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'Tetrahedron Effect'

Connections Between the Central Bank Base Rate, Cash Holdings, Retail Deposits, Lending and Seigniorage in Hungary

SUMMARY: The global financial crisis highlighted the key question as to how and with what efficiency the central bank and the business banking activities are connected under the conditions of the two-level bank system, which fairly solid and stable at present. The changes occurred in the ownership of financial institutions created novel relationships, with not only domestic but also foreign banks. The competition for clients has become natural, their relationship with the central bank strengthened and changed. These connections can be demonstrated through the special relations between interest, cash, deposits, the budget and the central bank. In the next years, the financial government will have to develop a toolkit that is able to ensure the appropriate compatibility of deposit creation, savings, lending and interest policy in the long run.

KEYWORDS: central bank, money creation, cash, loan, savings, central bank base rate, the behaviour of moneyholders, inflation, modern seigniorage, sovereign debts

JEL CODES: E31, E42, E52

The central bank base rate plays a predominant role in the deposit interest policy of business banks and the development of the rate thereof. Both the domestic and international practice proves that in case of a low central bank base rate business banks substantially decrease the rate of deposit interests 'accordingly,' primarily that of the short-term ones, but also that of the annual or longer-term ones (this is the basis of the so-called monetary transmission). If we additionally take into account the charging of the different expenses (taxes, commissions, etc.) associated with cash withdrawal, the population is becoming increasingly indifferent towards

the implementation of its cash flow through banks, and the placement of their savings in deposits or even in sovereign debt. Experience has shown that, technically, two options can be chosen from: in case of more significant amounts – of three, five or even ten million –, the purchase of sovereign debt, currency (euro, dollar, etc.), precious metals, jewellery, artwork; in case of savings not exceeding half or one million Hungarian Forints, we can choose keeping 'under the pillow.' The economic consequences of the latter, as we shall see later,¹ can be detrimental in many ways. Although experts strive to encourage the population not to keep their savings at home, average people are not familiar with investments, they do not even understand the complicated monetary

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processes and the consequences of the changes therein, and they do not even want to deal with them. As only investments can ensure tangible proceeds deemed acceptable, the incentives for these are overshadowed by factors considered uncertain.²

The impact of the powerful expansion of cash holdings on the rate of seigniorage is an issue recurring from time to time and causing serious debates. How much of the amount that is not spent on covering the expenses relating to production, interim distribution, the implementation and processing of cash flow, the destruction and storage of banknotes and coins, etc. does the budget (state) leave at the central bank? If not only on this, on what else, for what reason and what kind of approval, with special regard to the independence of the central bank?

In the decreasing interest environment, it is increasingly difficult to find a financial institution investment with good proceeds. Deposit interests generally give an annual interest below 1 percent, which is also decreased by the related tax and cash withdrawal commission, while inflation is typically higher than this (the inflation target of the MNB is 3 percent).³ The real and nominal value of both savings and 'proceeds' are, therefore, drifting apart.

Hereinafter I will review these factors which substantially define the central bank policy: both the connections and their impact on each other. I will use a tetrahedron model to describe and demonstrate the relations. Tetrahedron is a triangle with four equal sides, which shows its related sides spatially, and thus promotes the demonstration of the systems in close connection with each other as a visual aid. By using this analogy, I will below present four special and current financial-economic and monetary relations closely connected to one another and supposing mutual interconnection. The change in whichever factor is inevitable and exercises a dominant

influence on the others, and thereby on the monetary policy itself.

The four key dimensions

A the trends of cash holdings and the related share of the population, seigniorage, the relationship with the state budget,

B the size, nature and forms of the retail deposit base placed at financial institutions,

C the possibilities of lending by financial institutions as a function of the retail deposit base,

D and the central bank base rate, and the direct and indirect effect thereof on the interests offered by financial institutions, and thus, on the trends and variants of retail savings. (See Figure 1)

Hereinafter, I will show the most important relations between each factor, without being exclusive.

A THE CONNECTIONS OF CASH HOLDINGS AND SEIGNIORAGE

The trends of cash holdings and the related percentage of the population

The cash balance held by the population in 2007 accounted for the 7.3 percent of the total cash volume issued, and by the second half of 2018 the percentage of it increased to 12.1 percent, while the total cash holdings issued expanded by three quarters (from 8.6 percent to 15.1 percent).⁴ The difference was absorbed by the increase in consumer prices with their average annual growth of 1.2 percent (see Table 1).⁵

Despite the several-decades endeavours of the central bank, the cash holdings of the domestic economy could not be moderated with non-cash payments and cash replacement methods, in which the low income status of a significant share of the population⁶ and their traditional attachment to cash plays an es-

Figure 1

THE TETRAHEDRON MODEL

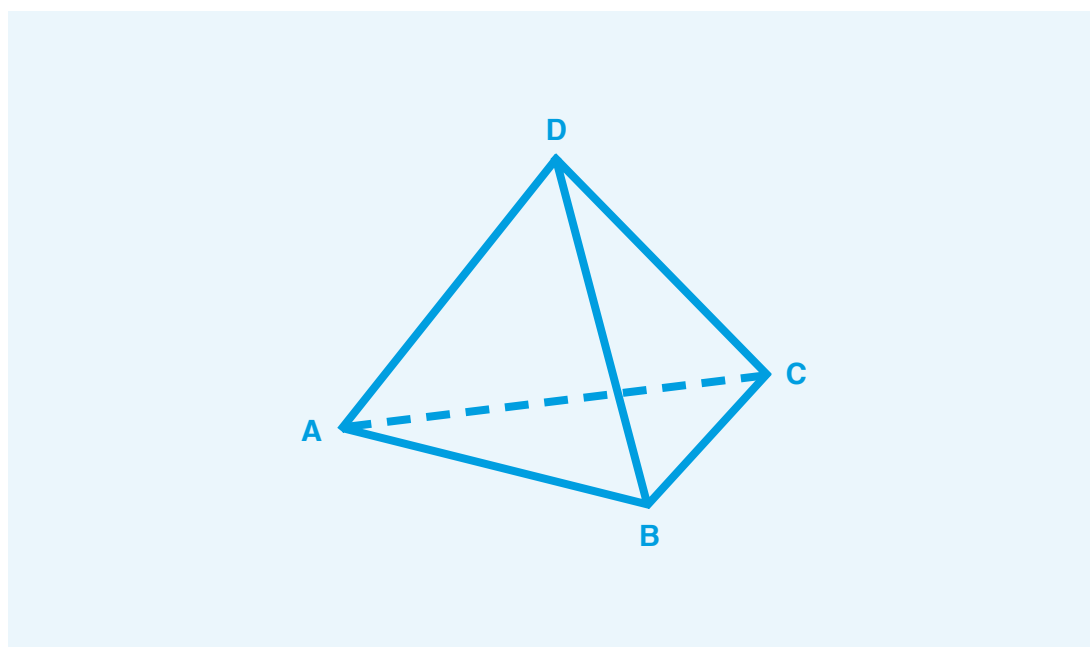


Table 1

**THE TRENDS OF CASH HOLDINGS IN HUNGARY
(2007–2018)**

Year	Share of the amount of the cash holdings of the domestic economy, HUF billion	Share of the amount of the cash holdings of the population (households),	
		HUF billion	from the total cash holdings, %
2007	2,202	1,884	85.6
2008	2,300	2,098	91.2
2009	2,188	2,149	98.2
2010	2,380	2,235	93.9
2011	2,710	2,394	88.3
2012	2,738	2,356	86.0
2013	3,203	2,615	81.6
2014	3,749	3,087	82.3
2015	4,318	3,688	69.8
2016	4,594	3,850	83.8
2017	5,153	4,238	82.2
2018	6,191	4,959	80.1

Source: MNB

sential role. It is a strange contradiction that while a significant percentage of the population regularly uses information technology devices, mobile phones, tablets, they abstain from the use of most non-cash payment and cash replacement methods. For a significant, less educated proportion of the population real money is what is 'tangible,' that is, banknotes or coins.⁷ As a result, it is primarily the population that is 'responsible' for the development of the significant cash holdings. The transaction duty introduced in 2013 might have also played a role in the significant accumulation of cash, and we cannot ignore the consequences of corruption and evasion of taxes, etc., which can become untraceable or 'invisible' due to cash.

Not only the central bank, but also the financial governance strives to restrict the unreasonable expansion of cash flow with different measures; however, these primarily prove to be effective in case of public institutions, the public sector and companies, while the population remains to be 'self-driven.'⁸ Experience has shown that, for this reason, we have to proceed carefully and gradually when expanding the use and installation of non-cash payments and cash replacement methods, because forcing them might be counter-productive.⁹ The immediate transfer payment system to be introduced by the MNB in the middle of next year is expected to contribute to a certain reduction of the cash flow, but it is unlikely to solve the situation of those several thousands of citizens who live at or below subsistence level. These people cannot benefit from the advantages of non-cash payment and cash replacement methods. Overall, we cannot be excessively optimistic in terms of the possibilities to discourage cash usage despite the development of technology.¹⁰ This is confirmed by the fact that although in 2017 the amount of domestic card payments increased by 28 percent, the cash volume also grew at a similar rate.

The experience gained in recent years shows that the high rate of domestic cash holdings does not confirm the world-scale tendency presumed by certain experts, according to which, the role of cash becomes marginal against electronic payments. The use, functioning and rate of cash always, including Hungary, depends on the proportion of those living at or below subsistence level, the consumer price level and the deposit interest rates. For now, a 'cashless society' in Hungary is rather a myth than reality. Moreover, in 2017, 80 percent of the payment transactions in the euro, in terms of value 53.8 percent of them were carried out in cash.¹¹ The residents of primarily Germany, Austria and the Southern European countries still prefer payments in cash: similarly to Hungary in a proportion of 80 percent, especially in smaller daily purchases. In contrast, for example, in the United States or France even the option to purchase consumer goods in cash is strongly limited.

Seigniorage,¹² that is, the special cash creation and interim distribution relation between the budget and the central bank

According to *Cicero*, 'tax revenues constitute the nervous system of the state.' However, the 'nervous system' of the state operates multi-dimensional and multifaceted relations, among which the monopoly of interim distribution stands out in its significance – not in terms of its size, but of its importance. At first, the local type precious metal coins appeared as the symbol of local power, but at that time the official definition of the cash leg was lacking. It became clear that the feudal system could no longer handle this situation, so the kingdoms, empires, chiefdoms and principalities seized the exclusive right of interim distribution (monopoly), and at the same time, the coins marketed were qualified

as legal tenders. Nevertheless, they had to publish their 'official' face and reverse side, specify their size, weight, content of precious metal and their relation (exchange ratio) to other precious metal coins.

After the establishment and then strengthening of the banks of issue and central banks it became clear that the state entrusted the issue of the legal tender and the ancillary related tasks to the central bank, and it kept the monopoly of issue to itself. Although the central bank markets the legal tender in two material forms, banknotes and coins, in some countries the right to issue coins was transferred to the ministry of finance. This is what happened in Hungary until 1967, when the government conferred the right to issue coins to the Hungarian Central Bank.

Since that time it is the Hungarian Central Bank that bears the costs of the production, inventory, delivery and destruction of banknotes and coins, by which the revenues of the budget from seigniorage are decreased. The data of some years relating to the trends of the production costs based on the annual report of the Hungarian Central Bank are contained in *Table 2*.¹³

The above mentioned costs of the MNB account for 1–1.5 percent of the annual revenue of the budget.

At first, it was the early numismatic literature that dealt with the definition and func-

tion of seigniorage in detail, then it caught the attention of the financial literature as well. As banknotes became more and more widespread, the financial literature seemed to have forgotten about this special subject. However, in recent years, the demand for a closer cooperation of the central banks between the budget came back to the fore, in connection with the novel problems related to international integration (single currency).¹⁴ The majority of national and international literature dealing with the subject was published especially at the end of the 1980s and in the first half of the 1990s, when the costs of cash holding were continuously increasing due to the inflation. These costs meant an increasing burden for the budgets and central banks of each country. However, a certain type of 'reorganisation' started also in terms of cash savings as the population encountered increasingly disadvantageous 'interest offers,' and it started to gradually increase the sums kept at home, which had to be covered by the central banks with increasing interim distribution, thus accepting the increase of the associated costs.

With the development of financial science a variety of definitions were formulated for seigniorage. The best-known ones include:

- *monetary seigniorage*, which expresses the increase in the monetary base occurred within one year after the deduction of costs,¹⁵

Table 2

**THE TRENDS OF THE COSTS OF CASH PRODUCTION,
HUF MILLION**

Production costs	2007	2009	2011	2013	2015	2017
Banknotes	4,743	5,039	2,711	2,864	4,060	5,038
Coins	4,304	3,123	2,176	1,213	240	67
Total	9,047	8,162	4,887	4,077	4,300	5,105

Source: Own editing based on MNB data

- *fiscal seigniorage*, which expresses the difference between the proceeds of the assets resulting from money creation and the costs arising during the process,¹⁶
- *opportunity cost seigniorage* is the total sum of the revenue from interim distribution and the placement of minimum reserves by the financial institutions,¹⁷
- *the tax of the money stock*, which is created by the credit issue of the central bank where the deposit is not covered, and the special profit arising from this goes to the National Treasury (this is also called inflation seigniorage).¹⁸

The literature primarily details the connections of the monetary and opportunity cost seigniorage, the trends of which can be traced in the international statistical publications of the IMF. However, the experts make numerous critical remarks principally due to the credit granted by the central bank for the budget as they find it, theoretically speaking, impermissible. However, *Tibor Erdős* distinguishes three methods of the realisation of seigniorage, which can change excessively in terms of their proportion, and do not necessarily increase the revenues of the public finances; moreover, they can adversely influence the state property. So the central banks grants credit

a to business banks and/or

b to the budget, and

c purchases foreign currency in the money market.

In all three cases central bank money is marketed, and the public finances receive revenue, the rate of which can be significantly influenced by the inflation and the disinflation.¹⁹

In certain countries, principally in Eastern European countries, including Hungary, the volume of retail current accounts as well as fixed-term deposits and savings have significantly decreased due to the formerly unusual and drastic reduction of the central bank base rate and the increase in the administration

charges of current accounts. In parallel, we can observe that the cash holdings possessed by the population are naturally increasing. This causes a decrease in the resources and the absolute and/or relative lending capacity of the financial institutions while leaving large scope to the increase in the cash flow within the population. On the other hand, as positive consequence, the direct investment of retail savings in sovereign debts is gradually increasing. Moreover, since the end of 2014 the value of retail securities savings exceeded the total amount of the fixed-term and current account deposits.²⁰

B THE SIZE, NATURE AND FORMS OF THE RETAIL DEPOSIT BASE PLACED AT FINANCIAL INSTITUTIONS

Despite the uncommonly high domestic cash holdings, a significant part of the households are unable to generate savings, and, therefore, the placement of a certain share of their incomes in banks (or purchasing sovereign debts) is out of the question. However, the moneyholders who, despite having appropriate financial resources rather keep their money in cash (in Hungarian Forint or/and in foreign currency) and in current accounts payable on demand, refrain from tying their funds permanently. This is primarily caused by the very low deposit interests we have mentioned before. As a consequence, financial institutions provide credit while being forced to involve external resources, and, therefore, the rate of credit interests substantially exceeds deposit interests, in some cases even four or five times. If we also take into account that in order to substantially decrease the public debt the financial government strongly encourages the direct purchase of sovereign debts at the Hungarian State Treasury by avoiding financial institutions, then it becomes clear that the latter are deprived of their revenues

from account administration charges. This way, they technically become practically indifferent towards selling sovereign debt, and they almost regard it as a burden.²¹ Furthermore, certain financial institutions do not even offer it to their clients. The question is principally what financial institutions can do about unfixed current account deposits which can be mobilised by the population at any time? How long does their risk capability last? A multitude of foreign and domestic examples prove that the population tends to terminate their current account deposits even in case of a small sense of menace, even if they have to accept a certain loss in value.

It is typical for the resulting situation that the financial government considers it more and more important to substantially decrease the cash holdings, primarily that possessed by the population, and to significantly moderate the growth rate by reorganising them in parallel into long-term deposits. For this, however, the possibility to realise the expectations towards the undoubtedly inevitable increase of the central bank base rate should be reconsidered, taking into account the expected future trends of the inflation. If the expectations of a 3–3.5 percent inflation are fulfilled, it is not likely that the 0.9 percent central bank base rate can be sustained.

The resulting situation, however, does not facilitate the endeavours of the government and the MNB to steer the cash flow towards the widespread use of non-cash payments and cash replacements. On the other hand, however, the drastic decrease of the, primarily fixed-term, retail deposits and the recent termination of cash and current accounts deprive the financial institution system of credit resources, so it sometimes finds it difficult to satisfy even a moderate loan demand from domestic resources.

All this was, of course, underpinned by the aftereffects of the recession. This is how

the evolution of sovereign debts have become dominant, which is demonstrated by *Table 3*.²²

The inflation has a decisive impact on the rate of the formation of retail deposits. Due to the discrepancy between the 'latent' trends of consumer prices officially published and supposed or experienced by the population, the latter is generally considered real, and the public 'behaves' accordingly. Of course, the published statistics might also play a role if a part of the goods and services in the consumer basket, on an annual basis, item by item is negligible in terms of their purchase frequency (for example, haunch of venison, SuzukiSX4, repair of tooth filling, etc.), and if their prices are different from what is experienced or preferred by the population.²³

Several experts are preoccupied by the question as to whether the domestic inflation actually matches the officially reported rate. Undoubtedly, we can always find in the calculation one or two components with a price development that differs from that of the similar factors taken into consideration. Moreover, it could even be replaced by another item. However, this would not substantially influence the rate and the tendency. The question is rather whether the items in the all-time consumer basket are actually equal to that of the products purchased and services used in the given period (usually during a period of one year). Indeed, the discrepancies can contribute to the changes in the money spending and saving ratios of the population.

As far as the retail savings are concerned, it is primarily the consumer behaviour that is responsible for the use (spending) or accumulation of money incomes. The form of the accumulation is defined by their presumed profitability (profit, interest, etc.), but at least the avoidance of their depreciation. As in case of deposit interests adapting to the central bank base rate are also unlikely to chance, the 3 percent inflation forecasts already foresee

THE TRENDS OF THE CENTRAL BANK BASE RATE, CASH HOLDINGS, THE BASE OF TOTAL RETAIL SOVEREIGN DEBTS AND THE INTEREST-BEARING TREASURY BILLS BETWEEN 2007 AND 2018

Period	Central bank base rate, (%)	Cash holdings (HUF billion)		Retail sovereign debt base ²⁴ (HUF billion)	
		Total	Retail	Total	Interest bearing treasury bill
2007	7.50	2,202	1,884	10,958	2,220
2008	10.00	2,230	2,050	11,031	2,029
2009	6.25	2,188	2,149	10,038	2,061
2010	7.00	2,380	2,240	10,437	1,919
2011	5.75	2,710	2,394	9,771	1,849
2012	5.75	2,738	2,356	11,476	2,637
2013	3.00	3,203	2,615	12,373	3,224
2014	2.10	3,749	3,087	13,989	3,062
2015	1.35	4,318	3,688	15,514	3,202
2016	0.90	4,594	3,860	17,566	4,416
2017	0.90	5,153	4,238	19,648	4,970
2018	0.90	6,191	4,959	21,606	5,524

Source: Own editing

- the further growth of cash holdings,
- a more moderate expansion of fixed-term deposits than expected or even the decrease thereof, and
- their reorganisation in other forms of saving avoiding the bank system and the budget.

The surveys relating to this subject confirm the popularity of cash outlay. According to the survey of the MNB published in July 2018, 39 percent of the interviewees like purchasing in cash, and 7 percent of them pay in a mixed manner, that is, both in cash and by card. Of course, it is partly caused by the fact that 21 percent of the interviewees receive their salary in cash and 5 percent receive it in a mixed manner, by transfer payment or in the form of cash.²⁵

According to the more optimistic expectations, the role of cash will gradually diminish

in the not too distant future, primarily due to the expected spread of contactless cards, smart watches and similar devices. However, we cannot ignore the immediate payment system planned to be introduced in the summer of 2019, which will undoubtedly accelerate the cash flow, and therefore, it will presumably replace a part of the payments made so far in cash.

C THE LENDING POSSIBILITIES OF FINANCIAL INSTITUTIONS AS A FUNCTION OF THE RETAIL DEPOSIT BASE

The financial institutions can place loans to the extent of their own and outside funds. The size of the outside funds depends on their

capitalisation, the size of the deposits of their clients, the size of the fixed-term deposits and their average maturity, the opinion of their clients, the access to interbank loans, the rate of the interests offered and the quality of their services. Retail deposits, therefore, play a significant role in their lending endeavours, but they can only count on them if, considering the economic and market conditions, their interest and bank services conditions are appealing. At least to such an extent that the clients place their savings in a bank providing security rather than keeping them at home.²⁶

The formula is extremely simple: the market conditions define what incentives are possible or, in some cases, necessary to promote domestic deposit formation, even at the price of certain interest sacrifices. If external borrowing is expensive, higher deposit interests should rather 'land' at domestic moneyholders, hence 'supporting' the domestic deposit placement. However, realising this is not easy as

- the half of domestic financial institutions are foreign-owned, so their 'invisible' influence is significant also on interest rates,
- the MNB declared that their monetary objectives are served by easy monetary conditions,
- the central bank has no exchange rate target, the exchange rate of the Hungarian Forint is shaped by the market demand and supply,
- in recent years consumer credit of several millions of Hungarian Forints was used, primarily on behalf of households with lower income.

Even the laying out the money which is not fixed and accumulating with the public, although at a low level, is risky for business banks, as they can count on their termination at any time. If they logically opt for laying

out, they do so with interest conditions that adversely affect credit demand, or they can often expect even rejection. This recognition is the reason why the application of interests fixed for a longer term are getting increasingly widespread. This provides a certain degree of safety to both financial institutions and borrowers. According to the experts, in case of lower-volume credits the population prefers personal loans to mortgages, as this way they can save costs.

The credit supply seeming to be abundant, therefore, incurs a high credit risk. This cannot be ignored by financial institutions, so moderating their interests is quite risky. It seems that financial institutions have arrived at the lower threshold of their interest reduction possibilities, especially in terms of their short-term lendings, which, however, cannot be ignored by the clients in connection with their credit demand. The 'catch 22' is embodied by the, in some cases, multiple credit interests in relation to the 'ordinary' and fixed-term deposit interests.²⁷

The sharp decrease in retail deposits is not a new problem. The experts pointed out already in 2013–14 that the population took out more deposit than what they placed, and only a part of the difference appeared in the form of sovereign debts or other forms of savings (for example, in units or shares, etc.). This tendency strengthened in the following years, overshadowing the other methods of savings. However, this pronounced change in the structure of savings led to increasingly disadvantageous retail interest offers by financial institutions, the natural consequence of which was the significant growth in the much talked-about money supply 'kept under the pillow case.' If the resulted ratios between the deposit and credit interests and the inflation rate (and the trends of the actual consumer prices) continue in a lasting manner, a relevant change in the financial behav-

our of the population cannot be expected. In the light of the foregoing, as a natural reaction of moneyholders, the base of the already mentioned liquid assets and sovereign debts has significantly increased.

D THE DIRECT AND INDIRECT EFFECT OF THE CENTRAL BANK BASE RATE ON THE INTERESTS OFFERED BY FINANCIAL INSTITUTIONS, AND THUS ON THE TRENDS AND VARIANTS OF RETAIL SAVINGS

'Theoretically,' the central bank base rate influences the rate of the deposit and chargeable credit interests paid by business banks. The emphasis can be placed on the adverb 'theoretically,' as it can be confirmed in practice only rarely. The ownership relations of the bank system significantly influence the market conditions. In other words, the higher the foreign ownership share in the given bank system, the higher their autonomy in terms of both deposit collection and the development of their credit terms. For this reason, it is important to know to what extent they can enforce their business considerations in the money market of the given country as well as in their credit and deposit interest policy, without causing a serious disequilibrium. This is not only the interest of the money market of the given country, but also that of financial institutions.

With regard to the domestic money market, despite the low central bank base rate, a significant gap has formed between the deposit and chargeable credit interests offered by business banks, in favour of the latter ones. This might stem from several factors:

- very low domestic deposit interests,
- the additional costs of the withdrawal in cash are high (see the high commission charged when the deposit placed is withdrawn),

- financial institutions have received a strong competitor by the raised proceeds of sovereign debts, but the growth rate of their purchases has decreased,
- the total of the long-term savings in the form of life insurance, private pension fund, listed shares, etc. has not increased substantially,
- the cash volume of the population 'kept in coffers' continues to increase,²⁸
- based on the comparison of the inflation rate and retail deposit interests it is clear that the population is not interested in placing their savings in deposit; moreover,
- the depreciation of the savings is constant and significant.

It has been confirmed, and is also supported by the foregoing, that appropriate monetary decisions are only possible and necessary in knowledge of the trends of the deposit base and the cash volume possessed by the population so that the inflation objectives can be fully achieved. This latter is, however, decisive from the perspective of retail savings and their use. This question regularly, directly or indirectly, comes to the fore in all aspects of the central bank policy, even if nowadays, according to some opinions, the money supply in the economy does not influence the trends of either the interests or the inflation. The money supply necessary for the economy needs to be guaranteed in an appropriate structure (in the form of transaction and savings share), for a longer period. This is the basis of the effectiveness of the optimal interest conditions in short, medium and long term as well.²⁹ It is not by coincidence that in an optimal case financial institutions strive to encourage their customers to use fixed-rate, longer-term credits in order to mitigate the risks, to ensure regular repayment and to develop instalments corresponding to the justified income.³⁰

It can be explained by the low level of financial awareness that a significant share of the customers of financial institutions do not take advantage of the existing opportunities and are distrustful of the new schemes. One example is the moderate interest in the restructuring scheme, whereas this could be a real aid for converting the earlier high interest-bearing loans to more advantageous ones.

Based on the trends of the full base of retail savings and the inflation forecast of the MNB relevant changes in the central bank base rate and the inflation rate cannot be expected in the next two years either.³¹ The expected rate of the inflation according to the forecast by the MNB in September 2018

- 2.8 percent in 2018,
- 3.1 percent in 2019,
- 3.0 percent in 2020

is forecast. These values, maybe not by accident, are almost equal to the forecasts of domestic interests for the next years. However, it is bad news for those who, for different considerations, form savings, because their expected 'real interest revenue' will be lost by the inflation.

SUMMARY

All in all, while in the past nearly a decade the nominal savings of the population have been increasing, they represent an almost unchanged purchasing power in real terms, as the deposit interests and security proceeds essentially only compensated the money depreciation caused by the inflation. On the contrary, the credits used by the population 'cover' the price increase of goods and services serving for consumption and use in a broader sense, which is equivalent to a kind of permanent indebtedness.

The financial government, therefore, faces a difficult task in the coming years. It has to think over and develop a toolkit that creates equilibrium in the long run, in order to form deposits, encourage savings and create an appropriate alignment between lending and the interest policy. The theoretical solution ideas are usually not sufficient in themselves if the specificities and situation of the financial system of the given country does not allow them, especially in terms of the future considerations of the monetary policy.

NOTES

¹ The proceeds from sovereign debts also decrease as a function of time. The three-year ones bear an interest of 3.55; the five-year ones of 3.8; and the longer ones of 3.04 percent.

² Anna Boldizsár, Zsuzsa Kékesi: Soha nem rendelkezünk még ennyi megtakarítással. [We have never had so much savings.] MNB

³ MNB. Inflation Report. September 2018 p. 10

⁴ István Palkó: Irgalmatlan nagyot fog kaszálni, aki lecsap a magyar lakosság dugipénzére. [The one who hits the nest egg of the Hungarian population will win big.] Portfólió, 21 September 2018

⁵ Based on the data of the MNB. I will demonstrate the special connections of interim distribution relating to the budget (seigniorage) in the last part.

⁶ According to the research conducted by the Institute for Research and Development on State and Governance of the National University of Public Service in 2017, the majority of the population do not have enough savings to sustain themselves and their family for one month in case of losing their income. According to the survey, the proportion of those who could get through for one year is only 1.2 percent.

⁷ The cash volume out in the economy, which exceeds more than 5,000 billion Hungarian Forints,

accounts for 14–15 percent of the GDP, while the EU average is about 8 percent. In addition to tradition, we cannot forget that a part of the population finds that they do not find any other form of savings which would be acceptable for them. For this reason, enhancing financial awareness is extremely important.

- ⁸ The ambition of the Central Bank is clear: the expenses associated with the production, processing, storage, delivery, destruction, etc. of banknotes and coins amounting to approximately 100 billion Hungarian Forints need to be decreased.
- ⁹ In the busiest streets of London ATMs have been deployed for decades without bank branches in their vicinity: this way cash withdrawal through ATMs was made extremely simple only in actually necessary cases.
- ¹⁰ I agree with the remark of György Matolcsy: 'Nobody should be fooled by seeing nothing but innovation today, ten years after the crisis, because the crisis is also here.' This is also confirmed by the extreme income ratios in Hungary.
- ¹¹ Ádám Pál Turzó: Magyar szégyen? Egy frászt, Európa is úszik a készpénzben. [Hungarian shame? Hell no, Europe is also drowning in cash.] 05.12.2017 Source: MKB, EKB, Eurostat, Portfolio.
- ¹² The term originates from the old French word 'seignor' (feudal lord). (Wikipedia)
- ¹³ MNB Annual Report 2007, 2009, 2011, 2013, 2015, 2017
- ¹⁴ In the '80s, in the Subcommittee of the Hungarian Academy of Sciences on Financial Studies established by Béla Csikós Nagy renowned economists (Oblath, Valentinyi, Erdős, etc.) were the first to raise the necessity of interpreting and analysing seigniorage in the present.
- ¹⁵ Gábor Oblath, Ákos Valentinyi: Seigniorage és inflációs adó. [Seigniorage and inflation rate.] Historiántik Könyvesház Kiadó, Bp. 2010
- ¹⁶ Fisher, Halpern, Neményi
- ¹⁷ Neumann, Winkler
- ¹⁸ The state-owned budget receives revenues for financing the deficit in case of inflation. The additional money supply created to this end appears in the money market, although its rate also depends on the behaviour of the economic operators. However, the financing of the deficit does not serve the purpose of equilibrium, rather increases the deficit. Meyer Dietmar. BME Faculty of Economics.
- ¹⁹ Erdős Tibor: Dezinfláció, seigniorage és az állami költségvetés egyenlege. [Disinflation, seigniorage and the balance of the state budget.] Economic Review, vol. XLIV December 1997 (pp. 1021–1046).
- ²⁰ Within ten years (between 2004 and 2014) the cash holdings increased by 2.26; the sovereign debts by 1.67 percent.
- ²¹ See: Footnote 2. Therefore, a significant share of retail savings, exceeding 'nest egg,' will not end up in financial institutions.
- ²² Own compilation. It is remarkable that the total retail sovereign debt base approximately doubled after a few years of stagnation; however, the total cash volume almost tripled.
- ²³ The content of the 'consumer basket' compiled by the Central Statistical Office does not usually match the structure of the purchases of the massive 'average consumer' in the given year. It is primarily the ratio of foods (shopping, catering, etc.) and durable consumer goods that substantially influence the composition of the consumer basket.

- ²⁴ Total of domestic and foreign sales based on the data of the Hungarian State Treasury.
- ²⁵ Source: Hungarian Central Bank. As published by Napi.hu, certain banks in the Federal Republic of Germany have only permitted the withdrawal of amounts smaller than 50 euros from a cash dispenser against a separate payment since mid-2018. In Norway, however, only three percent of the total money supply is accounted for by cash, the future of which will be decided by the market according to the central bank, as the latter does not wish to intervene in it any longer.
- ²⁶ The first encounter with this behaviour was surprising to me. At the beginning of the '90s, I had the opportunity to visit a Miami branch of the Capital Bank of Florida, and to my surprise I experienced the following. Four older, probably retired, couples were sitting and chatting in the elegantly furnished client area. Three clerks were available but none of them was used. I asked my companion why these people, who were presumably customers, are here if they do not use the services of the bank. The reply was: 'For no special reason, they just want to know if their money is in a good, safe place!' By the way, as my companion mentioned, the safety was 'paid for' by zero deposit interest. (The Capital Bank of Florida is the fifth best-capitalised bank in the state of Florida.)
- ²⁷ While the most favourable deposit interests for very short term (2 to 6 months) are 3–4 percent, the loans, depending on the maturity, are provided for at least its double, that is, 6–8 percent.
- ²⁸ In the first nine months of 2018 the volume of cash out in the economy increased by a rate exceeding 1,000 billion Hungarian Forints, while the use of real estate and consumer credits also increased. As far as the distribution of cash between the different moneyholder groups is concerned, households rank first with nearly 80 percent, in addition to the approximately 20 percent share of financial and non-financial enterprises. The proportion of public finances is negligible, approximately 0.2 percent.
- ²⁹ Dávid Németh: '*...if the budget is interested in (retail) savings, and it is, then both the state and business banks should think about the introduction of new schemes.*' Népszava, 09.08.2017 Gazdaság. Elodázott kamatemelés. [Economy. The postponed increase of interest rates.]
A similar opinion is phrased by Viktor Zsiday, from a different approach: The central bank base rate should not be decreased below a certain level (1–2 percent), although in the domestic conditions an increasing part of the public, corporate and retail debt is fixed at this rate.
- ³⁰ According to the information of portfolio.hu, in mid-2018, late repayment arose in case of 48 thousand homes. Since 2013 nearly 5,229 flats have been forced to be sold.
- ³¹ MNB. Inflation Report, September 2018, p. 10

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