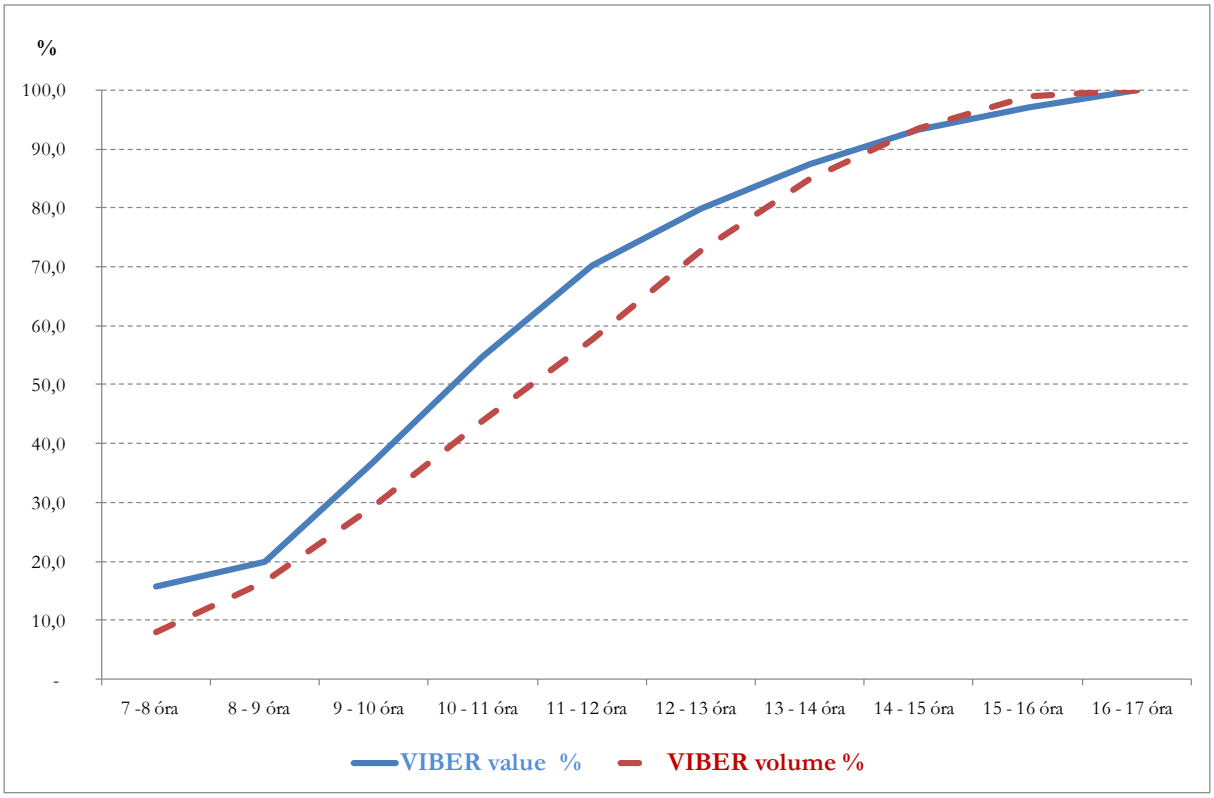
The following two charts show the intraday cumulated turnover distribution of TARGET and VIBER in terms of value and volume.

Chart 65: Pattern of intraday flows



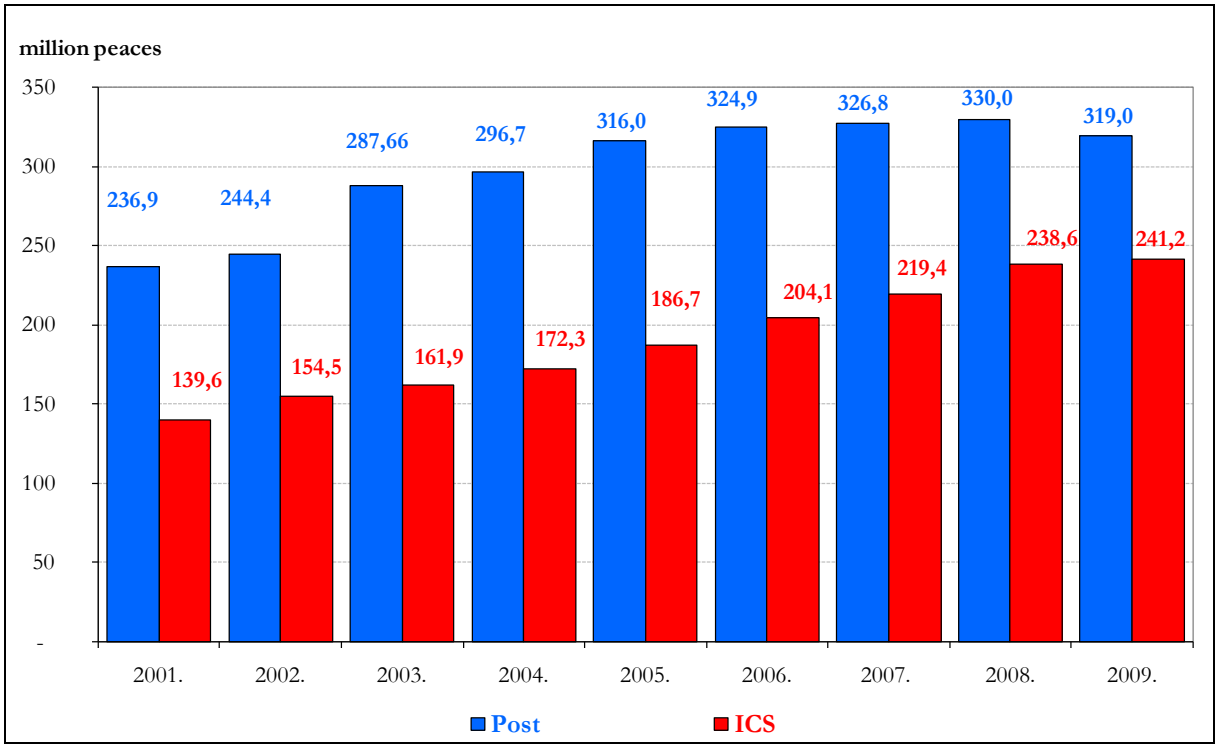
(Source: TARGET ANNUAL REPORT 2009)

Chart 66: Intraday distribution of VIBER turnover cumulated by value and volume in 2009



The continuous increase that had lasted for years was replaced by a decline in the case of the Post in 2009, while the ICS was able to record some minimum increase.

Chart 67: Annual turnover of the Post and the ICS in terms of volume



Developments in the turnover in terms of value are just the opposite: in 2009 the turnover of the ICS fell below the value of 2007, while the decline in the turnover of the Post was much smaller.

Chart 68: Annual turnover of the Post and the ICS in terms of value