

# The role of household portfolio restructuring in financing of the general government\*

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*Following the crisis, up until the end of 2014, net financial savings of households' had been gradually increasing, reflected also in the ever greater expansion in financial assets. Since the beginning of 2012, in the course of households' portfolio allocations, securities have been gaining ground: first government securities, and later mutual funds. During 2013 portfolio restructuring started: households have started to use their savings previously accumulated in bank deposits as well for purchasing government securities and mutual funds. As a result of the above mentioned trends, financing of the general government by households has increased significantly, and according to most recent figures, it is considered to be high even when compared to other members of the European Union. In recent years the increase of household financing has been even more considerable if indirect financing – mutual funds, pension funds – is also taken into account. Present article analyses the impact of households' savings on the financing structure of the general government in a descriptive way.*

**Journal of Economic Literature (JEL) Classification:** E21, H63, G18

**Keywords:** savings, households, government securities, financing

*After the crisis, there was a change in the behaviour of Hungarian households manifested in growing financial savings, where precautionary considerations became dominant. Following the outbreak of the crisis Hungarian households started to save an increasing portion of their disposable income. With regard to net savings, part of the increase was*

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\* The views expressed in this paper are those of the author(s) and do not necessarily reflect the official view of the Magyar Nemzeti Bank.

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accounted for the so called “forced savings” due to rising loan repayments, and the decline in borrowings linked to demand and supply reasons also enhanced the expansion of net savings. However, net savings have increased by a larger degree than this, which was due to the rapid growth of financial assets. The increased accumulation of financial assets of Hungarian households may have also contributed to the recovery of sustainable economic growth since it has provided internal funding for economic actors at an increasing scale. In addition, households have strengthened the capacity of the country to withstand adverse shocks through investing an increasing portion of their higher savings into Hungarian government securities – thus providing internal sources of finance for the general government, which is of special importance since it constitutes a more stable source. The structure of the present article is the following: first, the theories explaining households’ savings and the post-crisis savings trend of Hungarian households are briefly outlined. After that, the “yield-hunting”, portfolio restructuring and the impacts thereof on households’ savings are covered. Recent developments are also presented briefly: namely, the types of government securities preferred by households in the last 2-3 years, and the way how the households have turned to the longer-term papers in recent months. Subsequently, the trend of government securities held by Hungarian households is examined as compared to other European countries. Finally, a summary follows on the economic impacts, benefits and risks of households’ purchases of government securities.

# 1 Savings behaviour of hungarian households in the last decade

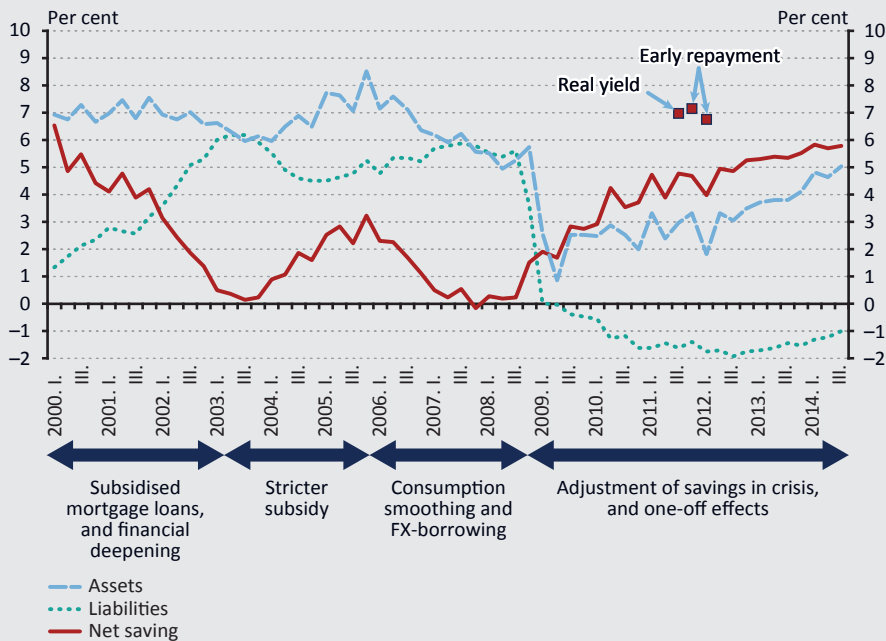
*Pursuant to relevant theories, households’ savings are primarily determined by income and real interest rates, however, expectations also have a decisive role.* Keynes, in his general theory, argued that saving is a function of consumption, which shall reduce economic growth through cuts in consumption (Keynes, 1936). Two hypotheses, still prevailing today, were published as a response to the above: the life-cycle hypothesis (Modigliani, 1986) and the permanent income hypothesis (Friedman, 1986). Both theories argue that households make consumption-saving decisions based on longer-term income rather than current income expectations. According to the life-cycle hypothesis, the propensity to save can change significantly over the various life-cycles since individuals plan their consumption over their entire life. The beginning of the life-cycle is usually characterised by indebtedness, then, pursuant to the theory, economic actors spend their savings accumulated during their life-cycle at the end of it. Pursuant to the permanent income hypothesis during their life households increase their savings in order to smooth their consumption expenditures when expecting the reduction of their permanent income, and reduce it when expecting the increase in the permanent income.

*According to theories explaining the link between real interest rates and savings, interest rates have an impact on savings in several effect, namely through substitution, income and wealth.* The intertemporal substitution effect is linked to the time value of money: a rise in interest rates urges economic agents to postpone more current consumption in order to consume more in the future. The income effect is the opposite, since a rise in interest rates shall increase future interest income of households, thus less savings are needed to reach the same level of consumption in the future. A rise in interest rates shall reduce the market value of real assets through revaluation, which is compensated by the economic agents by increasing their savings, reducing their consumption (Elmendorf, 1996). Income expectations can also significantly affect savings. Following the crisis, the increased rate of unemployment and uncertainties with regard to the exchange rate may have also contributed considerably to the increase of savings resulting from precautionary considerations of households. Precautionary savings in general are associated with large variance of future income: usually, there is a positive relationship between the uncertainty regarding future income and the savings rate (Leland, 1968). Some studies have demonstrated the presence of precautionary wealth as well (Carroll–Kimball, 2006), however, the level thereof is difficult to be determined accurately due to the significant unobserved heterogeneity of the data. The level of income related uncertainties may also be influenced by expectations on the pension system (Murata, 2003).

*The saving behaviour of households is fundamentally determined by their current income situation and their expectations on future income.* During the second half of the 2000s (mainly between 2006 and 2008), households considered their declining income due to budgetary adjustments as temporary, and smoothed their consumption and housing expenses, which brought about another rapid boom in lending (Figure 1). The process was enhanced by the fact that, due to the prevalence of foreign currency lending, liquidity constraints were eased for households, thus an increasing number of households were able to adapt their consumption (housing expenses) to an expected future income path. As opposed to that, following the crisis of 2008, on account of decreasing life-cycle income due to the contraction in the real economy, households sharply reduced their pace of running into debt and slowed down their financial asset accumulation. The rapid adaptation of the end of 2008 and the beginning of 2009, therefore, is partially the consequence of tightening credit conditions as well as declined credit demand, and the thus increasingly shrinking amount of spendable income. Increased unemployment and deteriorating growth prospects brought about greater uncertainties of income, and in the longer-term increased focus on precautionary savings considerations: households gradually started to increase their financial assets, while at the same time gradually reducing their loans; as opposed to this, the significant accumulation of financial assets prior to the crisis was realized along with considerable levels of borrowing, which on the whole represented a low level of net savings.

**Figure 1**

**Net savings of households as a proportion of GDP, with a breakdown by basic processes**  
(seasonally adjusted figures)



Note: \* The chart includes events not affecting fundamental saving processes of households but included in households' financial accounts, as separate data points (payment of real returns, increasing impact of early repayment on savings).

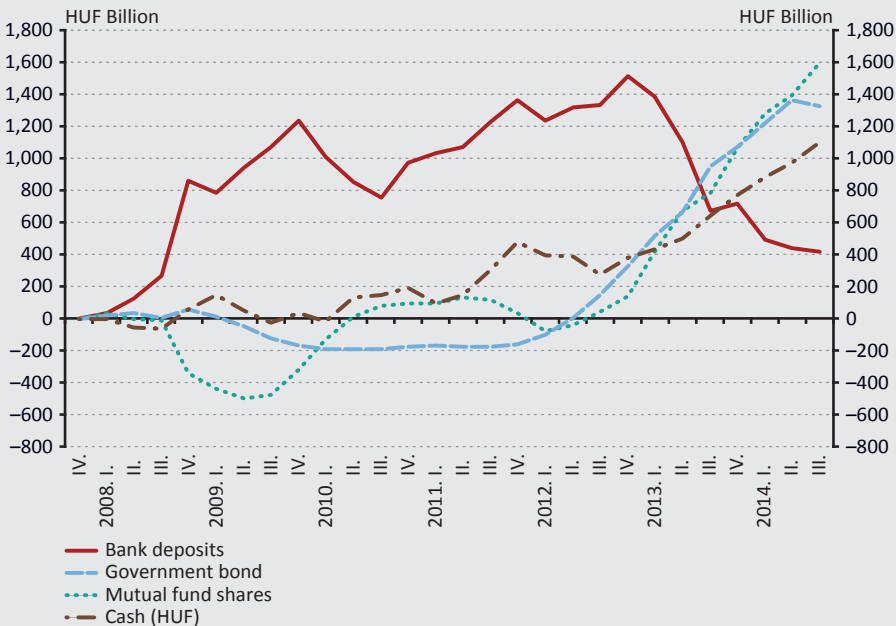
Source: MNB

On the basis of previously published studies and analysing trends of recent years, real interest rates may have had only a minor impact on the level of savings. A previous study on Hungarian savings figures found only a weak relationship between real interest rates and savings, however, did not reject the possibility that in the 1990s the extreme values of interest rates could have influenced households' savings (Árvai–Menczel, 2000). According to the study, no income, substitution and wealth effect could be demonstrated in the course of the second half of the 1990s. Recent trends have confirmed the observation that any change in the level of interest rates has only minor impact on the level of savings. Although deposit rates have reached a historical low level in the last 18 months, financial asset accumulation of households is close to the pre-crisis figure. An environment of declining yields experienced in recent years would by itself enhance household consumption, however, neither such lending boom nor any decline in savings has been experienced (in other words the substitution effect does not apply). The reaction of households to the low-yield environment was not to increase indebtedness, but to increase financial asset accumulation, to restructure existing savings. On the basis of all the above, it can be concluded that precautionary considerations are, even 5 years after the

outbreak of the crisis, still dominant. However, it is also worth noting that the higher level of savings rate may also reflect the income effect: should households have expectations for persistently low interest rates, that would mean a persistent decline of their income from financial assets – thus households could react to persistently lower levels of income with increasing their savings.

*The fundamental reason for the increasing share of securities within the portfolio of households' savings is the changing yield environment.* During the post-crisis years households placed their additional savings into bank deposits, which was probably the result of increasing deposit yields as well as households' risk averse behaviour (Figure 2). Then, from 2009 – primarily in accordance with improving capital market sentiment – there was an increase in the demand for mutual funds, and subsequently priority was again given to bank deposits. There seemed to be a profound change in the portfolio allocation of households since 2012. The fact that households used part of their savings held in bank deposits and mutual funds for early repayments, resulting in a slight decline of financial assets, also contributed to the above. Subsequently, households started to place an increasing portion of their additional savings more into government securities and mutual funds; however, starting from the end of the year, funds started to flow not only from additional savings but also from existing stocks towards securities. The restructuring

**Figure 2**  
**Change in financial assets held by households**  
(cumulative transactions)



Source: MNB

was primarily supported by the fact that, due to the declining cycle of the central bank base rate as of August 2012, interest rates on bank deposits have meaningfully declined. Thus, as a consequence of the yield decline, households chose, out of investment types of similar risks, government securities with substantial yield premiums as well as bonds and money market funds. A characteristic of the recent period was that both the yield of interest bearing treasury bills and the retrospective yield of mutual funds, closely monitored by households, exceeded interests on short-term bank deposits. The low-yield environment may have increased, besides the securities, cash demands of households as well, since the opportunity cost of holding cash has declined due to falling interest rates. The amount of cash held by households might have also been affected by strengthened precautionary considerations since cash is considered to be the most easily accessible risk-free form of saving for households. Declining inflation and the gradual expansion of retail trade could have also played a role in the increase of cash balances, while the role of the grey economy may also not be ruled out completely. In addition, the introduction of the financial transaction levy and the cost-free cash withdrawal can also be mentioned among the reasons for the increase of cash stock (Kékesi–Kóczyán, 2014).

*On the financial assets of households that exceeds 110 percent of GDP clearly shows signs of the impact of portfolio restructuring starting from 2012.* Gross financial assets of households were around 100-110 percent of GDP in recent years (Figure 3).<sup>1</sup> Upon examining the share of asset types, the trend of portfolio restructuring experienced in recent years can clearly be demonstrated. While between 2007 and 2010 the share of bank deposits basically remained unchanged, by the third quarter of 2014 it fell substantially, by almost 6 percentage points. Although the stock of both mutual funds and cash has grown significantly, the biggest growth was experienced in government securities savings of households. Within the financial assets of households, despite the restructuring, bank deposits and the rather illiquid participations continue to represent the largest share.

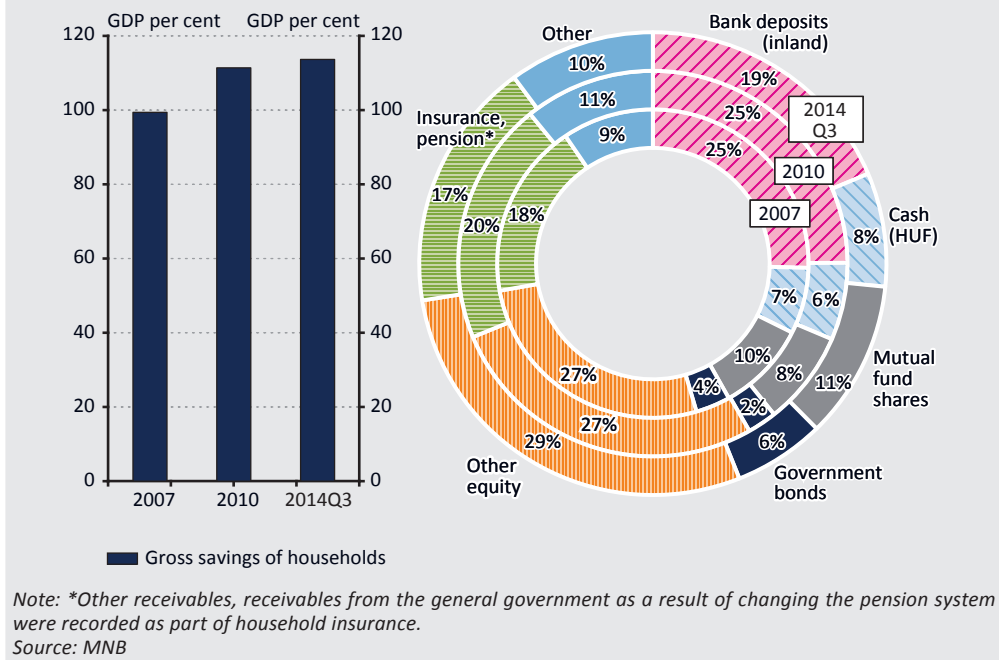
*With regard to their savings, households typically commit themselves in the short-term, thus longer-term investment types represent a smaller share within the financial savings of households.* As mentioned above, among savings of households those forms of savings considered to be more liquid, bank deposits continue to represent one of the biggest weight. Looking at the maturity structure of bank deposit savings households place their savings predominantly into deposits with a maturity of, at the most, one year or into sight deposits. In November 2014 almost 86 percent of household deposits at monetary institutions belonged to the above category, while only the remaining 14 percent of deposits had long-term maturity. The most popular mutual funds are those without a defined maturity (open-end funds), thus can be liquidated rapidly. In other words, the investment preferences of households also help in understanding the rationale behind the fact that in the course of 2012 and 2013 Interest-Bearing Treasury Bill with a maturity

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<sup>1</sup> Receivables from the general government outstanding as a result of changing the pension fund system are not recorded among other receivables.

of one year was the most popular. The next chapter gives a detailed overview of the developments in the government securities portfolio of households.

**Figure 3**  
**Financial assets held by households**



### Box 1

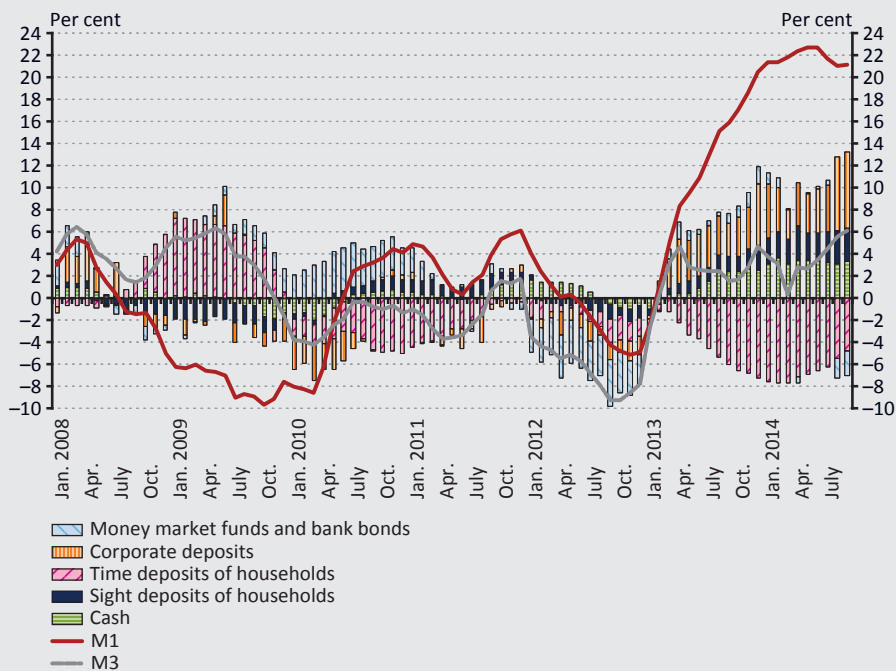
#### Trend of monetary aggregates in the light of portfolio restructuring

The change in the structure of financial assets held by households is also reflected in the trend of monetary aggregates. The growth rates of the various monetary aggregates prior to 2013 – with the exception of a short period following the outbreak of the crisis – showed a strong correlation. The main reason behind the strong link is that the M3 aggregate also covers M1 money supply category including liquid assets (e.g. cash, sight deposit) – together with the less liquid (e.g.: deposits with maturity of less than 2 years, bank securities, money market investment funds) assets. However, from 2013 onwards the real growth rates of M1 and M3 have followed a markedly different path: that is, real growth rates of liquid and less liquid assets diverge to a significant extent.

To explain the “opening gap” of money supply indicators, the extent of contribution of the various sub-items to the annual real growth rate of M3 aggregate was examined (Chart 4). From 2013 onwards, the reduction of retail time deposits in real terms has considerably reduced the growth of the M3 indicator.

The cut back of time deposits benefited primarily mutual funds and – through the increasing stock of government securities held by households – the general government. The increase of corporate deposits is also linked to the portfolio restructuring of households since here bank deposits of non-money market mutual funds are also presented. The stock of liquid assets has also shown a robust increase in real terms in the last two years, which can be explained on the one hand by the historically low level of opportunity cost (inflation, and deposit rates) and on the other hand by the increase in consumption, and the introduction of the financial transaction levy and the cost-free cash withdrawal.

**Figure 4**  
**Key factors of M3 annual growth rate**



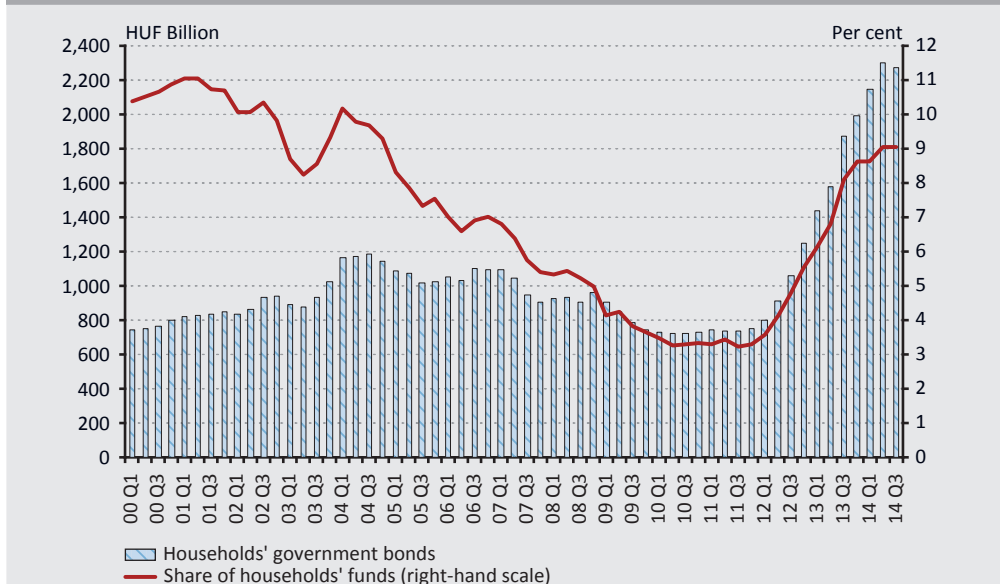
Source: MNB



## 2 The growing importance of government securities within household savings

A determining factor in the portfolio restructuring since 2012 is the increasingly expanding purchase of government securities by households. Until 2004 the stock of government securities held by households increased; subsequently, it started to decline, and in the beginning of 2010, even in nominal terms, it significantly lagged behind the levels experienced previously. Parallel to all this, the share of household financing of government debt also declined – this, however, could also be attributed to the fact that government debt increased significantly after its deepest figure of 51.9 percent of GDP in the end of 2001. As a consequence of this, the almost unchanged stock of government securities held by households was financing an ever smaller portion of government debt, and the share of retail financing dropped below 3.3 percent by the beginning of 2010 (*Figure 5*). The impact of considerably rising household savings following the crisis was not reflected in the stock of government securities held by households: although government securities are one of the most secure types of investment, the stock of government securities held by households did not start to rise. This could be explained mainly by the competition

**Figure 5**  
**Stock of government securities held by households**



Source: MNB

for funding: the banking sector started an intensive competition for acquiring household savings – on the one hand banks offered higher interest rates, and on the other hand the success of deposit-taking was also supported by marketing actions. In case of government securities a further disadvantage was the less widespread sales channel and the fact that securities targeted at households at that time were less flexible, while households could choose from a wide range of deposit types and maturities in case of bank deposits. At the same time, the “attitude” of households towards government securities has changed – supported by the new government strategy, and thanks to the trend going on since 2012, the stock of government securities held by households rose to a level close to HUF 2300 billion by the autumn of 2014, in other words, households are financing the general government directly with this amount. This chapter briefly covers the factors which could have played a role in the expansion of household government securities experienced recently.

*Upon making their decisions on portfolio allocation, Hungarian households can make purchases not only from traditional government securities, but also from the so called retail government securities issued explicitly for them.* Retail government securities are considered to be risk-free assets since the state guarantees payment of the total capital and interests due – regardless of the threshold – and this amount due shall not lapse. Hungarian households can purchase from government securities intended for households issued by the Government Debt Management Agency (ÁKK), as well as from government securities issued for a wider group of buyers (thus statistics of the MNB and ÁKK differ with regard to the stock of government securities held by households, in more details please refer to the text in the box). Securities explicitly intended for households had already been sold even prior to 2012: Hungarian households – primarily at the agencies of Hungarian State Treasury (MÁK) – could purchase for example Interest-Bearing Treasury Bills (IBTB), Premium Hungarian Government Bonds (PHGB), Treasury Savings Bills (TSB) as well – the latter were sold also through the Hungarian Post Company. Later this offer was further extended with the 6-month Treasury Saving bill, the Premium Euro Hungarian Government Bond (PEHGB), the Baby Bond as well as the Bonus Hungarian Government Bond (BHGB). *Table 1* summarizes the key characteristics of retail government securities. It is worth mentioning that while previously there was a smaller “choice” available for households, in the course of the recent years both regarding the maturity and the denomination as well as the type of interest, the offer of government securities has been expanded significantly.

**Table 1**  
**Retail government securities (based on data available on the website of ÁKK)**

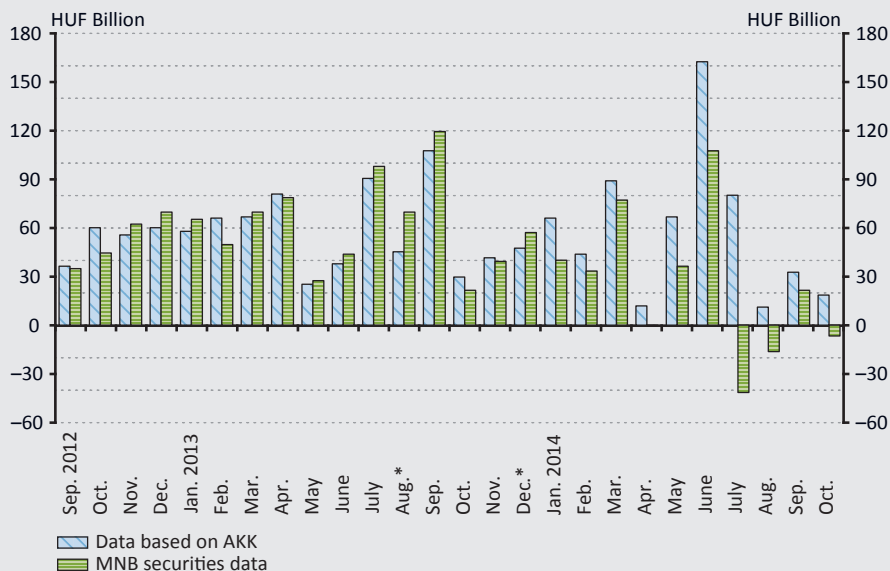
Papers name	First issuance	Maturity	Interest	Denomination	Points of sale
Treasury Savings Bills		1-2 years	Fixed, step-up rate interest	Forint	Magyar Posta Zrt.
Interest-Bearing Treasury Bills	January, 2000.	12 months	Fixed interest, decided before issuance	Forint	Offices of Hungarian State Treasury, WebKincstár, and in banks
Premium Hungarian Government Bond	December, 2010.	3 or 5 years	Yearly increment of price levels + interest rate premia	Forint	Offices of Hungarian State Treasury, WebKincstár, and in banks
6-Month Treasury Bill	April, 2011.	6 months	Fixed interest	Forint	Offices of Hungarian State Treasury
Premium Euro Hungarian Government Bond	November, 2012.	3 years	Harmonized index of consumer prices in euro zone + interest rate premia	Euro	Offices of Hungarian State Treasury, WebKincstár, and in banks
Baby-bond	December, 2013.	19 years	Yearly increment of price levels + interest rate premia	Forint	Offices of Hungarian State Treasury, WebKincstár, and in banks
Bonus Hungarian Government Bond	March, 2014.	4, 6, or 10 years	12-month treasury bills interest rate + interest rate premia	Forint	Offices of Hungarian State Treasury, WebKincstár, and in banks

## Box 2

### Various data sources on household government securities transactions

When analysing the demand for household government securities, it is worth presenting which data sources should be used when observing household<sup>2</sup> savings held in government securities and net government securities purchased by households. Basically two data source can be used: (1) monthly press releases of ÁKK which issues government securities, or (2) securities statistics of the National Bank of Hungary (MNB). The two time series had shown a very similar trend until the middle of 2013, and since then there have been slight differences (*Chart 6*).

<sup>2</sup> [http://www.mnb.hu/Root/Dokumentumtar/MNB/Statiztika/mnbhu\\_statiztikai\\_idosorok/a-rezidens-kibocsatasu-ertekpapirok-adatai-kibocsato-es-tulajdonosi-bontasban/Ertekpapir\\_modszertan\\_hu.pdf](http://www.mnb.hu/Root/Dokumentumtar/MNB/Statiztika/mnbhu_statiztikai_idosorok/a-rezidens-kibocsatasu-ertekpapirok-adatai-kibocsato-es-tulajdonosi-bontasban/Ertekpapir_modszertan_hu.pdf)

**Figure 6****Monthly net government securities purchased by households pursuant to various data sources**

Note: \*ÁKK data based on indirect calculation

Source: ÁKK, MNB

The difference observed between the two statistics derives mainly from the fact that while MNB in case of securities discloses data split by holding sectors (in this case households – with self-employed entrepreneurs also included), ÁKK in general publishes sales of retail government securities. In case of data disclosed by ÁKK, however, it may occur that market securities (non-retail) purchased by the household sector are not included in the data published. The difference between the statistics may also be the consequence of statistics including purchases not made by households.<sup>3</sup> The difference is also reflected in the stock statistics: while for example based on the press release of ÁKK, the stock of government securities held by households as of October 2014 amounted to HUF 2354 billion, based on the securities statistics of MNB the stock of government securities held by households was HUF 2258 billion. From the observation above, it is concluded that for analysing government securities savings of the household sector, it shall be more appropriate to use disclosures of MNB. However, using figures disclosed by ÁKK is supported by the fact that they are made available sooner, and they also enable making conclusions on basic trends, since they provide comprehensive data on government bonds sold to households.

3 In such cases ÁKK generally indicates if the purchase was not made by the household sector.

*A significant portion of the demand for household government securities is linked to purchasing one type of security, which is the Interest-Bearing Treasury Bill<sup>4</sup>.* Almost two thirds of savings accumulated in government securities from the beginning of 2012 increased the stock of IBTB, which in part is the consequence of the wide distribution network. The other major type of household government security is the Premium Hungarian Government Bond<sup>5</sup> where only a minor net purchase could be observed. Even though during this period the interest rate of the premium Hungarian government bond exceeded that of the Interest-Bearing Treasury Bill, the term premium of securities with longer-terms was not enough for their demand to achieve a more significant growth rate. In other words, the increasing stock of government securities held by households experienced until mid-2014 was not primarily linked to securities sold exclusively at MÁK agencies, but to Interest-Bearing Treasury Bills sold also through commercial banks. The marked increase in demand is mainly due to a rise in spreads: following the November 2011 positive turn in the difference between the interest rates of IBTBs and short-term bank deposits, was followed in February by purchases of IBTBs (*Figure 8*).

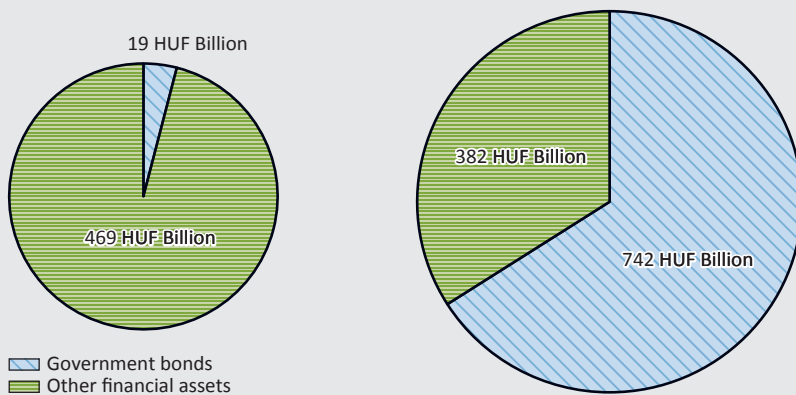
Several factors may have played a role in the increased stock of retail government securities, and within that, the stock of Interest-Bearing Treasury Bills. The expansion of household government securities was probably enhanced to the largest extent by the change in the investment environment (paragraphs 1-3), and the government's strategy to support internal financing (paragraphs 4-6):

1. *Significantly increasing private savings.* After the autumn of 2008, important changes could be observed with regard to the consumption-savings decisions of Hungarian households. Since the outbreak of the crisis, savings have grown considerably and precautionary savings considerations have intensified. Not only net, but also gross savings have been increasing significantly, the source of which, as opposed to previous experiences, was not household borrowing. Thus, households could not only restructure their existing assets, but spent their recently accumulated savings on purchasing government securities (*Figure 7*).
2. *Declining inflation and interest rates.* As a result of the low inflationary and gradually declining interest rate environment, the role of interest rate advantage could also be appreciated. This must have also been supported by the fact that, parallel to falling household lending, banks needed less deposit-taking, which also resulted in lower levels of deposits' interest rates.

4 The interest bearing treasury bill (KKJ) is a fixed-interest-bearing government security with a one-year maturity, the interest rate of which was 2.5 percent as of end-2014.

5 A floating rate bond with a 3 or 5-year maturity, the interest rate of which is calculated as the sum of the annual average percentage change of the consumer price index, as officially disclosed by the Central Statistical Office for the year preceding the year of interest payment due (but not less than zero), and the interest premium (the amount of which in case of most traded bonds is 3 percent).

**Figure 7**  
**Accumulation of households' financial assets and the expansion of government securities**  
*(based on transactions)*

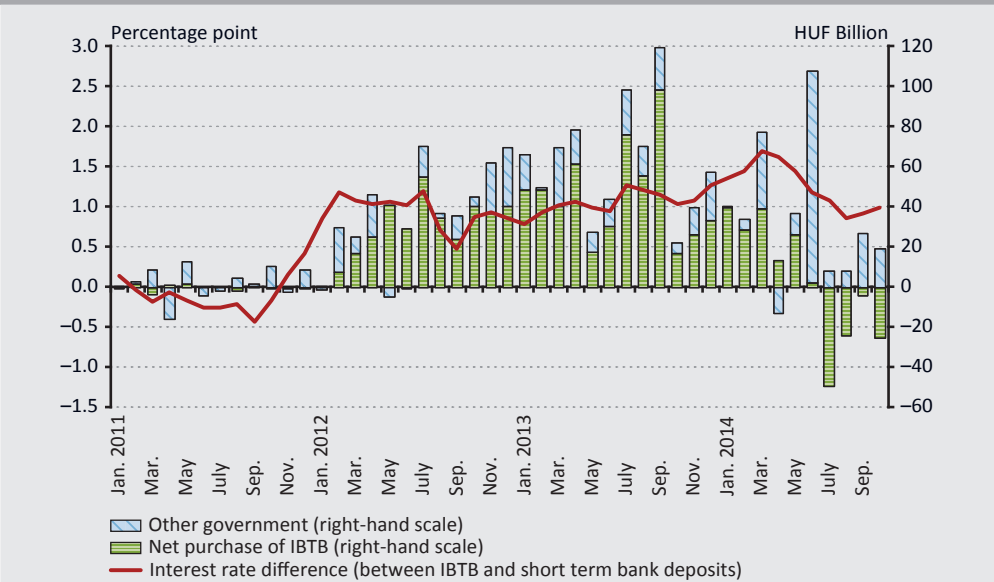


Source: MNB

3. *Securitisation.* The rationale behind household purchases of government securities, that is the “securitisation”, could be the yield advantage as well as the development of the financial system. The latter is of key importance because in this case the restructuring could be permanent.
4. *Interest advantage.* Until the summer of 2014, the interest rate of interest bearing treasury bills, on average, exceeded the average interest rate of bank deposits with maturity of less than one year with one percentage point (*Figure 8*).
5. *Supportive government policy.* A further incentive in case of Interest-Bearing Treasury Bills could have been that they could have been subscribed in several places – as opposed to most household government securities – they could be purchased, in addition to the agencies and online facilities of the Hungarian State Treasury, at the branch networks of further eight commercial banks. In this respect it should be outlined that later on the sales channel was also extended in case of the other (Bunus and Premium Government Bonds) securities (while the number of MÁK agencies also grew), and thus, purchases were simplified, resulting in increased sales of longer-term government securities (*Figure 9*). In addition, in accordance with the intention of the government, for the purpose of promoting government securities, marketing expenses of ÁKK have also been increased (advertising campaign, and launching ‘allampapir.hu’).
6. *Health contribution tax exemption, interest income tax exemption.* Since August 2013, investments held in Hungarian forint government securities – as well as in certain

investment funds<sup>6</sup> – have been exempt from health contribution tax imposed on interest income, which could have further increased the attractiveness of government securities as opposed to bank deposits (Kékesi–Kóczyán, 2014). On the other hand, longer-term government securities match the profile of long-term investment accounts, with which households can avoid having to pay interest tax, while also being covered against potential interest rate fluctuations through investing in floating rate securities.

**Figure 8**  
**Households' net government securities purchases\* and the interest rate difference of bank deposits and Interest-Bearing Treasury Bills**



Note: \*Source of data on monthly retail purchases of government securities is the data of MNB on securities-statistics, while that on net purchases of interest bearing treasury bills is ÁKK. Net purchases are construed as the difference between gross purchases and matured securities.

Although the share of domestic sources in financing the government debt has increased considerably in recent years, households' short-term government securities carry a renewal risk. The rise in the stock of government securities held by households was accompanied by the decline of average residual maturity: households' short-term government securities pose a renewal risk. The rise in the stock of government securities held by households was manifested mainly in the stock of short-term – one year – government securities<sup>7</sup>.

<sup>6</sup> Return on investments held in mutual funds is exempt from health care tax supposing that in line with internal policies they invest in forint government securities in an amount of at least 80 percent.

<sup>7</sup> As outlined above, households within their financial savings usually showed preference for savings with shorter-terms, at the maximum with maturities of up to one year, thus this behaviour is in line with the previous structure of retail savings.

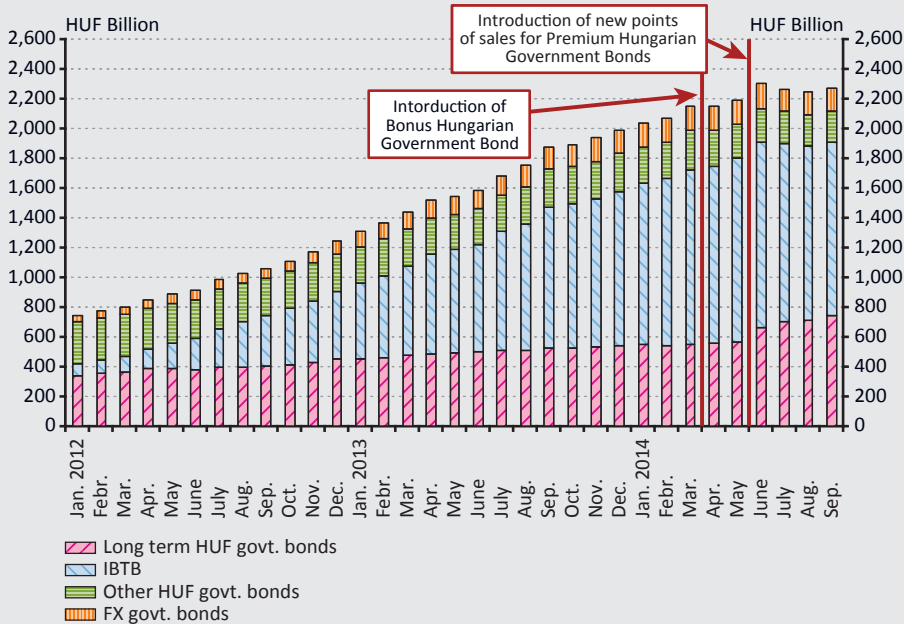
As a consequence, the average residual maturity of retail government securities have gradually declined, and by mid-2014 reached about one year. The stock of securities maturing within one year pursuant to the original term amounted to about HUF 1400 billion in September 2014. This means that, on average, retail government securities of more than HUF 100 billion will mature each month during the next year, which could pose challenges. (This kind of household behaviour is also reflected in the stock of bank deposits since more than 80 percent of total deposits outstanding are made up of one-year term deposits or current accounts.)

*Continued interest rate premium can mitigate renewal risks.* There have been instances for purchases of similar scale in the past, for example in 2004, however, the growth in stock thereof proved to be temporary, no renewals were made upon maturity. This could be attributed to the fact that interests offered for renewing securities maturing in 2005 were significantly lower, i.e. with 3-4 percentage points, than the interest rates of maturing securities. In case of considerably reduced yields the risk arises that households will not renew their maturing stock, thus net purchases can again turn into negative. However, the risk thereof may be reduced by the fact that, although, parallel to easing cycle of the central bank, the interest rate of IBTBs has also declined gradually (from 8 percent in February 2012 to 2.5 percent), the interest advantage continues to be close to 1 percentage point as opposed to one-year term bank deposits.

*However, since mid-2014 the demand of households for longer-term government securities has increased significantly, which can also reduce renewal risks inherent in government securities held by households.* Since March 2014, probably in connection with the declining interest rate difference, the stock of short-term treasury bills has declined. At the same time, however, savings in longer-term government securities have grown (*Figure 9*). The fact that ÁKK issued new retail government securities in the course of March 2014 could have played a role in the above. Two series of the bonus Hungarian government bond were issued in March, maturing in 2018, and in 2020. Interest rates of the securities were linked to the average auction yield of one-year T-bills: securities with shorter-term ensured a yield premium of 1.75 percentage points, and those with longer-term a yield premium of 2.5 percentage points above the yield of the one-year T-bills. The stock of long-term securities, however, has started to grow significantly only after that, since June 2014. An important factor in this was that, from then on, premium and bonus Hungarian government bonds were not only sold at the State Treasury offices of the Hungarian State Treasury and through the internet (WebKincstár), but also through the branch networks of distributors (commercial banks).



**Figure 9**  
**Stock of government securities held by households split by maturity and exchange rate**



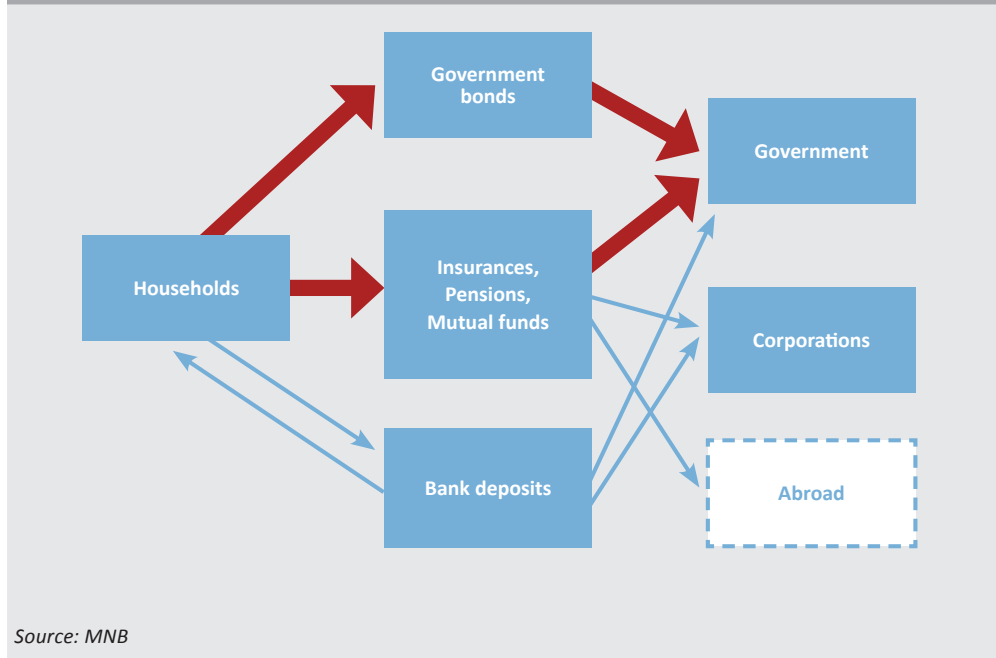
Source: MNB

### 3 Which sector is actually financed by households?

Ultimately, households finance the main sectors (government, corporations and the foreign sector) through their decisions on asset allocation. As mentioned in the introduction, households' savings finance domestic economic agents, the government and corporations (as well as through holding foreign assets the foreign sector, too). However, in order to have a better understanding of which sector the savings of Hungarian households finance, not only direct financing forms, but indirect possession, through mutual funds, insurance companies, funds, should also be taken into account. We use direct financing when the asset purchased is recorded in the balance sheet of households as receivables from the relevant sector (for example government securities). In contrast, in case of indirect financing, households do not directly finance the main domestic sectors, but through other financial intermediaries (for example mutual funds, insurance companies, pension funds), and hold assets indirectly.

To quantify household financing, the stock of government securities indirectly held by households should also be taken into account. Upon analysing household financing, in general, only the stock of government securities directly held by households is considered. However, government securities indirectly held by households also form part of household financing, the size of which is quantified in the next chapter. Securities indirectly held by households also form part of financing the general government since, on the one hand, in case of investment types offered by financial intermediaries households have an impact (of an extent depending on the type) on savings held in the portfolio, and on the other hand, return on investments is indirectly received by households. For example, in case of mutual funds households may choose from, among others, money market, bond or even real estate mutual funds, in other words, households' decisions on portfolio allocation can reflect their preferences (Figure 10).

**Figure 10**  
**Direct and indirect household financing**

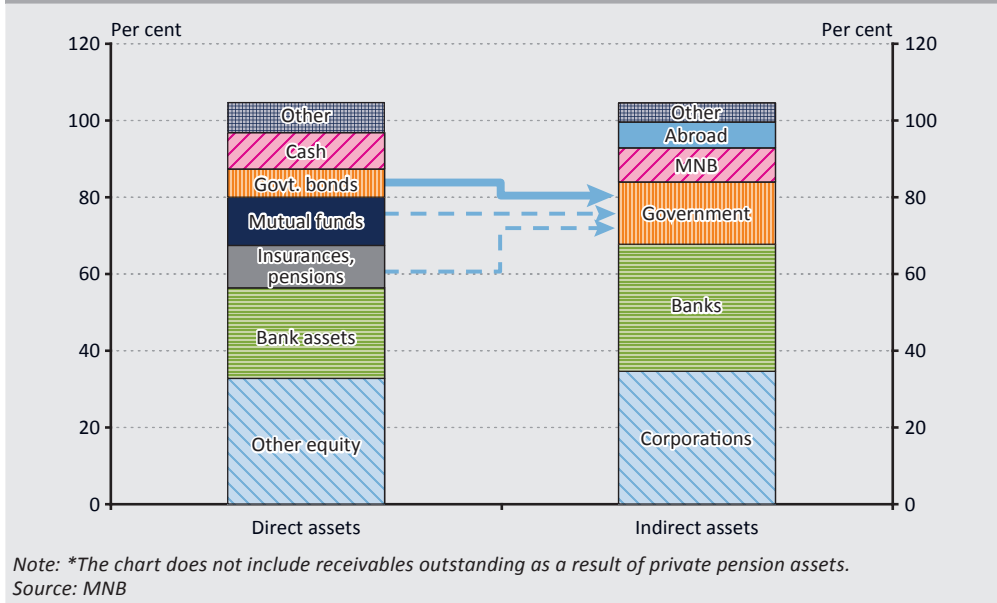


Households indirectly possess a stock of government securities amounting to more than 7 percent of GDP, while including indirect<sup>8</sup> possession as well, the figure is almost 16 percent. Households finance the government directly through possessing government securities, however, the sector also possesses government securities indirectly, through mutual funds,

<sup>8</sup> The stock of indirectly held government securities of households is based on assumptions, and considerable uncertainty surrounds it. Bank deposits are not taken into account as part of indirect financing since upon placing their savings into banks, households do not make their decisions on the basis of the asset portfolio of the banks.

insurance companies, pension funds. Thus, the household sector in total holds government securities of an extent much greater than that possessed directly, representing close to 16 percent of GDP (it is the right hand side of Figure 11, where assets of households held through financial intermediaries were also taken into account).

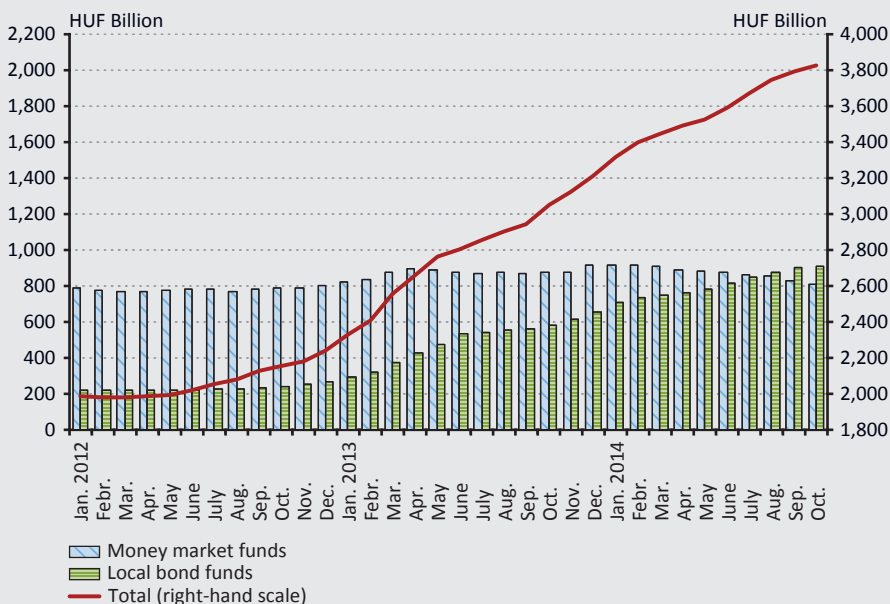
**Figure 11**  
Gross financial assets of households\* as a proportion of GDP  
(September 2014)



The rise in the stock of government securities held by households has recoiled since mid-2014, however, through mutual funds, households provide the government with additional funding on an increasing scale. Since mid-2014 the growth of stock of government securities held by households came to a halt. This – as mentioned above – could have been the result of the fact that the interest advantage of Interest-Bearing Treasury Bills as opposed to short-term bank deposits has declined to 1 percentage point. The lost demand for short-term securities could only partially be replaced by long-term securities (BHGB, PHGB), thus the increase of the stock of government securities held by households has significantly slowed down. However, mutual fund purchases and thus indirect financing of the general government continued. While previously households showed preference mainly for mutual funds offered by money market funds, since 2013 this has changed: mutual funds investing in bonds have increased substantially, from HUF 300 billion to above HUF 900 billion (Figure 12). Households – as mentioned above – in case of mutual funds typically make decisions based on retrospective yields, thus in the rise a decisive role must have been played by rising exchange rates due to falling returns (retrospective yield of money market funds could have increased to a smaller extent as a result of low bank interest rates and shorter-term government securities). Thus, as

a consequence, savings of households held in bond funds exceed the stock of mutual market funds' shares – issued for households. This may, however, imply that indirect household financing of the general government in the course of the last years have, parallel to the expansion of mutual funds, increased significantly.

**Figure 12**  
Trend of household assets under management of mutual funds split by basic types



Source: MNB

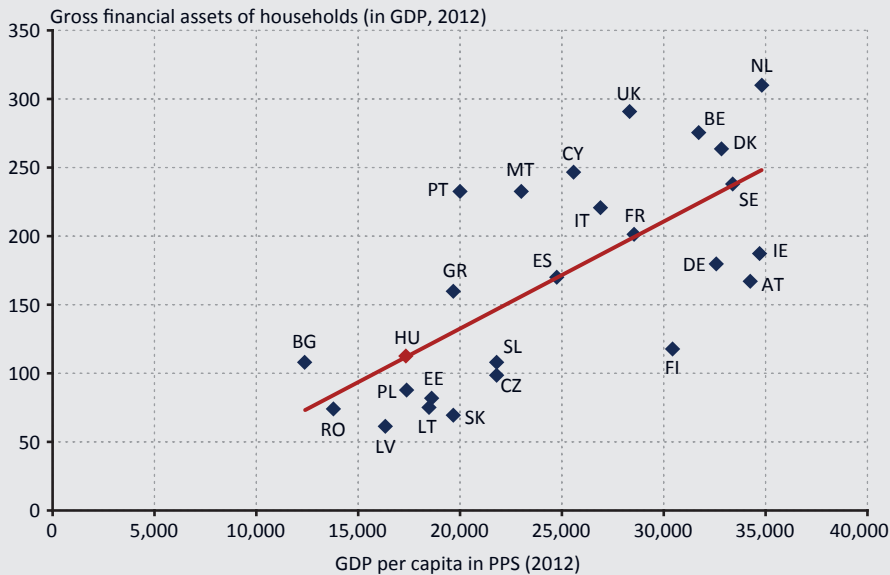
## 4 Household financing of the general government in other countries

As demonstrated in the previous chapters, in Hungary household sector savings held in government securities have increased significantly in recent years, with a key role attributed to declining deposit rates parallel to falling inflation and the behaviour of households “seeking yield”. An international comparison on households’ possession of government securities should also be made. In the next chapter we analyse the trend of savings held in government securities in other countries of the European Union.

*International figures suggest that the stock of financial assets possessed by households is higher in countries with higher per capita GDP. With respect to households’ savings*

it can be observed that in general, in more developed countries with higher per capita GDP, financial assets of households can amount to as much as twice the level observed in less developed countries (e.g. Hungary). In case of Hungary, it is also worth noting that the financial assets of Hungarian households as a proportion of GDP is higher compared to that of Hungary's regional competitors (Poland, Czech Republic, Slovakia) (*Figure 13*). The difference in directly possessed government securities of the various countries could also be explained by the different savings-rate of households as well as the different scales of government debt and financing structure.

**Figure 13**  
**Financial assets of households and the per capita GDP**



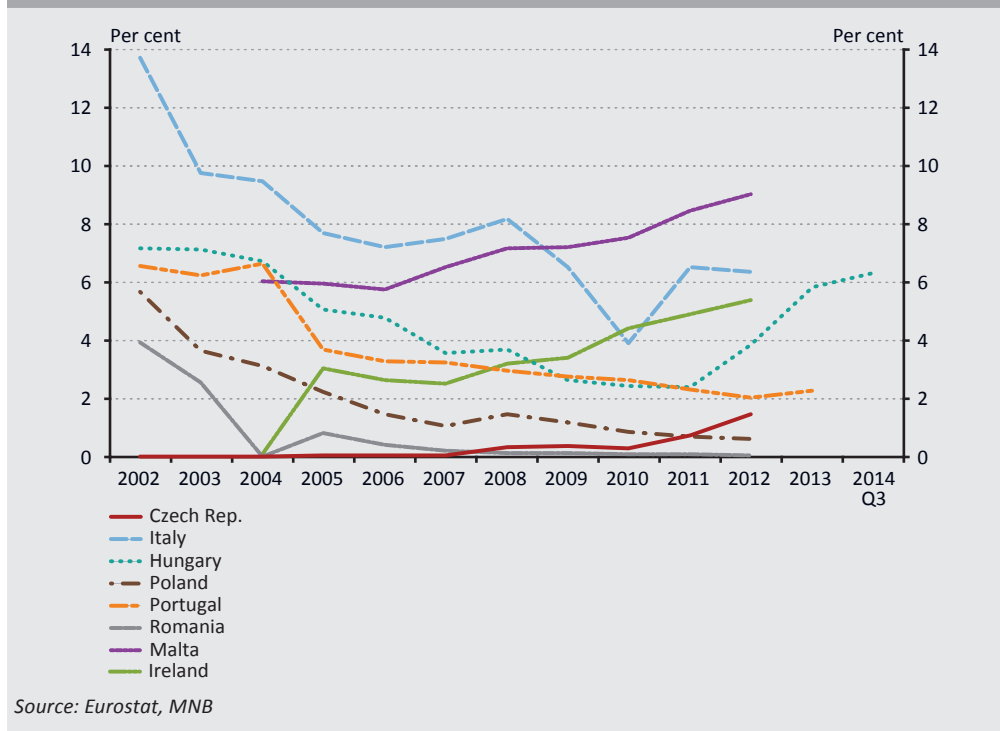
Source: Eurostat

Looking at the members of the European Union, in Hungary the direct government securities stock of households as a proportion of their financial assets is high. Due to differences resulting from various levels of development, it is more appropriate to analyse the portion invested directly into government securities out of financial assets held by households. Since the beginning of the 2000s, the assets of Hungarian households held in government securities have had a shrinking weight within financial assets. This could also be attributed to the fact that, parallel to high interbank rates, retail deposit rates have also remained high. From 2002 onwards the role of households in financing the general government has also declined in Italy, however, in spite of this, it still exceeded the level observed in most members of the European Union for most of the time of the period observed. In Hungary following the deepest point in 2010–2011, within

two years the share of government securities as part of financial assets of households rose considerably, and reached a level close to 6 percent by the end of 2013 from the previous level of 2.4 percent. Based on information available to date, in 2014 the portfolio restructuring of Hungarian households probably slowed down, thus the expanding rate of retail government securities also declined – in spite of this, by September 2014 the share of government securities increased further, and amounted to 6.3 percent of financial assets. Looking at ratios-to-GDP figures, similar trends can be experienced, however, for example in Italy or Ireland and Malta the assets of households as a percentage of GDP amount to almost double of the level of the Hungarian figure, thus assets of households held in government securities significantly exceed that observed in Hungary (*Figure 14*). If other equity, which is considered to be rather illiquid, were not included in financial assets, the stock of government securities held by Hungarian households would be around the Maltese figure of 9 percent. In case of the Czech Republic, which is on a similar level with regard to household assets as a percentage of GDP, although the stock of government securities of households lags well behind the figure observed in Hungary, household demand for government securities has gradually increased in recent years due primarily to the retail government securities program. In Finland, where the level of financial assets is similar, however, household possession of government securities is very small.

**Figure 14**

**The ratio of retail possession of government securities as a proportion of retail financial assets**



*Direct government securities data, however, in case of most countries are only available until 2012; furthermore, there are only limited data on direct household possession of government securities in an international context.* Although in Eurostat – at the time of writing the present article – data for most countries were only available for 2012, while the scale of household financing may have also changed considerably in other countries as well in the last two years. But it may also be that in certain countries households express a preference not for direct, but rather for indirect financing forms – this, however, is not included in data series including direct government securities. Furthermore, in this respect it should also be underlined that the figures are influenced to a great extent by the amount of government debt of the various countries and the level of financial savings of households.

## **5 Due to increased household financing the structure of financing the general government has changed too**

Having purchased government securities at a significant scale, as experienced in recent years, Hungarian households are financing the general government to a large extent, even when compared to other European countries. Strengthened domestic financing may decrease external vulnerability of the economy and also the exchange rate risk of financing the general government. However, further increase of the stock of government securities held by households may be slowed down by the fact that domestic funding needs of the banking system may gradually increase parallel to the recovery of lending and the conversion of foreign currency loans into forint-based loans, and due to short-term stocks significant renewals are required. While in general the figure of financing takes into account only government securities directly possessed by households, the following chapter of present article also presents the scale and change of indirect financing in recent years.

*The increased role of households has several aspects.* In recent years the role of the household sector has increased considerably in financing the general government. At the same time however, the structure through which the general government has raised funds in recent years as well as the impact of retail portfolio restructuring on financing of the government and its financing costs should also be examined.

## 5.1 Change of the government's financing structure

While above the emphasis was placed on the value of government securities within direct or indirect savings forms as part of savings of the household sector (in the balance sheet thereof), in the followings an overview is given on how the changed portfolio restructuring of households influences the structure of general government financing.

*The role of households' financing has considerably grown since 2012 (Figure 15).* The amount of forint funds raised by the government during 2012 was significant, partly due to the fact that the government did not issue any foreign exchange bonds, thus refinancing of maturing government debt was covered exclusively by forint bonds. The stock of government securities held by households started to increase significantly in this year, thus household purchases of government securities contributed to financing the general government already in a greater extent. As previously shown, household purchases of government securities continued in the course of 2013, and thus more than half of net issues denominated in forint were purchased by households. The fact that, with falling deposit rates, investing in government securities was an attractive alternative for households, also played a role in purchases well exceeding the amounts experienced in previous years – as already presented above.

**Figure 15**  
The trend of net fundraising of the government denominated in forint



Source: MNB



*Borrowing from international organizations has fallen significantly in recent years. As a consequence of the 2008 financial crisis, Hungary could not fund itself from the financial markets, thus the country raised considerable loans from international organizations, which represented a significant weight even within the central government debt. This loan, however, was gradually repaid, and by the end of Q3 2014, it amounted to only 4.4 percent of the central government debt.*

*As a consequence of changes in the private pension system, households' indirect government bonds stock decreased, however the households' share in the central governments debt, due to recent purchases of households of governments bonds and mutual funds' shares, has reached its previous levels.* Another considerable issue in recent years was changing the private pension system. Households have, to a great extent, been financing the government indirectly through pension funds. Following the change in the system, the assets of households held in the private pension system were heavily reduced, and thus the scale of indirect financing of the government debt also declined. However, the impact of declined households' financing is modified by the fact that, although indirect financing decreased, parallel to this, through withdrawing government securities held by private pension funds, government debt also declined.

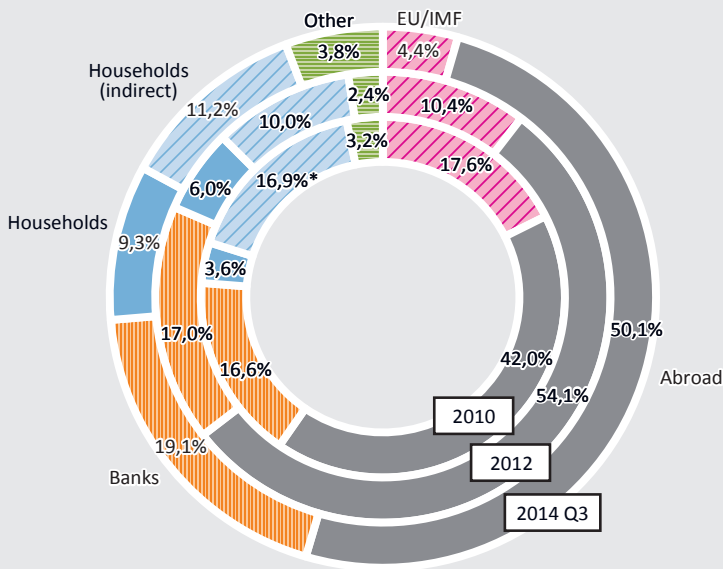
*Government securities directly purchased by households rose significantly as compared to 2012, while the role of indirect financing also rose.* In recent years – in line with considerable retail purchases of government securities – the role of households in financing government debt increased from 3.6 percent in 2010 to 9.3 percent by Q3 2014, which even in historic comparison is considered as high (*Figure 16*). There was a considerable decline in indirect financing in 2011 as a result of the change made in the pension system. At the same time, however, through the portfolio restructuring which followed, the stock of mutual funds together with government securities, also showed a heavy increase<sup>9</sup>. Thus, in total, indirect possession of government securities also increased significantly, and according to the most recent figures it already exceeds 11 percent of the central government debt.

*Taking into account indirect financing of households' as well, in Q3 2014 the proportion of resources reached the previous figure, still including private pension savings, of financing rate.* As a result of portfolio restructuring, direct and indirect financing of households amounted to more than 20 percent of the central government debt in Q3 2014, which corresponds to the previous financing scale – still including the private pension assets. On the other hand, the decline of loans from international organizations was also achieved parallel to increased retail financing. Although household financing was transformed considerably in one step through changing the pension system, households with the help of their continuously growing savings and with significant purchases of government

<sup>9</sup> Together with mutual funds, insurance companies and voluntary pension funds are also financing the general government to a large extent.

securities and mutual funds restored the pre-existing high rate of household financing. The considerable rise of directly held government securities also played a role.

**Figure 16**  
**Structure of the central government's financing**  
*(as a percentage of central government debt, 2010, 2012, 2014 Q3)*



*Note: \*The stock of government securities managed by private pension funds represented around half of indirect retail financing of the general government in 2010.*

*Source: ÁKK, MNB*

## 5.2 Impacts of expanding household financing

Through increased domestic financing, both external debt, being of particular importance for external vulnerability of the economy, and the Structure of the central government's financing's exchange rate exposure can decline. With the exception of the last few months, the increase of financing was reflected most notably in the rise of short-term funding, however, this also led to the growth of the stock of shortened-term government<sup>10</sup> debt. Interests received by domestic players may stimulate the economy so that consolidated domestic financing costs shall not necessarily exceed that of external fundraising. At the same time, however, household financing has various aspects. The next chapter reviews these main issues.

*Households can support general government financing not only directly, through possessing government securities. As presented above, the increase of households financing brought*

<sup>10</sup> Debt which was originally long-term, but is maturing within one year.

about a growing share of domestic financing of the general government. Reduced external financing from the perspectives of external vulnerability – through decreasing external debt – can be considered as a positive outcome. However, it is worth noting that even if households placed their savings in the financial intermediary sector instead of purchasing government securities, the scale of domestic financing of the general government would not necessarily decline. This could occur if household funds were placed at intermediaries which invest all funds received into government securities.

*Higher interest rates of retail government securities – compared to alternative investment opportunities – increase the income of households, which could have a positive impact on external vulnerability of the economy and on economic growth.* Expansion of household government securities is partly related to the attractive pricing of government securities intended for households as compared to other investment opportunities available on the market (e.g. bank deposits with the same maturity). The increased interest received on government securities is directly transferred to households. If indirect financing of the general government grew, as outlined above, only part of the interest would be received by households due to operational expenses of the financial intermediary system<sup>11</sup>. Expansion of direct financing leads to increased income of households, as well<sup>12</sup>, which, through increased consumption or balance-sheet adjustment, shall facilitate the strengthening of economic stability and growth. The exact impact shall very much depend on the income-savings position of households in possession of government securities. This is because the degree of marginal propensity to consumption depends on household income or wealth: households with higher level of income or wealth tend to have lower marginal propensity to consumption (Carroll et al., 2014). Thus, increased income level thereof due to higher interest income on government securities tends to bring about, through increased savings, a further decline in the external vulnerability of the economy. If the interest income of households with lower levels of income or wealth rises, then growth contribution of household consumption may be higher.

*Government security stock held (indirectly) by financial intermediaries may be more stable, however, only part of interests paid by the government is transferred to households.* It should also be underlined that financing of the general government through financial intermediaries is assumed to be achievable on a longer-term. As already presented above, households in general (excluding the last few months) have a preference for shorter-term government securities. In recent months households were purchasing more and more longer-term securities; in spite of this, the majority of the stock of government securities held by households continues to have a maturity of one year. At the same time however, for example mutual funds, due to several investors, can invest into longer-term government

<sup>11</sup> In this case, however, maintenance or expansion of the financial intermediary sector may contribute to growth through higher employment or to reduced vulnerability of the economy.

<sup>12</sup> At this point it is worth noting that additional income compared to yields on alternative investment opportunities may increase disposable income of households.

securities since there is only a smaller influence of individual decision-making on the resources of mutual funds. Purchases of longer-term securities are also hindered by the fact that Hungarian households – as observed – make their investment decisions basically for a one-year time period, thus they can or are willing to engage less in the longer-term. At the same time, financial intermediaries can bring together several small investors, thus can provide the general government with funding on a longer-term, as a result of which they can help reduce renewal risks of the government debt through the decrease of debt maturing within a year. This, however, has a cost: less interest income is received by households. Similarly, pension funds and insurance companies are typically able to purchase government securities on a longer-term, thus financing the general government is ensured under lower levels of uncertainty.

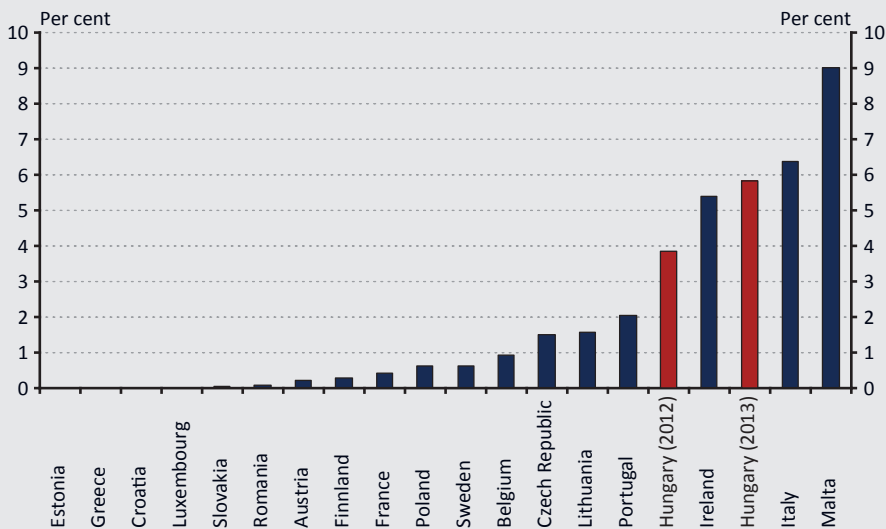
*Additional costs of higher interest rates of government securities intended for households can be offset by the fact that domestic funding does not increase the need for reserves, and thus overall consolidated costs of the government may even be lower.* Upon analysing expanding household financing, the costs of financing should also be examined. Pricing of retail government securities is very favourable, thus the question arises whether external resources should be converted to domestic funds. Costs of financing, however, should be analysed on the consolidated government level: high level of external fundraising through increased short-term debt may lead to higher possession of foreign exchange reserves (Hoffman et al, 2013). Given this, the cost of government financing by the household sector shall not necessarily exceed the costs of financing from other markets, moreover, the interest income shall in full be received by the household sector directly, as mentioned above, with second round effects thereof – either on the revenues of the general government (for example rising VAT revenues as a result of consumption) or on its financing.

*The stock of government securities held by households is less volatile to the HUF exchange rate fluctuations, thus is a more stable source for the government.* A further advantage of financing with retail government securities is that it provides stable funding for the government on the maturity horizon even in cases of international money market turbulences. Under deteriorating external conditions, international investors can sell their riskier assets, which in certain cases may have an impact on the Hungarian sovereign-debt market as well. In contrast, any possible and unforeseen tightening liquidity on the international capital market has a smaller influence on retail investors. In contrast, however, we mention that following the autumn of 2008, households reduced their exposure to government securities, which might have been the consequence of the consumption smoothing behaviour of households. At the same, the scale of the reaction of households was by an order of magnitude smaller than that of foreign investors.

*The considerable level of short-term stock of government securities, however, entails significant renewal risks, which could be further intensified if banks as well start to follow a more competitive deposit-taking behaviour.* The fact that banks need funding from retail deposits could also have a meaningful impact on the development of households'

financial assets. If banks trying to ensure forint funds – along with raising interest rates – start deposit-taking, then it could well be that the stock of government securities held by households will also decline. The rationale behind this is that households make their choices of investment opportunities on the basis of yields offered, thus their resources released as government securities mature may not necessarily be reinvested to finance the general government. In 2015 the renewal risks of forint based retail government securities may further be increased by the conversion of foreign currency loans into forint-based loans, too, since it can step up competition for domestic forint funds among the banks (MNB, 2014b). As a consequence, part of household funds currently held in government securities may again flow towards bank deposits. In this respect it should be noted that if ÁKK would like to continue to increase the share of domestic financing of government debt, it would result in the rise of interest rates on retail government securities, thus ultimately, in increased interest rate expenses of the government (this, however, would increase disposable income of households, and would not necessarily entail additional costs on a consolidated level). It could be important, in international comparison, the share of government bonds in the households' financial assets – except for a few examples – does not exceeds that of in Hungary in the recent years.

**Figure 17**  
The share of households government bonds in households' financial assets  
(2012)



Source: Eurostat, MNB

*Permanent restructuring of household assets may have a negative impact on the supply of funding of certain economic agent.* In recent years households have increasingly been purchasing government securities, which, while decreasing external dependency of the

general government, may slow down the decrease of external debt of banks – in other words the overall external dependency of the national economy may not necessarily decrease due to the household purchases of government bonds. Since the beginning of 2012 households have significantly increased the amount of their stock of government securities, an important part of which, however, was financed by reducing their bank deposits. It is expected that in the short-term the fall of available funding will not have a negative effect on lending, but will probably slow down the decrease of the external debt of the banks. However, this also means that household purchases of government securities may indirectly impede the decrease of net external, within that short-term external, debt of banks. In other words, declining external dependency of the government may slow down the external dependency of another sector. However, on a consolidated level the economy's external dependency decreases, due to the private sector's saving.

## 6 Summary

The net savings rate of households grew considerably between 2008 and 2014. Part of the growth was due to higher levels of loan repayments, however, financial asset accumulation of households with strengthened precautionary considerations has increasingly contributed to this rise. In the course of the portfolio allocation decisions of households, since the beginning of 2012, securities have played an increasingly important role: in particular government securities and mutual funds. The easing cycle of the central bank enhanced portfolio restructuring of households, since households have increasingly begun to look for safe investments with higher rates of return. Thus, while in 2011 government securities represented a mere 2 percent within financial assets of households, the figure by Q3 2014 rose above 6 percent, which is considered to be high even in international comparison. However due to the large stock of short term government securities, keeping at level and increasing households' financing might require further measures from the government.

The stock of mutual funds of households have also increased considerably in this period: instead of the previously popular money market funds, assets managed by bond funds have had the highest increase, and have become the type of fund representing the largest weight by households. Thus, households through possessing mutual funds are representing a growing weight in financing the government debt.

On the one hand, household financing may have several advantages, for example: interest income is received directly by households, which can give support to growth, or may provide the government with more stable funds since households are assumed to be less sensitive to potential exchange rate fluctuations, money market turbulences. Or with increased domestic financing the external debt, thus external vulnerability of the economy, can be decreased.

On the other hand, household financing may entail risks, for example the stock of short-term government securities held by households is significant, which entails renewal risk. Furthermore, if for example due to its financing needs, the banking sector offered higher interest rates for households, then this could even lead to declining stock of government securities held by households, or to increased interest expenses of the government.

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