



MAGYAR NEMZETI BANK

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GERGELY BAKSAY – GERGELY KICSÁK –  
ÁKOS SZALAI

**Public debt**





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Gergely Baksay – Gergely Kicsák – Ákos Szalai

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# Contents

<b>1 Introduction</b>	5
<b>2 The concept of public debt</b>	7
<b>3 Alternative indicators of the financial position of the general government</b>	11
3.1 Explicit assets and liabilities	12
3.2 Development of the assets and liabilities of the government sector in Hungary	18
3.3 Implicit assets and liabilities	21
<b>4 Management of public debt</b>	22
4.1 Strategic objective of debt management	22
4.2 Main properties of debt instruments	22
4.3 Main criteria of debt management and the trade-offs	23
4.4 Performance indicators of Hungarian debt management	31
4.5 International comparison of main debt indicators	32
4.6 Instrumental structure of Hungarian public debt	39
4.7 Connection of debt management and the central bank	43
<b>5 Implementation of debt management</b>	49
5.1 History of the implementation of debt management	49
5.2 Legal and capital market frameworks of debt management	51
5.3 Primary dealers	52
5.4 Operation of the primary market	53
<b>6 Economic effects of public debt</b>	69
6.1 Debate about the growth effect	70
6.2 Effect on money and capital markets	72
6.3 Effect on stability	73
<b>7 Sources</b>	74



# 1 Introduction<sup>1</sup>

Public debt is one of the most important macroeconomic variables, and thus precise knowledge of its contents is especially important for the interpretation and analysis of economic developments. The objective of this methodological booklet is to present and illustrate the concepts related to public debt and its management, primarily via current Hungarian data and practices.

The international financial crisis, which essentially appeared as a debt crisis in certain countries, shed light on the importance of public debt better than ever before, and not only in the developing countries, but in the most developed countries as well. The structure of public debt also attracted more attention than previously, and Hungary strongly felt the importance of this as well. At the same time, the importance of debt management also increased, as the detrimental effects of a higher debt ratio can be offset and reduced with appropriate strategy and methods.

The public debt-to-GDP ratio is an especially important economic indicator in Hungary as well, as indicated by the fact that the goal of decreasing the debt ratio was included in the Fundamental Law. This is justified by the fact that Hungary struggles with high public debt compared to both similarly developed countries and its regional competitors. Significant improvement has been achieved in this area in recent years, and the debt ratio has decreased by more than 1 per cent of the GDP on average, per year, since 2011. The improvement of Hungary's risk assessment is due in part to this, since investors and credit rating agencies follow trends in debt with close attention, as one of the most important risk indicators related to the state of the economy.

In this manual, we address all of the above mentioned subjects, starting with the concept of public debt in the second chapter, which presents its definitions and properties. The third chapter covers the alternative indicators of the financial position of the general government, which is different from

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debt. The fourth part discusses the theoretical points of view involved in debt management, and, in this context, the structural issues of debt. The fifth chapter deals with the execution of debt management, primarily in light of current Hungarian practice. The sixth part presents the indirect economic effects of public debt.



## 2 The concept of public debt

Public debt comprises the entirety of the debts and liabilities of the government sector accumulated in the past. Although the fundamental content of the concept is unambiguous, several definitions exist regarding the details. The most comprehensive economic statistical systems, the System of National Accounts (SNA), applied by the UN, and the European System of Accounts (ESA), established in the European Union on the basis of this, include a definition for the concept of debt, which is consistent with the entire system of national accounts. However, the definition of the concept of public debt according to the protocol attached to the Treaty establishing the European Community is more relevant for Hungary and the European Union: “...*the total gross debt at nominal value outstanding at the end of the year and consolidated between and within the sectors of general*”.<sup>2</sup> The debt thus defined is what the individual budget rules of the European Union refer to and which generally appears as “public debt” in the news and statistics. In the following, we present the details of this definition, explaining the possible alternatives.

The *components* of debt can be defined in such a way that it is a financial liability, which generates future interest and/or principal payments from the debtor to the creditor.<sup>3</sup> Part of this debt may be cash, deposit placed by others, debt securities, loans, insurance prescribing payment obligations, pension obligations and guarantees, other invoices to be paid and SDR.<sup>4</sup> The EU decree governing public debt defines the debt in a narrower sense: parts of the debt are cash and deposits, non-share securities, except for financial derivatives (i.e. government securities), and loans.<sup>5</sup>

In terms of *coverage*, public debt means the debt of organisations belonging to the government sector. The government sector is the set of organisational units (i.e. participants) of the economy defined by a statistical methodology,

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<sup>2</sup> Article 2 of Protocol 12 attached to the Treaty establishing the European Economic Community.

<sup>3</sup> Public Sector Debt Statistics: Guide for Compilers and Users, <http://www.tffs.org/PSDStoc.htm>.

<sup>4</sup> Special Drawing Rights (SDR), the basket currency used by the IMF.

<sup>5</sup> Council Regulation (EC) No. 3605/93 of 22 November 1993 on the application of the Protocol on the excessive deficit procedure, annexed to the Treaty establishing the European Community.

in addition to households, financial and non-financial corporations, and the non-resident sector. Almost all of the public debt exists at the debt management institution of the central government and at other levels of public administration (regional and local governments, social security), which clearly belong to the government sector. Generally speaking, the debt of organisations, for example state-owned companies, whose sectoral classification (public or private) is not clear, is not significant. *Government debt* refers to the debt of central government managed by the Debt management Agency (ÁKK).

The *evaluation* of the components of public debt can be conceived in several methods: according to market value, book value and nominal face value. The above cited EU legal regulation uses nominal face value, since that is the amount that the debtor has to repay to the creditor upon repayment; moreover, in terms of the above methods, this is perhaps the easiest to determine. It must be noted, however, that the System of National Accounts (SNA) and the European System of Accounts (ESA), the EU equivalent thereof, take into account all debts at the currently existing market value. Market value basically always differs from face value, for two reasons. On the one hand, the net value of the government securities diverges from the face value depending on how the repayment capability of the debtor and the expected yields are judged. On the other hand, government securities include accumulated interest calculated from the last interest payment date (which the debtor only pays at the next interest payment date), beyond the net value, and this increases the value of the security. The market price which also takes into account accumulated interest is the gross price.

In general, debt is taken into account in a *consolidated manner*; thus, debts within the government sector offset each other. Naturally, such consolidation can only be performed if one knows how much of the debt held by the individual organisations pertains to the government sector.

Public debt is calculated on a *gross* basis; thus, it is not decreased by the assets of the government sector. This is one of the most important and most disputed characteristics of the methodology of debt calculation, because in many respects a more exact picture of the situation of the budget can be

obtained if the difference between the debt and the amount of assets existing vis-à-vis the debt is stated as well, which can be called net debt. The next subsection deals with the concept of net debt in more detail.

*Foreign currency debt* is converted to domestic currency at the exchange rate valid on the date of reference. As a result of this, the debt of countries with high foreign currency debt is very sensitive to daily fluctuations in the exchange rate, and it is very important what the exchange rate is on the date of reference, i.e. for example on the last day of the year. If the foreign currency debt is swapped to another currency in the framework of a currency swap, the exchange rate of the new currency is relevant when calculating the value of the debt.

In addition to the debt indicator defined by the European Union, the public debt defined by the *Act CXCIV of 2011 on the Economic Stability of Hungary* (hereinafter “GST Act”) must be underlined, since the debt reduction prescribed in the Fundamental Law must be assessed on the basis of this definition. It is basically the same as the concept defined by the European Union and only takes into account certain details differently (discount Treasury bills are taken into account at market value, not face value, and, in contrast to the EU methodology, the long-term lease of Gripen planes is not included in foreign loans).

In addition to the above indicators, the statistic related to the *debt managed by the Government Debt Management Agency (ÁKK)* is important, as this differs from the EU methodology in several points. The largest difference stems from the fact that the statistical data published by the ÁKK *include only the debt managed by the ÁKK*, and thus the debts of other institutions belonging to the government sector and the local governments are not included. Hence, the ÁKK debt is lower than the above defined public debt, although this difference decreased to a minimum since the central government assumed the debt of the local governments in 2011-2014. Of the *components* of debt, only debt securities, loans and deposits are included in the debt of the ÁKK. Another difference is that this indicator is not consolidated, since it also includes the debt issued by the ÁKK, but held by the government sector. However, it is similar to the debt defined by the EU in that it is calculated on a *gross* basis

(except for discount treasury bills) and *at face value*; moreover, the accounting of *foreign currency debt* is similar as well. Detailed and quickly updated data are available for the debt managed by the ÁKK, and thus, we will refer to these data often in the course of this analysis. Although the debt managed by the ÁKK differs somewhat from the value of official debt for the above methodological reasons, this does not hinder the analysis, since the order of magnitude and the trends are completely identical.

### **Box 1**

#### **Accounting of currency swaps in the statistics**

One special case is foreign currency debt that was exchanged to another currency or the domestic currency within the framework of a currency swap. After the swap, it must be considered as if the debt existed in the new currency and the value of the debt must be converted from that into the domestic currency. Thus, if a country swaps its issued US dollar debt to euro, the exchange rate of the euro will be relevant in the future.

In Hungary, the ÁKK concludes such swaps precisely to cover itself against exchange rate fluctuations outside of the EUR/HUF relationship, so that its exchange rate exposure exists only vis-à-vis the euro. Based on the currency swap, the ÁKK hands over to its swap partner the funds raised in another currency (for example, US dollar) against the euro, and, upon expiration of the swap, which usually coincides with final repayment, it gets these funds back against euro, at the exchange rate determined beforehand. Thus, irrespective of the EUR/USD exchange rate fluctuations occurring in the meantime, it does not have to raise more (or less) funds upon expiration for repayment of the US dollar debt.

It is important that the swaps include an agreement whereby the two parties regularly evaluate their position vis-à-vis each other depending on the current market prices and yields. Based on this marking-to-market practice, the parties place additional margin with each other to balance the position. The coverage received in the form of a deposit in cash appears as liabilities of the partner in the statistics, and therefore it increases public debt. On the other hand, if the ÁKK places an additional margin elsewhere, it must finance that with debt issue. Thus, decreasing exchange rate exposure has “its price”, and may also cause a temporary increase in debt.

### 3 Alternative indicators of the financial position of the general government

Gross public debt is a key indicator of the financial position of the government, but is not the only such indicator and it does not have the widest scope and is not even the most expressive in every respect. It does not include all financial liabilities, does not take into account the financial assets and capital stock of the government, and does not contain all the future payables by any means. In the following, we describe other indicators that can be derived from the assets and liabilities of the government, and also place the gross debt data in this context. However, it is important to emphasise that as we strive for wider coverage, the reliability of the statistics decreases, the methodological uncertainties become stronger, and the data are available only with a significant delay.

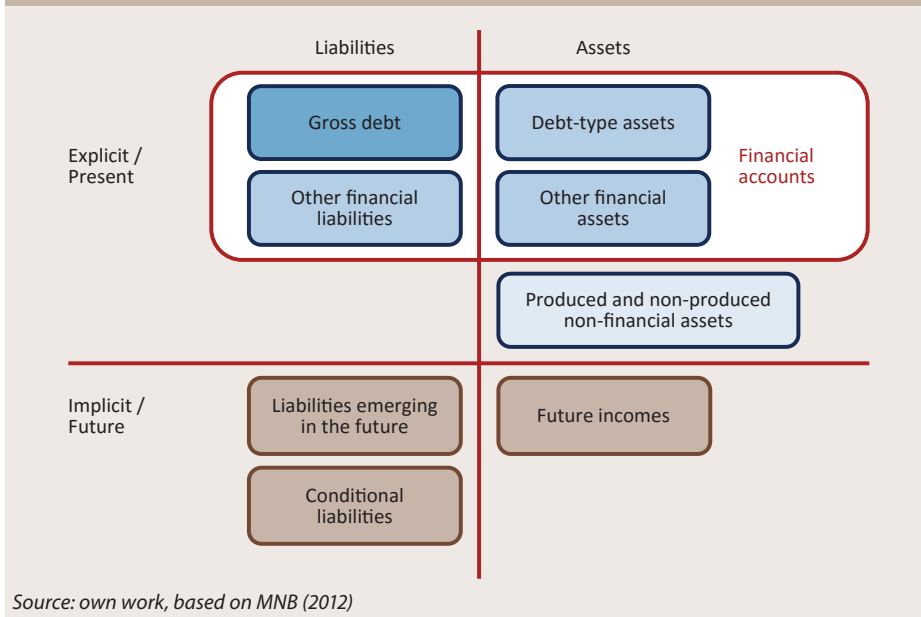
In what follows, we present the schematic framework of the balance sheet of the government, including all of its present and future liabilities and assets. There is no standard methodology for the entire balance sheet interpreted in this manner, and therefore, it can also be outlined in a way differing from the below.<sup>6</sup>

The approach below is basically two-dimensional: on the one hand, it differentiates between assets and liabilities in the traditional sense, while on the other hand, it shows currently existing and future items. The assets are the receivables of the general government against participants outside the general government, whereas the liabilities are payables. From the other point of view, we can differentiate the currently existing, explicit items from those whose emergence is expected in the future, and thus they exist only implicitly (for example on the basis of a non-legal based promise).

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<sup>6</sup> For example in the publication of the British Office for Budgetary Responsibility (2015) and the central bank's analysis MNB 2012).

**Chart 1**  
**Entire balance sheet of the general government**



### 3.1 Explicit assets and liabilities

Both the System of National Accounts (SNA) and the European System of National Accounts (ESA) include only assets and liabilities that exist unconditionally at the time of balance sheet preparation. Financial and non-financial items are differentiated in the balance sheet. In the following, we present the assets and liabilities appearing in the national accounts, citing the available Hungarian figures with respect to the government sector.<sup>7</sup>

#### 3.1.1 Explicit financial liabilities

Financial liabilities appear on the liabilities side of the financial account. A large part of these are debt-type items (cash and deposits, loans and debt securities), but other financial liabilities, such as accounts payable and financial derivatives, also exist. Although the components of public debt appear in the

<sup>7</sup> Within the national accounts, the non-financial assets are registered by the HCSO in Hungary, whereas the so-called financial account, presenting the financial type assets and liabilities, is prepared at the central bank.

financial accounts, this does not directly include the debt figure; instead, the latter is generally stated separately. This is especially true in the European Union (thus, in Hungary as well), where the financial account includes the liabilities at market price, whereas the public debt indicator contains the liabilities at face value. Table 1 shows that the sum of debt-type financial liabilities of the general government amounted to 85.0 per cent of GDP in Hungary at the end of 2015 (the sum of loans and debt securities, and cash and deposits), whereas the gross public debt was 75.3 per cent of GDP at the same time. The difference between the two figures stems from the aforementioned methodological differences (components taken into account, evaluation).<sup>8</sup>

<b>Table 1</b>		
<b>Financial accounts of the general government, 31 December 2015</b>		
<i>(as a percentage of GDP)</i>		
	<b>Assets</b>	<b>Liabilities</b>
1 Currency and deposits	2.8	0.2
2 Debt securities	0.5	73.5
3 Loans	0.6	11.1
4 Equity and investment fund shares	11.0	–
5 Technical provisions	0.0	0.1
6 Financial derivatives	3.0	0.1
7 Other accounts receivable	5.7	13.1
<b>Total</b>	<b>23.6</b>	<b>98.1</b>
<b>Net financial worth</b>		<b>–74.4</b>

*Source: MNB*

### 3.1.2 Explicit financial assets

The asset side of the financial accounts includes items for which the general government has receivables against other sectors. These are completely similar to the liabilities side items, and they mostly exist in the form of deposits, shares, and loans and credits granted to others. The amount of financial assets held by the government is differs widely from country to country.

<sup>8</sup> The government liabilities stemming from the transformation of the private pension fund system have appeared among other financial liabilities of the government since 2011. However, this did not influence the net financial worth of the government, since, as an effect of the asset transfer, the outstanding debts decreased, and the sum of government deposits, shares held and other types of assets increased. The other liability stemming from the pension assets must be decreased in the period of pension payments.

The amount is very high in countries where significant income was realised over a relatively short time (for example, from production of raw materials or from fast economic growth) and they formed long-term reserves from the income. These are usually managed by state-held financial funds (sovereign wealth funds), of which the largest are in Norway, China and some Middle Eastern oil exporting countries, but the funds of Hong Kong and Singapore are considerable as well.<sup>9</sup>

Similarly to liabilities, financial assets can also be classified to debt type and non-debt type assets, but in terms of another criteria they can be divided to liquid items (which can be turned into cash easily) and non-liquid items. The purpose of holding liquid assets (primarily deposits, sometimes quoted shares, other liquid securities) is primarily to ensure continuous, secure financing of the public debt and the deficit. During times of financial turbulence and in order to decrease financing risks, the government can decide about to increase the level of liquid financial reserves without establishing a dedicated fund, within the frame of debt management. The purchase of financial assets is generally financed by debt issue, and thus results in an increase in gross debt. At other times, the reduction of liquid reserves may play a role in decreasing the debt ratio.

Non-liquid assets represent, *inter alia*, loans provided outside the general government, and business shares in companies not quoted on the stock exchange, which can be considered as long-term investments and which cannot be sold immediately. The main part of non-liquid financial assets is made up by the shares of the general government in enterprises performing state tasks, which is relatively stable. Nevertheless, if a government decides to change the scope of its tasks, it may entail the sale of state-owned enterprises (privatisation) or the purchase of other companies, and in Hungary there have been examples for both of these cases. Thus, in the long term, non-liquid assets may also influence the trends in public debt.

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<sup>9</sup> Source: Sovereign Wealth Fund Institute ([www.swfinstitute.org](http://www.swfinstitute.org)).



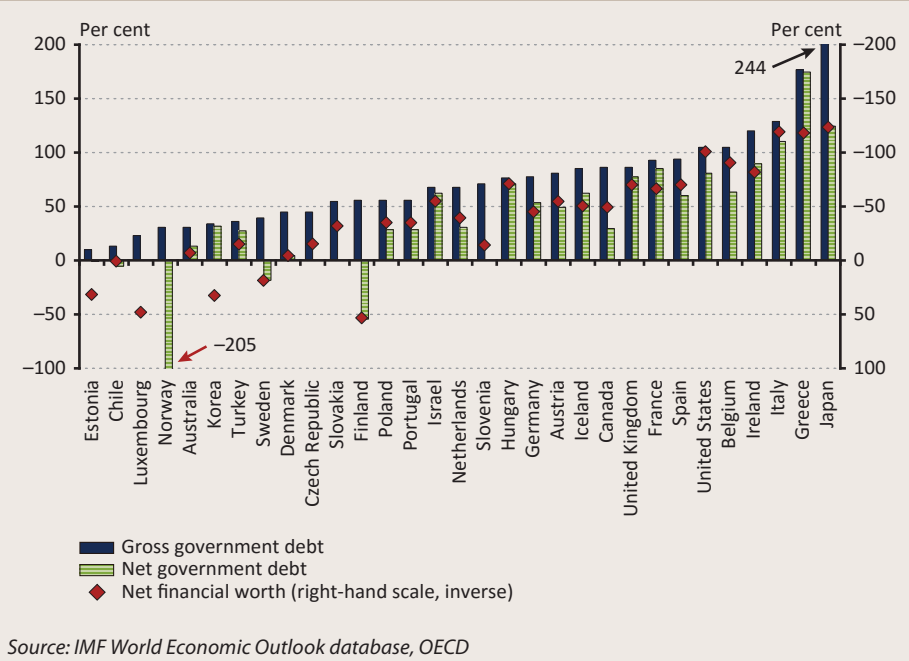
### 3.1.3 Net public debt, net financial value

In terms of economics, **net public debt**, within the framework of which the government's financial assets compared to gross public debt is also taken into account, is important in addition to gross public debt. There is no clear definition of net debt and it is usually interpreted in two ways: (i) the difference between gross debt and debt-type assets (i.e. the loans, credits and deposits provided by the state), and (ii) the difference between gross debt and the government's liquid financial assets. In theory, the first definition is more consistent, because it compares debt-type items to each other. For practical considerations, however, the arguments for the second definition include that during the repayment of the debt the loans practically cannot be used in the short run, contrary to liquid assets, such as quoted shares, which can be used (through their sale). Net public debt differs significantly from gross debt in those countries where the government held large amounts of financial liabilities, for example via the sovereign wealth funds mentioned above.

Another rarely used concept is the **net financial worth** of the government sector, which is simply the difference between financial assets and liabilities. It follows from the definition that it shows strong similarity to the net debt, although it considers a narrower range of the assets and liabilities. It is worth mentioning that the signs also differ in the two approaches: it is likely that the financial value will be negative with high net debt, unless it is offset by the assets not taken into account in the net debt. Consequently, the net value of the government sector is generally positive in the countries where the public debt is low or the asset portfolio is high. The negative net financial worth is usually called net financial liability as well.

**Chart 2**  
**Gross and net public debt and net financial worth**

(as a percentage of GDP)



Source: IMF World Economic Outlook database, OECD

### 3.1.4 Non-financial assets

In addition to the financial balance sheet, the government also holds non-financial assets (according to the statistical definition, however, it does not have non-financial liabilities). The **non-financial assets** of the government sector cover all assets in respect of which there are no third-party claims, which represent a value and which can realise profit either through their use or property income (and, naturally, the asset itself is not of financial nature).<sup>10</sup> Both produced assets (machinery, equipment, real estate, inventory, intellectual products) and non-produced assets (natural assets, land) belong here. The statistics related to non-financial assets are less widely available than those related to financial assets. Their valuation is complicated by the fact that part of them is rarely marketed or they are of individual nature (land, property). Both gross value and net value, reduced by the depreciation, can be calculated

<sup>10</sup> Bova et al (2013).

for these, of which the latter is closer to the market price approach expected in the national accounts (Table 2).<sup>11</sup> In Hungary, the statistics estimate the worth of the government sector in real estate in the net sense at 180 per cent of GDP (at gross value: 180 per cent), with a significant part of this made up by roads, railways, dams, i.e. structures not awaiting market sale. No statistics are currently available for non-produced non-financial assets yet (however, this is also calculated in several countries and the weight of natural assets is generally high).

The **net value** of the general government is the difference between total assets and total liabilities. Since non-financial assets generally represent a significant value, the net value of the government sector is positive in most cases, even despite a negative net financial worth.

<b>Table 2</b>	
<b>Net non-financial assets of the Hungarian government sector as a percentage of GDP</b>	
	<b>Net value</b>
<b>I. Produced non-financial assets</b>	<b>112.2</b>
I. 1. Dwellings	3.1
I. 2. Buildings other than dwellings	102.0
I. 3. Machinery and equipment	5.4
I. 4. Cultivated biological resources	0.0
I. 5. Intellectual property products	1.7
<b>II. Non-produced non-financial assets</b>	<b>n.a.</b>
II. 1. Natural resources (without land)	n.a.
II. 2. Land	n.a.
II. 3. Other	n.a.
<b>III. Total non-financial assets</b>	<b>n.a.</b>
<i>Source: HCSO</i>	

<sup>11</sup> No data are available in terms of non-produced assets for Hungary, but the statistics of certain countries are available at the statistical website of the OECD. OECD National Accounts / Detailed Tables and Simplified Accounts / 9B Balance sheets for non-financial assets: [https://stats.oecd.org/Index.aspx?DataSetCode=SNA\\_TABLE9B#](https://stats.oecd.org/Index.aspx?DataSetCode=SNA_TABLE9B#).

## 3.2 Development of the assets and liabilities of the government sector in Hungary

In the following, we present the relevant annual time series of the above statistical indicators related to Hungary. After peaking in the first half of the 1990s, the level of GDP-proportionate **nominal gross public debt** decreased gradually until the trend reversal seen in 2002. Thereafter, a continuous increase was observed, initially due to the high budget deficit and then partially as a result of the deceleration in economic growth. The financial crisis that started in 2008 accelerated the process: debt soared as a result of the loans taken from international organisations. In the wake of the recession, the weakening of the exchange rate and the rising yields, the debt ratio continued to increase until the turnaround in 2011. Thereafter, the disciplined fiscal policy, the emerging economic growth, the reform of the pension system and, from 2012, the falling yields, all contributed to the reduction in the debt ratio. The **debt managed by the ÁKK** essentially differs from the total public debt in that it does not include the debt of the local governments and the institutions classified into the government sector. However, the central government assumed the debt of the local governments in 2011-2014 and the liabilities were transferred to the portfolio of the ÁKK, and thus the numerical difference between the total debt and the debt managed by the ÁKK decreased to only 2 per cent of GDP.

We calculated the **net public debt** as the difference between gross debt and liquid assets (cash, deposits, quoted shares). The net debt ratio follows similar trends as the gross value, but the difference between them is somewhat volatile. The stable difference of 5 percentage points increased to 8-9 percentage points in 2008 and rose to 10 percentage points in 2011. The change in 2008 was caused by the fact that the loan taken from international organisations exceeded the financing need of the budget and the difference was held in the government's foreign currency deposit. Later, the government gradually used this for financing and held part of it until repayment. In 2011, the divergence of the two indicators was caused by the reform of the pension system: part of the assets transferred to the government sector materialised in deposits and shares, which reduced the net debt. (The assets received in

the form of government securities simultaneously reduced both the gross and the net debt after withdrawing the government securities.)

The **net financial liability** is the difference of the government's total financial assets and total liabilities calculated at market value (i.e. the net financial worth with the opposite sign). It follows from the definition that it shows strong similarity to the net debt, although that indicator considers a narrower range of the assets and liabilities. The trend growth in net financial debt observed in Hungary is attributable to complex processes. A one-off increase was registered because since 2011 the statistics recognise the pension liabilities existing vis-à-vis the members who left the private pension funds to join the state pension scheme among other liabilities. On the other hand, the calculation at market value increases the value of financial liabilities compared to the face value methodology applied in the calculation of public debt. The reason for this is that the market price of the Hungarian government securities is higher than their face value due to the fall in yields since issue. In recent years, the impact from this factor was relatively strong.

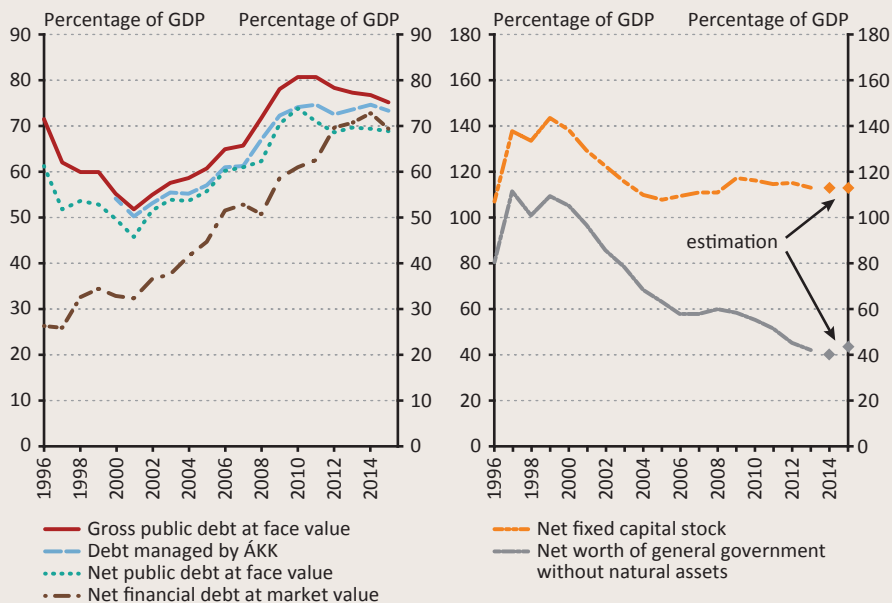
The right side of the below chart shows the **net capital stock** of the government sector, i.e. the amortised value of the existing real properties, machinery and equipment. More than 95 per cent of the stock is comprised of buildings and other structures (roads, railways, dams, etc.). After the fluctuation observed around the millennium, the value of these remained rather stable in the last ten years, at around 110 per cent of GDP. No data comparable with the above are available for non-produced assets (land and other natural resources), although the value of these would also be very significant.

The **net values of the assets and liabilities of the general government** are the final two indicators, i.e. the difference between the net capital stock and the net financial liability. This is, thus, the total calculated **net worth** of the general government, taking into account both financial and non-financial assets (in the absence of data related to natural resources, without the latter). For almost two decades, the gradual decrease in this indicator has been attributable to the rise in the net financial liability, but according to our estimate the decrease halted in 2015, as the net financial liability also declined.

The earlier downward trend in the net worth of the general government was attributable to the growth in public debt, which lasted until 2011, and to the aforementioned technical settlements (private pension fund settlements, change in the prices of securities).

**Chart 3**  
**Various debt indicators of the general government**

(as a percentage of GDP)



*Note: Gross public debt was recognised at face value, in accordance with the EU's legal definition. By contrast, the financial accounts show the liabilities at market value, and thus price changes in the securities cause volatility in the value of the liabilities. As a result of the different methodology, the public debt ratios and the net financial liability cannot be compared directly, but the different methodology has no impact on the trends and does not influence the overall view. Net public debt was defined as the difference between the Maastricht gross public debt and the liquid financial assets of the general government. Liquid assets include cash, deposits and quoted shares. We assumed constant net capital stock for 2014-2015, and estimated the net worth of the general government based on this (the other input necessary for this, i.e. the net financial liability of the general government is based on actual data).*

Source: MNB, Financial Accounts; HCSO, National Accounts

### 3.3 Implicit assets and liabilities

The concepts presented above provide a picture of the current situation of the budget on the basis of the assets and liabilities existing in the balance sheet of the general government. In many cases, however, such commitments also exist for which it is not yet known today exactly if there is an actual future payment connected to these or not, and if so, then when and in what amount. We can differentiate between conditional liabilities (guarantees, insurance) and other liabilities that stem from promises, moral commitments or necessities: examples for these are health care and pension provision in exchange for allowance, capital increases and debt assumptions becoming necessary in the future at state-owned enterprises; and, for example, restoration after possible natural disasters.

Due to their size, the **expected pension provisions** stand out from other future liabilities. Although these have a legal basis, both the date and the amount of the payment is uncertain, even if it can be considered as a given according to the currently existing rules, since the amount of the liability also changes with the change in the rules. The pension payment liabilities related to already paid pension contributions is also called the implicit pension debt of the government, which has attracted increasing attention recently with the expansion of the welfare states and stemming from the demographic trends. From 2017, the statistical offices in the European Union must prepare an estimate with respect to the implicit pension debt. Naturally, this indicator can only be calculated with considerable uncertainty, but its order of magnitude is, in and of itself, interesting and important.

# 4 Management of public debt

## 4.1 Strategic objective of debt management

The task of debt management is to ensure that the financing needs of the budget are met over the long term and continuously, undertaking minimal costs and realistic risks.<sup>12</sup> The objective of the debt management strategy is that the debt management agency should implement this main mandate within the current frame of economic policy, in the most efficient possible way, with the best utilisation of the debt financing alternatives. As a result of this, the debt structure of the most favourable ratio of costs and risks can be implemented in the long term. Efficient optimisation is possible by concurrently taking into account the advantages, the costs and the potential risks. The risk factors judged as the most important by the debt management agency are the financing risk (stemming from the interest rate risk and the renewal risk), the exchange rate risk and the counterparty risk. In addition to a sustainable decrease in the public debt-to-GDP ratio, the high priority debt strategy objectives in Hungary currently include the reduction of the share of FX-denominated debt, along with increasing the average maturity and strengthening the domestic investor base (within this, primarily financing by households).

## 4.2 Main properties of debt instruments

For the purpose of predictability, debt management agencies undertake to make the financing of the general government robust; thus, they aim to filter out and minimise the effects of unexpected (primarily negative) market shocks. To do this this efficiently, they diversify the structure of the public debt by issuing various types of debt instruments. In addition to the intentions of the issuer, debt management is also strongly influenced by demand conditions, i.e. the development of trends on financial and capital markets.

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<sup>12</sup> Government Debt Management Agency (2015).



The various types of financing forms have different properties in several respects, of which the most important are: the currency, the maturity, the interest payment and the targeted investors. The latter can be divided to four distinct groups: domestic small investors (households); domestic large investors (banks, pension funds, insurance companies); foreign institutional large investors (foreign banks, pension funds and insurance companies); and international organisations (IMF, EU, EIB, EBRD). The main characteristics of the domestic debt instruments are summarised in the following table (Table 3).

	<b>Forint bond</b>	<b>Discount Treasury bill</b>	<b>Retail securities</b>	<b>Forint loans</b>	<b>Foreign currency bonds</b>	<b>Foreign currency loans</b>
<b>Currency</b>	forint	forint	forint and foreign currency	forint	foreign currency	foreign currency
<b>Interest payment</b>	fixed or floating	zero-coupon securities	fixed or floating	fixed or floating	fixed or floating	fixed or floating
<b>Maturity</b>	3, 5, 10, 15 years	3 or 12 months	0.5-10 years	3-15 years	3-30 years	3-10 years
<b>Investors</b>	domestic and foreign large investors; domestic households to a smaller extent	domestic and foreign large investors; domestic households to a smaller extent	domestic households; domestic large investors to a smaller extent	international development banks (EIB, EBRD)	foreign large investors	international organisations (IMF, EU), international development banks (EIB, EBRD)
<b>Channel of raising finance</b>	market	market	market	non-market	market	non-market

*Source: own work*

### 4.3 Main criteria of debt management and the trade-offs

The essence of the debt strategy is that, by issuing debt instruments with various characteristics, the debt management agency can finance the budget deficit and the maturing debts in a stable manner, in a debt structure which ensures an optimal cost-risk ratio over the long term. There is a trade-off between individual risks, i.e. individual risks can be decreased only by increasing others, for which a typical example is the often opposing movement

of exchange rate risk and interest rate risk. We present below the advantages and disadvantages of the individual criteria, along the main characteristics of the debt instruments, in addition to the trade-offs between the individual risks, which are typical in the area of debt management.

#### **4.3.1 Denomination structure of the debt (forint or foreign currency)**

One of the most critical criteria for the debt strategy is the ratio of foreign currency debt within total public debt. The considerable weight of the ratio of foreign currency debt is mainly typical for developing countries, and there are several reasons for this. The most basic reason is that these countries do not have sufficient domestic savings to fully ensure the financing requirements of the state. Furthermore, foreign investors often do not prefer debt instruments issued in domestic currency, which they are more likely to sell in the case of market turbulence, which can primarily be explained with potential losses because of exchange rate risk. As a result of these aspects, in the case of developing countries it seems practical to increase the diversification of raising finance by issuing debt instruments denominated in foreign currency, as a wider sphere of investors can thus be reached. One of the main positive consequences of this is that the financing cost may be lower than for the securities of domestic denomination, since no exchange rate risk premium has to be paid, and inflation is also typically lower in the foreign currency. Moreover, government securities of larger volume and longer maturity can be sold during an issue, which thus has to be renewed less frequently.

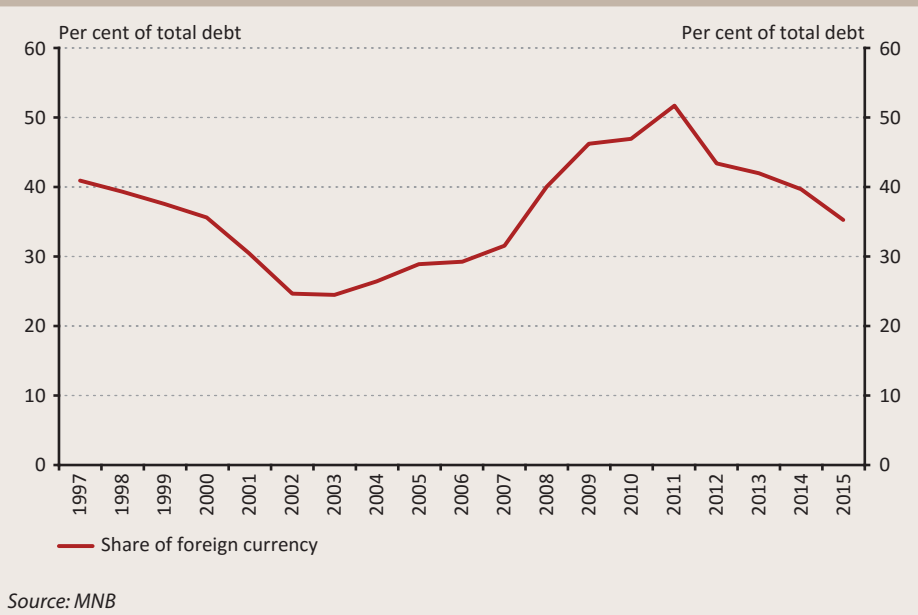
However, increasing foreign currency debt also entails significant risks for the debtor country. The most important of these is the exchange rate risk, because, as a result of exchange rate movements, the debt to be repaid calculated in the domestic currency and stated statistically can also change considerably. This represents a real problem in the case of depreciation of the domestic currency, since in this case the amount to be repaid increases as expressed in the domestic currency, whereas the statistical debt increases. Furthermore, because of possible exchange rate volatility, the high extent of foreign currency ratio of the public debt makes both planning the debt of the specific year and debt management significantly more difficult, as a sudden change in the exchange rate can considerably divert the debt from

its appropriation and the development of its trend as well. Thus, exchange rate exposure increasing in parallel with an increase in externally raised finance can result in significant macro-financial vulnerability, and therefore determining the optimal foreign currency ratio of the public debt requires a great degree of prudence.

In Hungary, the foreign currency ratio within total public debt was 35.3 per cent at the end of 2015, which is a considerable improvement after the historical peak of almost 52 per cent at the end of 2011. The foreign currency ratio of the debt of the central sub-sector was 33.5 per cent at the end of 2015, which consisted almost 100 per cent of euro. The Swiss franc-based foreign currency loans, assumed from local governments in previous years, made up only less than 1 per cent of the foreign currency debt.<sup>13</sup> Debt issues of foreign currencies denominated not in the euro (typically US dollar-based ones) have occurred as well, but in order to minimise the exchange rate risk,

**Chart 4**  
**Changes in the foreign currency ratio of Hungarian public debt between 1997 and 2015**

(per cent)



<sup>13</sup> Government Debt Management Agency (2015).

the debt management agency swaps these to euro-based debt. The coverage behind the swaps is provided by margin deposits, the volume of which also influences the amount of statistical debt, depending on changes in cross rates.

#### **4.3.2 Maturity of finance raised (short vs long term)**

In terms of strategy, the average maturity (or duration) of the finance raised is also an important aspect. We refer to debt instruments with a maturity of 1 year or shorter as short-term securities, whereas ones with longer duration are called long-term securities. The cost of short-term securities is typically lower than that of long-term securities, but the risk of renewal of these securities is considerably higher, as they must be renewed annually (often several times), whereas long-term government securities (e.g. bonds) have to be renewed significantly less frequently. Thus, the macro-financial risk hidden by short-term instruments can be considered to be higher. The ratio in which the investors prefer short-term vs. long-term securities depends greatly on the market's current willingness to take risk. If the general financial and capital market sentiment is good, investors are inclined to credit with longer maturities. However, in the case of market turbulence or crisis, confidence declines, which typically results in the shortening of lending.

The repricing speed of the public debt is one of the important features determined by maturity. In the case of fixed-rate debt instruments, the longer the average maturity of the debt, the slower the debt stock will be repriced. At the end of 2015, the duration of Hungarian forint debt was about 3.1 years, which is in line with the debt strategy objectives.<sup>14</sup>

#### **4.3.3 Interest payment of the debt instrument (fixed or variable)**

The interest rate of the instruments financing the debt can be fixed or floating. In addition to maturity, the type of interest payment influences the repricing speed of the debt. The higher the ratio of instruments of fixed interest payment within the debt portfolio, the slower the repricing of the debt. The advantage of instruments with fixed interest payment schemes is that they make future interest payments predictable, which facilitates the predictability

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<sup>14</sup> Government Debt Management Agency (2015).

of the annual financing need on the issuer's side. As a result of this, a larger ratio of debt instruments with fixed interest payment may entail lower macro-financial vulnerability.

In Hungary, almost two-thirds of the debt is of fixed interest payment within both the forint and the foreign currency based portfolios, in line with the range of acceptance of the relevant domestic reference indicators.<sup>15</sup>

#### **4.3.4 Type of investor (domestic or foreign)**

With respect to the structure of the debt, the ratio of foreign investors within the total debt is also important. Obviously, this can differ from the foreign currency ratio if foreign currency debt is also held by domestic investors, or foreigners may also hold debt issued in the domestic currency. The latter is more significant. In developing countries, this stems from the fact that domestic savings are, in general, insufficient to completely cover the financing needs of the state. Thus, much more finance can be raised through foreign investors; according to experience, however, this entails risks as well, since foreign capital flows show considerable fluctuations. In crisis situations, foreign capital typically flows out of the country, which may contribute to deepening the crisis via some segments of the economy.

A similar situation was observed in Hungary during the spread of the financial crisis for almost a year from the end of 2008. Not only did purchases of government securities by foreigners stop, they appeared as sellers on the market, which contributed significantly to the increase in yields. From the end of September 2008 until mid-2009, the stock of forint government securities held by foreign investors decreased by more than 40 per cent, i.e. by HUF 1,300 billion (Chart 5). On the other hand, domestic investors (banks, investment and pension funds, small investors) are less capable and inclined to decrease the size of their government security portfolio for structural reasons, and thus, they are less sensitive to the increase in risk of repayment; moreover, the higher yields during these periods are attractive for them. Thus, in the case of a crisis, domestic government security holders represent more of a stabilising force with respect to financing the general government, whereas foreign

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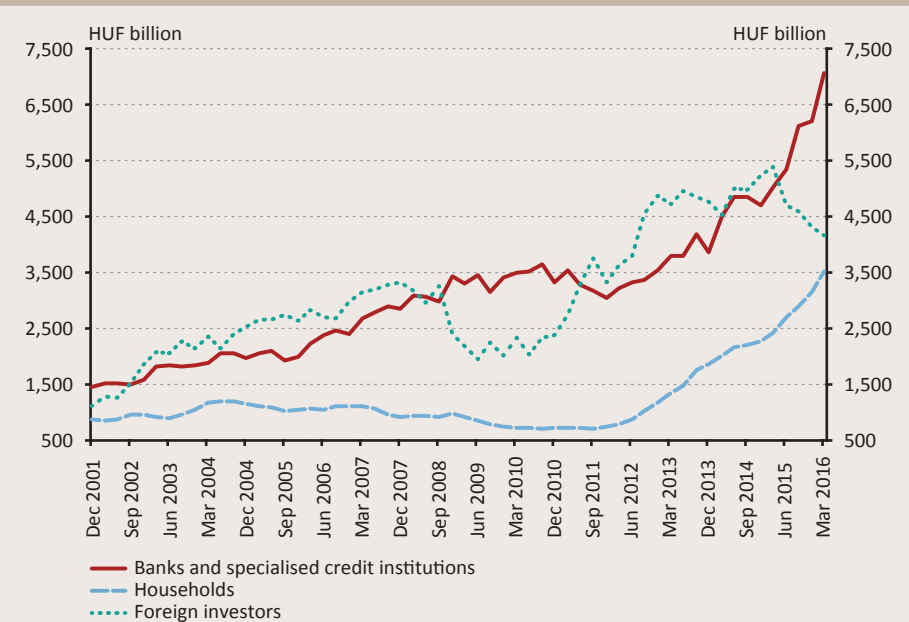
<sup>15</sup> Government Debt Management Agency (2015).

investors strengthen the negative effects of the crisis. Therefore, the increase in the ratio of the domestic financing base as much as possible may have a favourable effect in terms of macro-financial vulnerability.

After the 2011 European debt crisis, the ratio of public debt held by domestic creditors started on a significant, sustained increase, rising from 33 per cent in 2011 to 54 per cent at the end of 2015. Although domestic banks – similarly to foreign large investors – have more than doubled the amount of their investments with the gradual fading of the debt crisis, the rapid increase in the financing willingness of Hungarian households seen in recent years has been even more outstanding than this. Between the end of 2011 and 2015, the amount of debt financing by households increased more than fourfold, in which a large role was played by the product portfolio expansion targeted by the debt strategy, the competitive yields offered by retail securities, strengthening marketing, and widening the points of sale.

**Chart 5**  
**Changes in government security portfolio of foreign and some Hungarian sectors**

(HUF billion)



Source: MNB

### 4.3.5 Channel of raising finance (market or non-market)

Within public debt, the ratio of the market and non-market financing of the debt is important primarily in less developed and developing countries. Whereas developed countries finance themselves almost completely from the capital markets, developing countries (and during a crisis the developed ones as well) rely on non-market institutional investors to a significant extent. The best-known of these are the IMF and the World Bank, but regional investment banks (EIB, EBRD, etc.) also play an important role. In general, interest rates on loans provided by institutional investors are lower than the market yields available to the given country. This may stem from the fact that institutions with higher credibility can access loans on the capital markets at lower yields than the economies considered as risky and in need of loans, while these institutions can pass on the funds to the final debtors with a yield slightly exceeding the cost of funds (charging some fee). The reasons for borrowing from institutional investors can be classified into the following three groups.

- The specific country does not have continuous access to market financing to the necessary extent. The primary factor behind this may be an inappropriate macroeconomic and institutional environment, which is often a historical inheritance, for example in Sub-Saharan Africa. In the period of the transition to the market economy after the change in regime, the IMF and the World Bank provided loans of significant amounts to the countries of the ex-Eastern bloc, such as Hungary as well.
- Many countries have access to capital markets, but for some of their – typically infrastructure – investments they use loans from investment banks. The reason of principle on the side of the creditor is that these investments are of large volume and generate slow returns, and thus, it is likely that these can only be financed from market financing under unfavourable conditions. Furthermore, investment loans represent additional funding compared to the capital markets and are often cheaper than the latter, and the danger of sudden withdrawal does not arise in the case of the capital thus raised. The role of these loans becomes smaller with the increase in economic development.

- In crisis situations, it can occur that even countries that are otherwise able to finance themselves from the capital market do not have access to capital market funding. This also happened during the financial crisis which started in 2008, when Greece, Ireland and Portugal, considered as developed economies, utilised loans from the EU and the IMF. The credit line amounting to EUR 20 billion concluded by Hungary with the EU, the IMF and the World Bank in 2008 can be classified in this category as well, with Hungary utilising total loans of almost EUR 13 billion in 2008-2009.

<b>Table 4</b>							
<b>Typical trade-offs in debt management</b>							
	Yield	Average maturity	Renewal risk of liabilities	Foreign investor preference	Exchange rate exposure of debt	Predictability (in terms of debt management)	Macro-financial vulnerability
Domestic currency financing	higher	shorter	lower	lower	none	stronger	smaller
Foreign currency based financing	lower	longer	higher	higher	exists	weaker	greater
Short-term financing	lower	shorter	higher**	depends on market sentiment	not applicable	weaker	greater
Long-term financing	higher	longer	lower			stronger	smaller
Fixed-rate financing	slower repricing	–	–	higher	not applicable	stronger	smaller
Floating-rate financing	faster repricing			lower		weaker	greater
Domestic financing			depends on market sentiment			stronger	smaller
Foreign financing	–	–		–	–	weaker	greater
Market financing	higher						
Non-market financing	lower	–	–	–	–	–	–

Source: own work



## 4.4 Performance indicators of Hungarian debt management

In order to assist the efficient implementation of debt strategy, the debt management agencies compile reference indicators, monitored with high priority, which characterise the segments of their activity judged to be most important. The reference indicators of debt management agencies are aimed at quantifying the strategic objectives. The creation of the benchmark structure may greatly assist in achieving these goals, since the effectiveness of the activity of the debt management agency becomes easy to measure by calculating the difference of the real and the reference structure.

The performance indicators reflecting the Hungarian debt strategy in a numerical manner as well are as follows.

- Denomination composition of the debt portfolio (ratio of forint vs. foreign currency),
- foreign currency structure within foreign currency debt (ratio of euro vs. other foreign currencies),
- yield structure of forint and foreign currency debt portfolios (fixed vs. floating),
- duration of forint debt.

The following table shows the reference portfolio of Hungarian debt management and indicates to what extent the real portfolio of the domestic government debt complies with the objectives determined beforehand, based on data for end-2015. Based on the actual data, all of the indicators are in the reference range (Table 5).

		Q42015	Range of acceptance	
I.	Ratio of foreign currency debt (without foreign currency deposits)	33.5%	25%	40%
II.	Ratio of euro in foreign currency debt	100.0%	95%	105%
III.	Ratio of fixed-rate in foreign currency debt	66.9%	62.7%	67.7%
IV.	Ratio of fixed-rate in forint debt	62.6%	61%	83%
V.	Duration of forint debt	3.1	2.5 years	3.5 years

Source: ÁKK

<sup>16</sup> Government Debt Management Agency (2015)

In harmony with international practice, the Hungarian government debt management strategy concerns only the debt financing of the central subsystem of the general government (central government, social security funds and extrabudgetary funds) and does not include either the local governments or the other institutions of the government sector (e.g. MNB, MNV Zrt.).

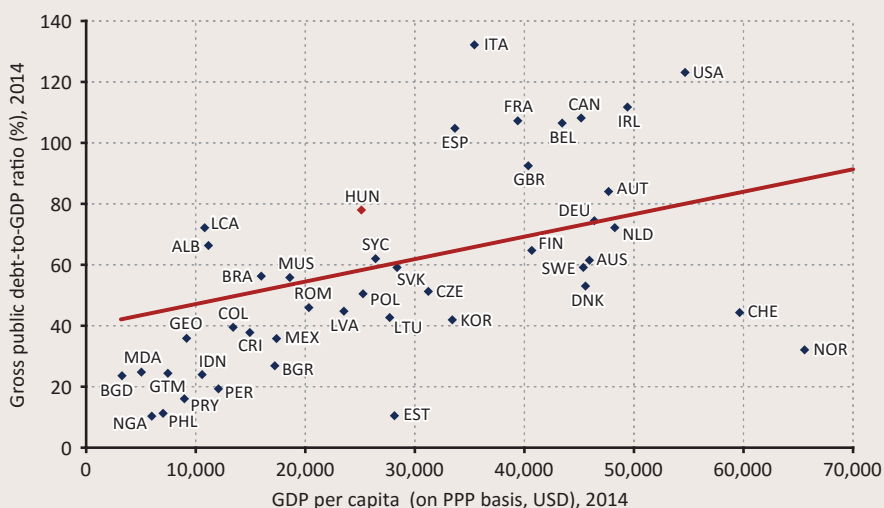
## 4.5 International comparison of main debt indicators

### 4.5.1 Public debt-to-GDP ratio

One of the main reasons for Hungary's macro-financial vulnerability is that the gross public debt-to-GDP ratio of the country is high in international comparison. Many countries have a much higher public debt ratio than Hungary, for example Italy (132 per cent), Portugal (140 per cent) or Japan (245 per cent). However, these countries belong to the group of developed countries, where the higher debt-to-income ratio is more typical and more tolerated by the financial markets.

**Chart 6**

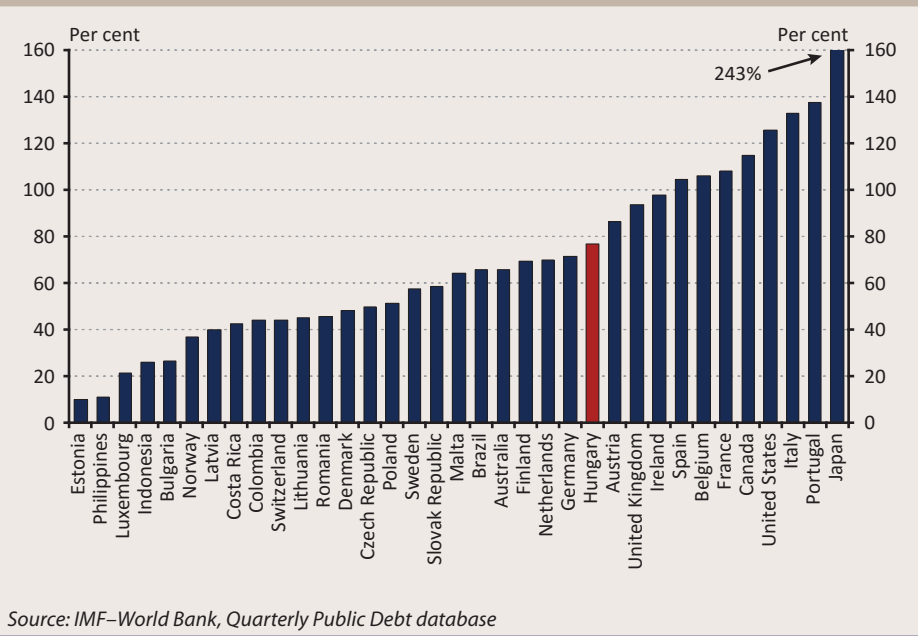
**Relationship between development and gross public debt-to-GDP ratio**



Source: IMF–World Bank-database

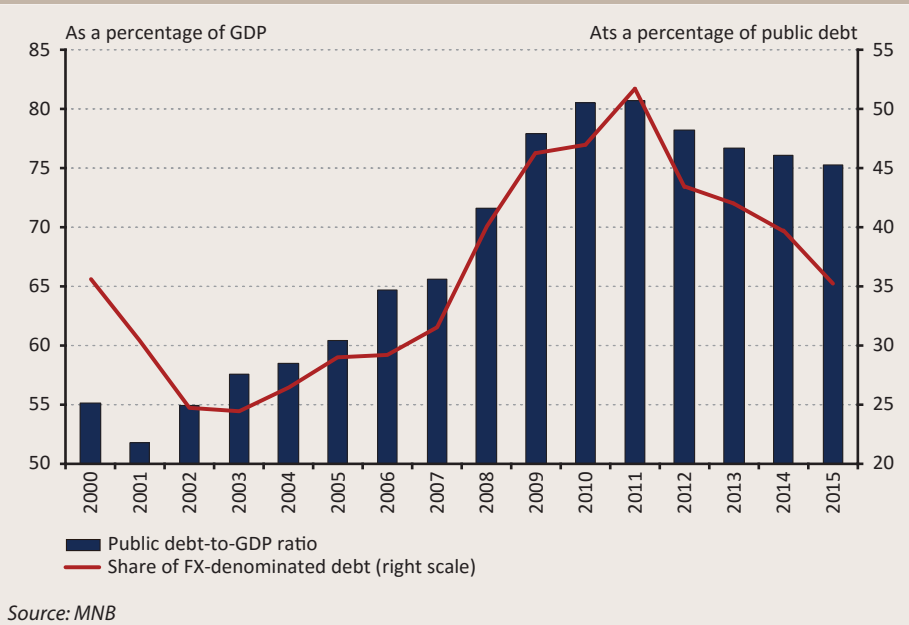
Comparing the extent of public debt in Hungary to the average of around 53 per cent of the regional competitors of similar development as this country, the difference is striking. Amongst other things, it can be attributed to the relatively high debt ratio of Hungary that upon the outbreak of global money market and European debt crises, the risk assessment of Hungary deteriorated to a greater extent than in the region.

**Chart 7**  
Public debt-to-GDP ratio of individual countries at the end of 2015



At the beginning of the 2000s, the year-end level of the Hungarian public debt-to-GDP ratio was only approximately 55 per cent, which increased during the financial crisis to a figure of over 80 per cent, a level not experienced since the beginning of the 1990s. However, after 2011, the trend in the Hungarian debt ratio turned onto a downward path as a result of the disciplined fiscal policy, the recovery from the crisis, and the permanently decreasing interest rate conditions, with the ratio falling to almost 75 per cent at the end of 2015 (Chart 8).

**Chart 8**  
**Developments in the public debt trajectory and the foreign currency ratio of debt from 2000**



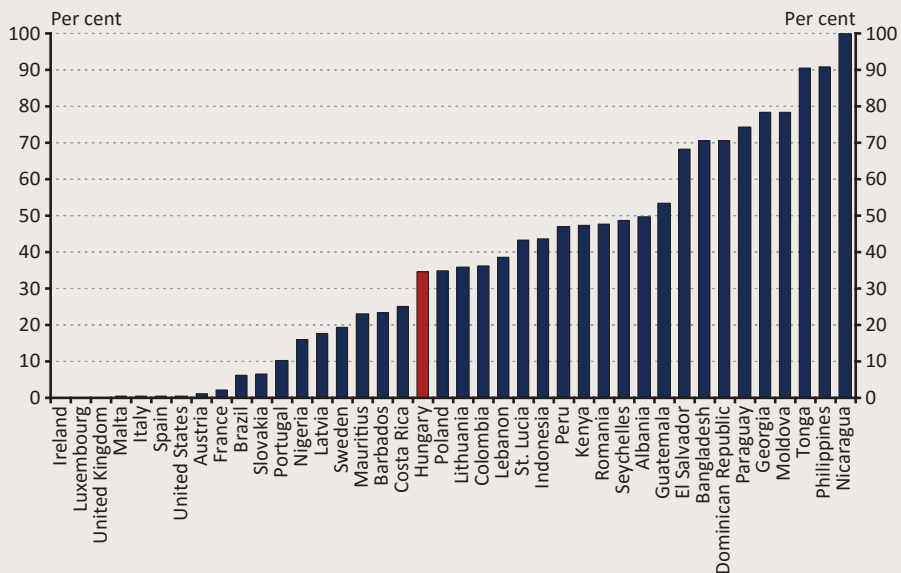
#### 4.5.2 Ratio of foreign currency debt

In terms of macro-financial vulnerability, the denomination composition of public debt is an especially important factor. The total debt of countries with a large ratio of foreign currency debt, calculated in the domestic currency, reacts stronger to exchange rate fluctuations because of the higher exchange rate exposure. This has an adverse effect, because exchange rate fluctuations depending on current market sentiment can significantly divert the debt from its trend path; moreover, this makes the planning of debt financing much more difficult.

On the basis of end-2015 data, the foreign currency ratio of the public debt of Hungary was 35 per cent, which marks a considerable improvement compared to the historic peak of 52 per cent in 2011. The ratio is now already almost 1.5 percentage points lower than the international average, but the economies of these countries is of rather different size and structure. However, at the end of 2015, the level of Hungary's foreign currency debt ratio was still almost 5

percentage points higher than the average foreign currency debt ratio of our regional competitors, with a similar structure as this country, which is a significant difference. At the end of 2011, the worst year of the debt crisis, the difference between Hungary's and the region's foreign currency exposure of the debt was much greater than this, at approximately 25 percentage points. Compared to the Hungarian foreign currency debt of 25 per cent in 2002, by the end of 2011 it had increased to almost 52 per cent and the foreign currency exposure of the public debt was almost twice as high as the regional average. Consequently, Hungary was considered as one of the riskiest countries during the period of the crisis. However, between 2011 and 2015 – in contrast with the increase of approximately 4 percentage points seen in the region – the foreign currency exposure of Hungarian public debt decreased by approximately 17 percentage points, falling to 35 per cent by the end of 2015. The following factors played a large role in the decline in the foreign currency ratio of the debt in recent years: moderate, typically negative net foreign currency debt issuance, repayment of the EU–IMF loan, and the

**Chart 9**  
**Ratio of foreign currency debt within total public debt at the end of 2015**



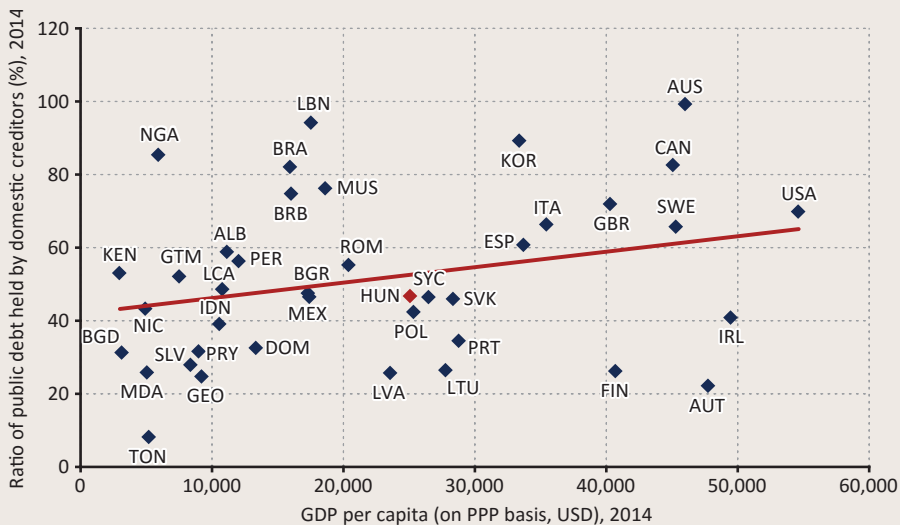
Source: IMF–World Bank, Quarterly Public Debt database

Self-Financing Programme of the MNB.<sup>17</sup> As a result of these processes and the consistent debt strategy, Hungary's external vulnerability and risk assessment have improved significantly.

#### 4.5.3 Ratio of domestic investors

Similarly to the foreign currency composition of public debt, the ownership structure is also an extremely important factor in terms of meeting the financing needs of the general government's central subsystem in a stable manner. The global financial and the European debt crises clearly highlighted the macro-financial risks stemming from large external debts and the negative real economy effects of such debt. The events on the Hungarian financial and capital markets in late 2008 and early 2009 clearly illustrated how major external indebtedness can boost a country's macro-financial vulnerability. Therefore, along with reducing the foreign currency ratio of the debt, increasing the ratio of domestic investors has become a special debt strategy

**Chart 10**  
Relationship between the development and domestic financing of public debt

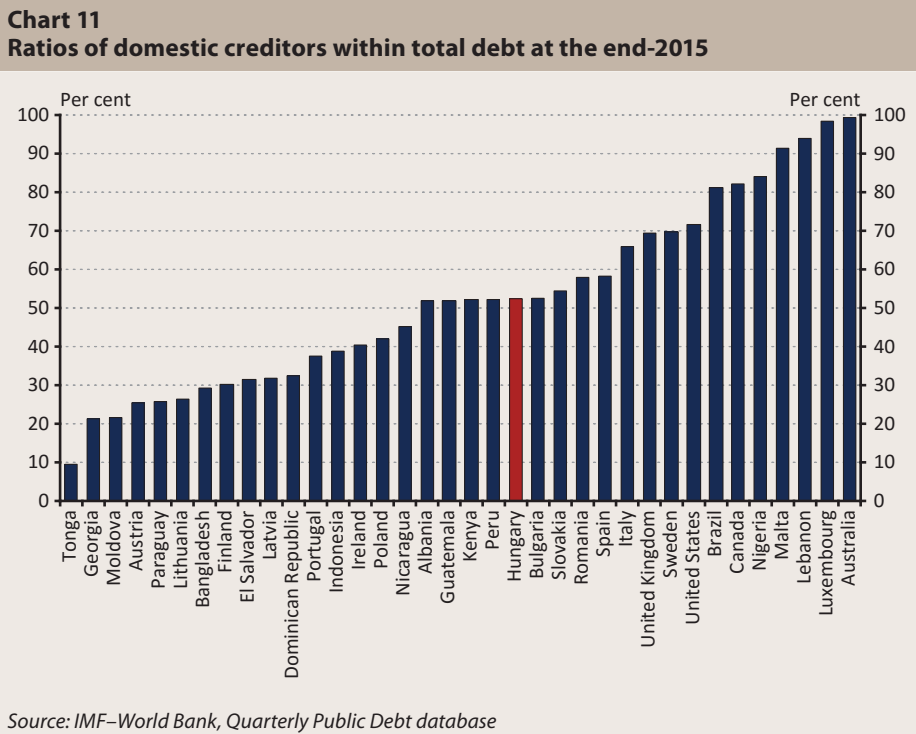


Source: IMF–World Bank-database

<sup>17</sup> Within the EU–IMF loan, the last, EUR 1.5 billion, part of the country's debt existing vis-à-vis the European Union was repaid at the beginning of April 2016. The part of the loan taken from the IMF had been repaid completely by Hungary already in August 2013.

objective in Hungary. In the case of more developed countries, the financing needs of the government are often ensured from domestic savings (see Chart 10), which are less sensitive to the fluctuations of the financial and capital market sentiment.

Hungary's ratio of domestic investors in public debt was still around 55 per cent in 2000, which fell to a historic low of 33 per cent at the end of 2011. However, the steps of the Hungarian debt management agency (the development of new retail schemes offering relatively high yields and the expansion of the domestic distribution network) contributed to the change in the trend after 2011, also supported by the central bank programmes after 2013. By end-2015, the ratio of domestic investors had risen to above 52 per cent, approximately corresponding to the international and regional average (Chart 11).

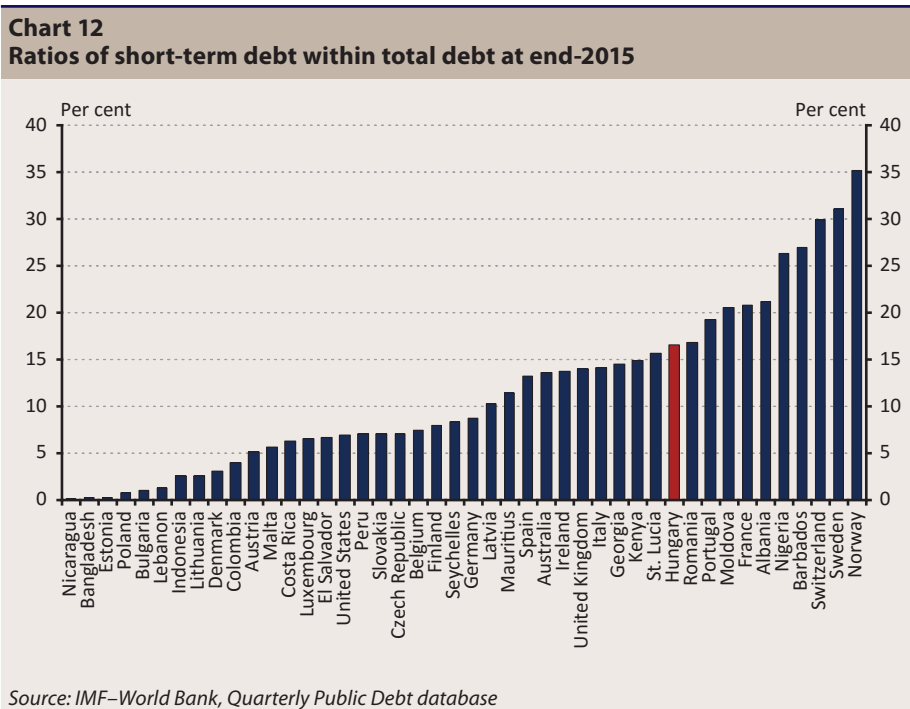


In the case of a small, developing economy, the potential of domestic debt financing is limited, however, this ratio can be increased with a definite and consistent strategy, by improving the income-generating capacity of the economy and by developing the financial awareness of Hungarian households.

#### 4.5.4 Ratio of short-term debt instruments

The financing risk of maturing debt instruments and the budget deficit depend to a large degree on the maturity structure. The higher the ratio of short-term debt, the higher the risk of renewal of these liabilities, and thus it is practical to keep this ratio at a low level. This can be ensured by restraining the issuance of short-term debt instruments and increasing long-term ones (and switch auctions). However, the costs of long-term debt are higher and market demand for such is lower.

Based on end-2015 data, the maturity structure of Hungary's debt is rather unfavourable in international comparison, since the ratio of short-term debt within total debt is high. This can be explained mostly by the increase in retail





sales, which has several advantages, while its disadvantage is that the ratio of short-term government securities (KKJ, FKJ) is high in the case of new retail issuance. The indicator is at close to 17 per cent in Hungary, which exceeds the international average by approximately 5 percentage points and the regional average by 10 percentage points. This means that, within in a given year, Hungary has to raise 2.5 times as much finance from the market than its regional competitors, which is a significant macro-financial risk factor, and thus decreasing this indicator is also extremely important.

#### **4.6 Instrumental structure of Hungarian public debt**

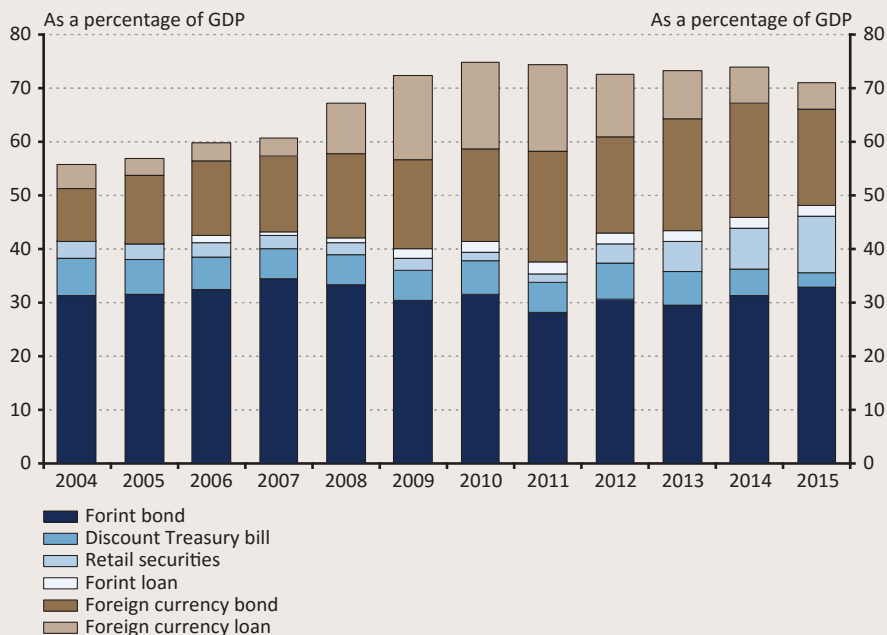
Changing the structure of public debt stock takes time. The current structure of public debt is the final result and the accumulation of the structure of the renewal of liabilities and deficit financing in the previous years. The change in the composition of the debt stock is influenced by the change in net issuance of financing instruments, which is primarily determined by the longer-term debt strategy and demand conditions.

As of the end of 2015, the two most important instruments in Hungarian public debt are forint and foreign currency bonds. The former amounts to 33 per cent of GDP and the latter to 18 per cent of GDP, respectively, and the two combined make up more than 72 per cent (46 and 25 per cent) of the debt of the central subsystem of the Hungarian general government (Chart 13). Currently, the forint bond stock-to-GDP ratio is slightly higher than the average value of the previous 11 years (31 per cent), but as a result of the global financial crisis from the end of 2008, the ratio of this liability within the total debt fell significantly: while it was 54 per cent between 2004 and 2008, its average was only 41 per cent between 2009 and 2014. In 2015, however, it once again moved towards levels typical before the crisis. In parallel with this, the average ratio of liabilities denominated in foreign currencies increased by the same proportion (from 30 per cent to 43 per cent in total): this rise can be primarily explained by the foreign currency loans which increased sharply because of the loans from the European Union and the IMF. The trend in 2015 was favourable in this sense as well, since the ratio of foreign currency debt within central debt, excluding margin deposits, decreased to 32 per cent. The

ratio of foreign currency loans within the total debt fell from 22 per cent in 2009 to 7 per cent by end-2015, with repayment of the EU–IMF loan playing a significant role in this regard.

**Chart 13**  
**Year-end debt structure of the Hungarian general government's central subsystem**

(as a percentage of GDP)



Source: ÁKK

The ratio of discount treasury bills (DTB) within the debt has decreased slightly over the past four years. The DTB stock-to-GDP ratio was 7 per cent in 2012 and it fell below 3 per cent by the end of 2015, which is less than 4 per cent of the total debt, and can be explained with the gradual decrease in net debt issuance (Table 6). By contrast, the increase in the amount of retail securities has been significant (due to the reasons detailed above). At the end of 2011, this amounted to just 2 per cent of GDP, increasing to over 10 per cent by the end of 2015. Thus, this debt instrument accounts for almost 15 per cent of the total debt, exceeding the DTB stock by 11 percentage points.

The following table shows which debt instruments were issued by the debt management agency to cover the financing needs of the general government in 2015. The primary sources of financing the maturing debt and the budget deficit are forint bonds, retail securities and discount Treasury bills, but the debt management agency is continuously lowering issuance of the latter and, mainly, the foreign currency debts. These processes are in harmony with the declared strategy, which aims at strengthening the forint-based (primarily) domestic financing and increasing the maturity.

**Table 6**  
**Structure of issuance of Hungary's central debt instruments between 2013 and 2015**  
*(HUF billion)*

	2013			2014			2015		
	Maturity	Gross issue	Net issue	Maturity	Gross issue	Net issue	Maturity	Gross issue	Net issue
<b>Forint debt</b>	<b>6 881</b>	<b>7 592</b>	<b>711</b>	<b>10 047</b>	<b>11 572</b>	<b>1 525</b>	<b>8 002</b>	<b>9 464</b>	<b>1 463</b>
Loan	165	29	-136	251	128	-123	282	231	-51
Government securities	6716	7563	847	9796	11444	1648	7720	9234	1514
Bond	1591	1733	142	2410	3654	1244	1885	2985	1100
Retail	768	1471	703	1364	2086	723	1695	2802	1106
Discount Treasury bills	4356	4359	2	6022	5704	-318	4140	3447	-693
<b>Foreign currency debt</b>	<b>2 147</b>	<b>2 131</b>	<b>-17</b>	<b>1 989</b>	<b>1 224</b>	<b>-766</b>	<b>1 393</b>	<b>207</b>	<b>-1 186</b>
Bond	884	1921	1037	926	1178	252	929	207	-722
Loan	1263	210	-1053	1064	46	-1017	464	0	-464
<b>Total</b>	<b>9 028</b>	<b>9 723</b>	<b>695</b>	<b>12 036</b>	<b>12 796</b>	<b>760</b>	<b>9 395</b>	<b>9 671</b>	<b>276</b>

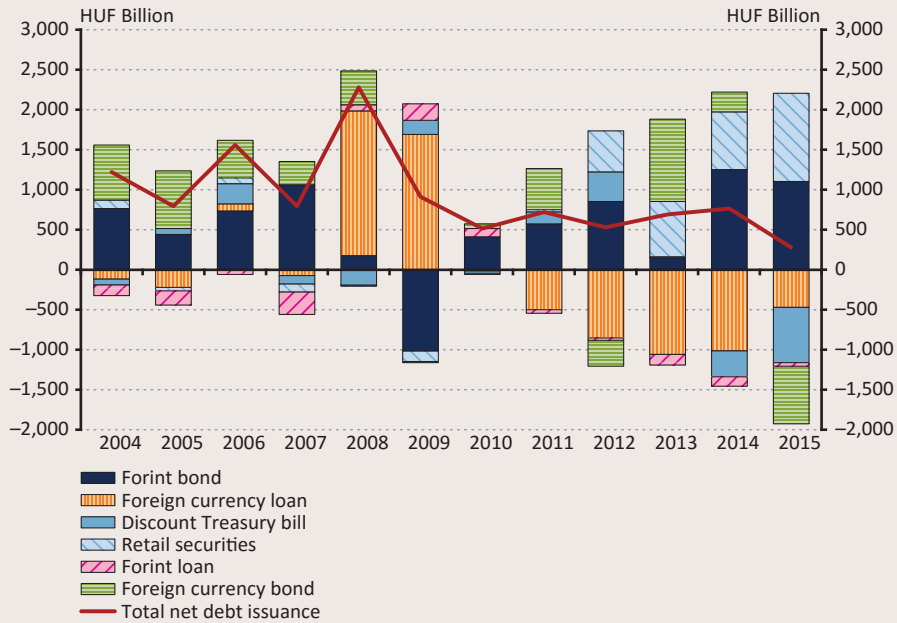
Source: ÁKK

The net funds raised by the debt management agency may differ from the net financing requirement of the budget. On the one hand, the implemented total net debt issuance depends not only on the supply intent but also on market demand; on the other hand, the year-end deficit of the central subsystem may also differ from the appropriation, depending on changes in the private economy and financial and capital market developments. Moreover, the difference may be the result of conscious intent as well. The difference between the financing requirement and issuance typically appears in the changes of the current account deposit of the government (held at the central

bank), the Single Treasury Account (STA), or the foreign currency deposits. If the net issuance is lower than the net financing need of the sector, the liquid reserves of the government decrease, otherwise they increase.

In the years after the global financial crisis, the level of net issuance – typically following the budget deficit – was significantly lower than previously (Chart 14). Average net debt issuance was over HUF 1,250 billion between 2004 and 2009, whereas this average figure was less than HUF 600 billion between 2010 and 2015, as a result of the much more disciplined fiscal policy (lower deficit) than previously, implemented from 2010. The development of the net debt issuance of individual debt instruments over time clearly reflects the preferred strategy, which was realised in the increase in the trend of net debt issuance of forint bonds and retail securities after 2009 and the reduction of foreign currency debt. Over time, these developments become visible in the structure of public debt as well.

**Chart 14**  
**Net issuance structure of Hungarian public debt between 2004 and 2015**  
 (HUF billion)



Source: ÁKK

## 4.7 Connection of debt management and the central bank

There is a complex relation between the financing of the government and the activity of the central bank and the central bank's balance sheet. The central bank manages the single treasury account (the deposit account of the government) and the payment account of the ÁKK.<sup>18</sup> Moreover, the MNB may act on the securities market as the agent of the government. Within this, the MNB may participate in the borrowing of the government in foreign currency and in foreign securities issue. The MNB may conclude futures and hedge transactions with the government or as an agent of the government, under market conditions.<sup>19</sup> In some countries, debt management is not performed in a separate institution, instead it is performed by the central bank (not only in developing countries, but for example in Denmark as well). This also occurred in Hungary during the time of the one-tier banking system, and then even after the economic and political transition it took years until the jurisdictions of the debt management agency were widened to the present level (see Chapter 5). Currently, however, in accordance with the MNB Act, the MNB plays a very restricted role only in transactions related to foreign currency debt.

The foreign currency financing of the government is one of the main determining factors of the foreign exchange reserves and, via this, the balance sheet and the sterilisation assets of the central bank. This because the government converts its foreign currency liabilities into forint at the central bank, whereas in the course of repayment it buys foreign currency for forint from the MNB for the repayment. We present the effects via the simplified balance sheet of the central bank.

1. During foreign currency issue<sup>20</sup> and its conversion to forint, and then its utilisation, the following process takes place in the balance sheet of the central bank.

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<sup>18</sup> Article 145 of Act CXXXIX of 2013.

<sup>19</sup> Article 148 of Act CXXXIX of 2013.

<sup>20</sup> In the case above, we analyse the euro issue. The foreign currency received from issues in other currencies is swapped to euro by the ÁKK.

- a. If the **government issues foreign currency debt**, it places that on its foreign currency account held at the MNB (liabilities in the balance sheet of the MNB), concurrently with this the foreign exchange reserves also increase (among the assets of the MNB). Both sides of the balance sheet of the MNB increase by the same amount, which is the amount of the issued foreign currency debt.
- b. After this, the government **converts** the money from its foreign currency account to its forint account also at the MNB (single treasury account, STA). This transaction involves the restructuring of the liabilities side of the MNB and does not affect the balance sheet total.
- c. The government **uses** the issued foreign currency debt for financing its current expenses and financing transactions, and thus the level of the STA starts to decrease. The outflow of money increases interbank liquidity and commercial banks ultimately place this with the MNB, in sterilisation assets. A smaller part of the outflow of money may end up at households or at enterprises as cash.<sup>21</sup> Both the central bank deposits of commercial banks, and cash are debts of the central bank vis-à-vis those concerned, and accordingly these appear on the liabilities side of the central bank balance sheet. Thus, in the course of this step, only the liabilities side of the central bank changes: the forint deposits of the budget decrease, that of commercial banks increase by almost the same amount, whereas the difference ends up in cash.
- d. If the STA decreases back to its initial level, and assuming that the amount of change in cash stock is negligible, the above transactions have two consequences in the balance sheet of the MNB compared to the initial situation.
- i. The foreign exchange reserves of the MNB increase by the amount of the issued debt.
  - ii. The deposits of commercial banks placed at the MNB increase by the same amount.

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<sup>21</sup> To a small extent, in the cash desks of commercial banks as well.

These effects entail that, on the one hand, the amount of interest received by the MNB (on the foreign exchange reserves) increases; on the other hand, the interest paid by the central bank (for the deposits of the banks) increases too. The difference between interest received and paid is one of the major factors in the MNB's profit or loss.

**Chart 15**  
**Change in schematic central bank balance sheet during foreign currency issue and its utilisation**

	Assets		Liabilities	
Initial situation	Foreign exchange reserves	3000	1000	Gov. foreign currency deposits
	Other assets	1000	1000	Gov. forint deposits (STA)
			1000	Commercial bank deposits
			1000	Other liabilities
Step 1.a	Assets		Liabilities	
Issue of foreign currency debt	↑ Foreign exchange reserves	4000	2000	Gov. foreign currency deposits ↑
	Other assets	1000	1000	Gov. forint deposits (STA)
			1000	Commercial bank deposits
			1000	Other liabilities
Step 1.b	Assets		Liabilities	
Conversion to forint	Foreign exchange reserves	4000	1000	Gov. foreign currency deposits ↓
	Other assets	1000	2000	Gov. forint deposits (STA) ↑
			1000	Commercial bank deposits
			1000	Other liabilities
Step 1.c	Assets		Liabilities	
Using the forint deposit	Foreign exchange reserves	4000	1000	Gov. foreign currency deposits
	Other assets	1000	1000	Gov. forint deposits (STA) ↓
			2000	Commercial bank deposits ↑
			1000	Other liabilities
Final result	Assets		Liabilities	
	Foreign exchange reserves	4000	1000	Gov. foreign currency deposits
	Other assets	1000	1000	Gov. forint deposits (STA)
			2000	Commercial bank deposits
			1000	Other liabilities

2. In the case of repayment of the foreign currency debt, a process opposite to the above takes place, if repayment is implemented from forint funds:

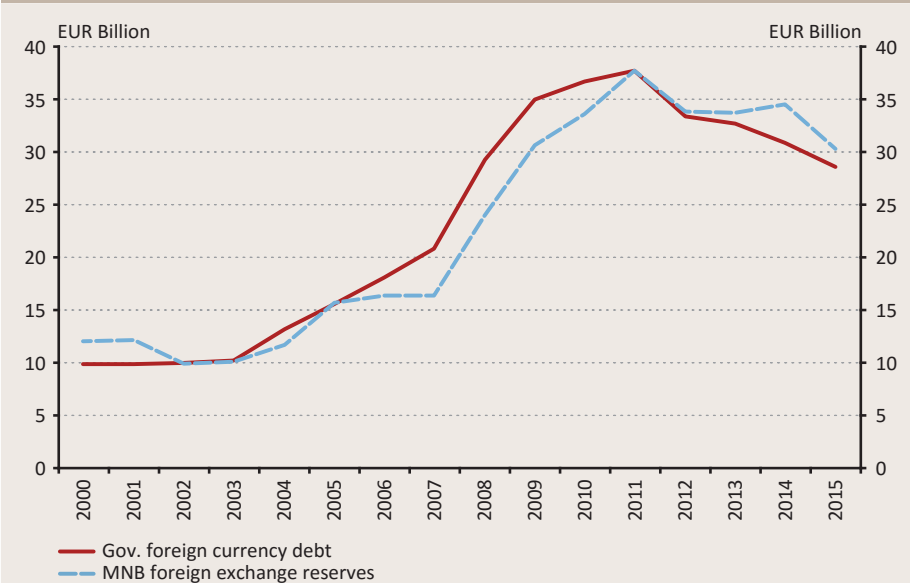
- a. The government increases its forint debt issues to obtain funding for the foreign currency repayment. The forint deposits of the government placed at the MNB increase. Concurrently with this, forint liquidity on the market decreases, and the deposits of commercial banks held at the central bank fall. In other words, the central bank deposits of commercial banks flow to the accounts of the government also held at the MNB. This entails a restructuring of the liabilities side of the central bank.
- b. The government converts its forint deposit into foreign currency. The foreign currency is provided to the government by the central bank. The conversion does not affect the foreign exchange reserves, since the MNB manages the foreign currency account of the government. Thus, this step only entails the restructuring of the liabilities of the central bank and it does not influence the balance sheet total.
- c. Finally, the government repays its maturing foreign currency debt from its foreign currency deposit held at the central bank. With this step, the liabilities of the central bank (government foreign currency deposit) and its assets (foreign exchange reserves) decrease concurrently. The situation before Step 1.a above is restored:
  - i. in the course of repayment, the central bank foreign exchange reserves decreased and were restored to the level before the foreign currency issue,
  - ii. the sterilisation portfolio placed at the MNB by commercial banks decreased and was restored to the level before the foreign currency issue

The above relationships are demonstrated by the fact that the foreign currency debt of the government, the foreign exchange reserves and the amount of sterilisation assets of the central bank have shown relatively close co-movement in recent years. Especially in 2009–2010 it was observed that as a result of the foreign currency loans taken from the IMF and the EU, both the foreign currency debt of the government and the foreign exchange reserves increased, and this was followed by the increase in the central bank deposits of



commercial banks, with a slight delay. The reason for the latter slower reaction was that the state permanently left at the MNB a part of the loans taken, and converted these to forint only gradually and it also kept its forint deposits at a high level (i.e. the above Steps 1.b and 1.c were implemented later compared with Step 1.a).<sup>22</sup>

**Chart 16**  
**Foreign currency debt of the government and the foreign exchange reserves**



Source: MNB

If the budget covers its financing requirements in the domestic currency, it has a simpler and smaller effect on the central bank balance sheet. It does not result in the change of the balance sheet total, only in the restructuring and restoration of the central bank liabilities. In the course of forint issuance, the deposit balance of the government increases and that of the commercial banks decreases (see above in point 2.a), whereas the opposite of this occurs upon repayment of the debt (see point 1.c).

<sup>22</sup> Naturally, other factors also strongly influence the foreign exchange reserves, in addition to the foreign currency issues and repayments of the government. For example, the portfolio of reserves has been greatly increased in recent years by the transfers received from the European Union. By contrast, the reserves are decreased by the interest paid on foreign currency debt or such individual programmes as the conversion of foreign currency loans into forint.

The change in the balance sheet of the MNB also has a direct effect on the MNB's profit or loss, and thus the foreign currency financing of the government influences the MNB's profit or loss as well. In fact, the profit or loss and the balance sheet of the consolidated government (government sector and central bank) must be examined together, as otherwise only partial effects of the economic policy can be monitored. This can primarily be illustrated with the costs of foreign currency debt, which appear at the consolidated general government level. Foreign currency issues of the government often feature lower yields than issues in the domestic currency. However, if the government converts it and increases the interbank liquidity in the above way and it finally ends up at the deposits of commercial banks placed at the MNB, a different, higher interest expenditure is the result at the level of the consolidated general government. The central bank pays the base rate on the deposits,<sup>23</sup> whereas it realises foreign currency yield on the foreign exchange reserves. Examining the MNB and the general government in a consolidated way, there is no interest saving, since, while in the case of forint government securities issue the total cost is the interest of the forint government securities, in the case of foreign currency issuance the interest of the foreign currency liabilities is paid by the government and, above this, the interest of the sterilisation portfolio is paid by the MNB.

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<sup>23</sup> On the Single Treasury Account: the lower from the base rate and HUFONIA.

# 5 Implementation of debt management

## 5.1 History of the implementation of debt management

Before the regime change, the Magyar Nemzeti Bank, representing the Hungarian State, raised funds on the capital markets, which then appeared in the balance sheet of the MNB, and these were legally the liabilities of the central bank. Immediately after the regime change, the following institutions also played an important role in the implementation of debt management: the Ministry of Finance, the Magyar Nemzeti Bank, and then from 1993, the Office Organising Government Securities Issue. The Magyar Nemzeti Bank received foreign loans to cover the financing needs of the country appearing in foreign currency. Moreover, with the loans provided with more favourable conditions than the market interest rates and with the purchase of government securities, it performed the financing of the budget deficit for the budget. Hence, the high costs of debt financing appeared at the central bank, not in the budget.<sup>24</sup>

The Government Debt Management Agency (ÁKK) was founded in 1995 for the purpose of integrating government debt management. The merger of the functions took place only gradually. From 1996 domestic debt management was performed by the ÁKK, and at the same time with this the Treasury Council, determining the debt management strategy, consisting of the leaders of the Ministry of Finance, the Treasury, the ÁKK and the central bank, was established. An agreement was concluded the same year between the Hungarian State Treasury and the ÁKK that the Treasury sells government securities directly via its branches. Because of the increasing weight of market issued government securities and after taking over in 1997 the management of foreign debt, the costs of debt financing also appeared gradually in the budget. The debt takeover of 1997 facilitated the separation of the monetary and fiscal functions in such a way that the public debt did not change in the meantime, only the internal structure changed. Moreover, the practice of interest-free lending provided to the government by the central bank was also terminated.

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<sup>24</sup> Sources: Lovas (1997) and <http://akk.hu/en/page/introduction#history-of-sovereign-debt-management-in-hungary-and-akk>.

## Box 2

### MNB-ÁKK debt takeover

Before 1997, the MNB received foreign currency loans from abroad with market interest rates, whereas the central bank performed the financing of the budget deficit at favourable lending rates, on a forint basis. However, on the basis of the Act of 1997 on the Budget, the repayment of the foreign currency debt and its interests became the task of the budget from 1997.

According to the agreement, the forint debt of the government vis-à-vis the central bank was essentially ended, and instead of that, the government paid the net foreign currency debt of the MNB existing on 31 December 1996. Technically this was implemented in such a way that the MNB continued to repay vis-à-vis foreign countries the existing debt at the MNB, but in the meantime, it also debited the Single Treasury Account (STA), the account of the government held at the MNB, with the permission of the government.

In order to manage the exchange rate risk of foreign currency bonds, the Government and the MNB concluded supplementary swap agreements, and they agreed that in the case of foreign securities issue and borrowing, the MNB will proceed as the agent of the government.

The debt takeover included a part of the “zero interest debt”, which meant the interest-free loans provided by the MNB to the budget for covering the exchange rate loss and the bonds issued earlier for replacing these. After the debt takeover, only the short-term part of the foreign debts remained at the MNB and it ran out within a short time.

Finally, at the end of the evolution of the debt management institutional system, in 2001 the Minister of Finance established the Államadósság Kezelő Központ Rt., as a result of the amendment of the Act on Public Finances. With the establishment of the ÁKK Rt., the strategic decisions were made by the Minister of Finance and the Directorate of the ÁKK, and, thus, the Treasury Council was terminated. On 28 August 2006, the company name of ÁKK Rt. was changed to the current name: Államadósság Kezelő Központ Zártkörűen Működő Részvénytársaság.

The current institutional structure is close to the model of developed countries. By contrast, in most developing countries debt management operates in the form of an organisational unit within the ministry responsible for finances and

the economy. Meanwhile, in some countries debt management is performed within the central bank, strictly separated from monetary policy (e.g. Denmark). Of the Visegrád countries, the management of government debt operates as part of the ministry of finance in the Czech Republic and Poland (and, for example, this is the established practice in Romania and Slovenia as well). Hungary and Slovakia follow the practice widely used in the majority of the developed countries, where an independent debt management agency operates.<sup>25</sup>

## 5.2 Legal and capital market frameworks of debt management

Currently, therefore, on the basis of the Act on Public Finances,<sup>26</sup> the minister responsible for general government arranges to cover the gross financing needs, i.e. financing the budget deficit and renewing the maturing debt components, on behalf of the central government, and this activity is performed by the Government Debt Management Agency (ÁKK) in accordance with the Act on the Economic Stability of Hungary.<sup>27</sup> Within the framework of financing, the debt management agency concludes borrowing and issues of securities. Taking loans and the sale of securities are debt-generating transactions, whereas the principal repayments of loans or securities, and the repurchase of securities decrease the debt.

We call it the *primary market* of government securities when the issuer government sells debt securities. The most frequent ways of this are auctions and subscriptions. At the auctions the participants submit a tender for the

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<sup>25</sup> Sources:

[http://www.nationalbanken.dk/en/governmentdebt/about\\_government\\_debt\\_management/Pages/default.aspx](http://www.nationalbanken.dk/en/governmentdebt/about_government_debt_management/Pages/default.aspx),  
<http://www.mfcr.cz/en/themes/state-debt/basic-information/debt-and-financial-assets-management-dep>,  
<http://www.finanse.mf.gov.pl/en/public-debt/basic-information>,  
<http://www.mfinante.ro/trezorengl.html?pagina=domenii>,  
[http://www.mf.gov.si/en/areas\\_of\\_work/general\\_government\\_finance/public\\_finances/central\\_government\\_debt/](http://www.mf.gov.si/en/areas_of_work/general_government_finance/public_finances/central_government_debt/),  
<https://www.ardal.sk/en/about-us>

<sup>26</sup> Section 5(3) of the Act CXCV of 2011 on Public Finances.

<sup>27</sup> Sections 11-14 of the Act CXCV of 2011 on the Economic Stability of Hungary.

amount pre-announced by the ÁKK. Only *primary dealers* are entitled to participate and submit tenders, and, of the government securities, the ÁKK sells bonds and discount treasury bills (DTB) in this way. The other way of issue is subscription, when the buyer accepts the pre-announced quotation of the issuer and undertakes financial settlement.<sup>28</sup> It can be seen in chapter 5.4.1 on auctions that the methods of issue show great similarity in international practice.

The sale and purchase of securities already issued, but which have not yet reached maturity, takes place on the *secondary market*. The participants in the secondary market are primary dealers and other investors, who can freely sell and buy among each other the government bonds and discount treasury bills issued at the auctions.

### 5.3 Primary dealers

The purpose of the primary dealer system is that the primary and secondary market should remain stable, transparent and liquid, and that government securities should reach investors easier. The primary dealers (PDs) are entitled to submit tenders at the government bond and DTB auctions. In exchange for the entitlement, they undertake to submit tenders at the auctions and to purchase at least a part (at least 3 per cent per year) of all the issued government securities. With this they assist the ÁKK in selling the government securities at the individual auctions. Moreover, they undertake to quote purchase and sale price on the primary market.

In addition to their obligations, the primary dealers also enjoy advantages stemming from their situation.<sup>29</sup> They receive commission for participating at the auctions. They can sell, at a profit, on the secondary market the government securities purchased at the primary market, depending on the

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<sup>28</sup> On the basis of Section 5 (1) of the Act CXX of 2001 on the Capital Market, “subscription shall mean an unconditional and irrevocable statement made by a prospective buyer wishing to invest in a particular security, which constitutes his acceptance of the offer and his commitment to provide the consideration therefor”, whereas “progressive issue shall mean a method of offering debt securities to the public where the underlying securities of the same maturity are sold within a time frame designated by the issuer”.

<sup>29</sup> <http://akk.hu/en/page/government-securities-issuance-and-trading#conditions-of-application>

circumstances. They can realise income on the secondary market with the difference between the purchase and sale price.

The number of primary dealers has changed several times recently, but it can be generally stated that domestic large banks and several international investment banks are on the list. Any financial enterprise registered in the European Economic Area or an OECD member country which undertakes the above obligations can be a primary dealer. The conditions of distribution of retail government securities are different from those of government bonds and DTBs. The distribution of retail securities is also performed primarily by the primary dealers, but, apart from them, others can also sell these kinds of securities. Primary dealer membership is a precondition in the case of half-year interest bearing treasury bills (FKJ) and 1-year interest bearing treasury bills (KKJ), but other banks and brokerage firms can also join in as subdealers. However, in the case of premium Hungarian government bond (PMÁK) and bonus Hungarian government bond (BMÁK), the individual institutions can become sellers subject to looser requirements.

## 5.4 Operation of the primary market

Selling government securities on the primary market occurs with several techniques. At the auctions, the ÁKK sells the government bonds and DTBs to the primary dealers and, through them, to investors, whereas in the course of subscriptions even individual investors can purchase at the pre-announced price and interest rate. Tap issue means that debt management agency continuously sells the types of securities already on the market for up to the pre-determined amount.

The *issue calendar* is an important part of reliable and predictable government debt management. The ÁKK publishes it beforehand on which days it will hold an auction during the year. Currently, this occurs according to a completely regular schedule. In 2016, similarly to recent years, there is a 3-month DTB auction every Tuesday, there is a 12-month DTB auction on Thursday of every other week, whereas floating rate bonds are also issued at this time, meanwhile, the auction of fixed-rate bonds occurs on weeks different from this, also on every other Thursday. In general, the ÁKK also determines

beforehand which bonds it will issue at the individual bond auctions, but it may deviate from this on the basis of the market situation. On even weeks, the debt management agency issues 3-year or 5-year floating rate bonds at the bond auction, whereas on odd weeks it sells 3 various bonds at the same time, a 3-year, a 5-year and a 10-year or a 15-year fixed-rate bond.

#### **5.4.1 Auction of forint government securities**

The ÁKK issues the forint government bonds and DTBs at public auctions, where only primary dealers can participate. In the course of the quote price auction, each primary dealer purchases the government securities at the price quoted by it, and thus, this type of auction is also called multiple price auction. The ÁKK pre-announces the amount intended to be issued.

The primary dealers submit their offer until 11 in the morning, including the value and price (yield) of the securities they would purchase. The ÁKK sorts the received offers and accepts the favourable offers.<sup>30</sup> The ÁKK has certain extent of freedom stipulated beforehand in the performance rules of the auction in the sense that it can accept offers of higher or lower value compared with the amount announced for the auction. For example, if it considers the submitted offers as favourable, it can issue a higher amount than it planned beforehand. The actual payment and the issue of the government securities does not take place on the day of the auction, but approximately one week later, on the date of financial settlement determined in advance.

As an effect of the financial crisis, the ÁKK in 2009 introduced the *non-competitive* primary market tenders in order to manage government securities market liquidity. The essence of these is that, after the announcement of the results of the auction, the participants can buy further amount from the given securities at the average price of the auction for up to a certain value limit.

The ÁKK may issue a specific forint bond for auction not only on one occasion, but also regularly over a longer period. The issue of a given security for subsequent times after the primary issue (i.e. the overwhelming majority of the

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<sup>30</sup> This system is similar to the entrance examination of higher education in which the students with higher score are admitted until the quota is filled.



amount issued) is called *tap issue* (also known as repeated issue or re-opening). The advantage of this is that a larger amount of securities with identical parameters appears on the market, which facilitates trading and increases the liquidity of the secondary market. Each year, the debt management agency typically issues one series of 3-year and 5-year fixed-rate securities each, whereas recently it has also issued one series of 3-year and 5-year variable-rate securities. The ÁKK sells 10-year and 15-year government securities for several years and during this time the price of the government securities can significantly deviate from the face value, as a result of changes in the yield environment. If the expected yields decrease (in the case of fixed coupon), the price of the government security increases, which, thus, means interest income for the government on the issue. However, in the case of increase in market yields, the price of the government securities upon the issue decreases, and the part of the government securities, sold at a price lower than face value, below the face value increases interest expenditures. Of the DTBs, the tap issue is typical only in the case of 12-month DTBs. In terms of 3-month DTBs, in the majority of the cases the debt management agency issues a security of new name, but every second month the ÁKK tap issues a 12-month DTB already issued before.

A great deal of information on the issues is available at the website of the ÁKK.<sup>31</sup> Table 7 contains the key data for some typical issues. The type of issue may basically be subscription, auction, switch auction or non-competitive tender. The maturity expresses the remaining term of the government security upon issue in weeks, months or years. The data of issue of discount treasury bills, and half-year and 1-year interest bearing treasury bills and bonds are available at the website (the ÁKK does not publish the data of other retail securities in this way). In addition to the long name of the securities, the exact date of issue, the value date of financial settlement, and the maturity are among the published data of the ÁKK. Important information are the announced amount, which represents supply, and the value of tenders submitted, which represents demand. The accepted amount reflects the amount purchased by the market participants. Moreover, in the case of the submitted tenders, the ÁKK also discloses the minimum and maximum yield and the average of these.

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<sup>31</sup> <http://akk.hu/en/page/statistics#auction-subscription-and-tap-issue-results>

Table 7 Issues during June 2016										
Type of transaction	Tenor	Type	Security	Date	Settle date	Announced amount (mHUF)	Maturity	Total bids (mHUF)	Accepted amount (mHUF)	Average Yield (%)
Subscription	M12	KKJ	K2017/23		2016.06.06	37 900	2017.06.07	45 378	45 378	
Subscription	M6	FKJ	F2016/49		2016.06.06	5 000	2016.12.07	14 104	14 104	
Auction	M12	DKJ	D170524	2016.06.02	2016.06.08	30 000	2017.05.24	36 750	24 000	0.96%
Subscription	M12	KKJ	K2017/24		2016.06.13	35 500	2017.06.14	43 532	43 532	
Subscription	M6	FKJ	F2016/50		2016.06.13	10 000	2016.12.14	20 152	20 152	
Non-comp	Y3	KTV	2019/C	2016.06.09	2016.06.15	8 400	2019.10.30	4 980	4 980	1.74%
Non-comp	Y5	KTV	2021/B	2016.06.09	2016.06.15	6 720	2021.10.27	5 353	5 353	2.29%
Non-comp	Y10	KTV	2027/A	2016.06.09	2016.06.15	5 120	2027.10.27	5 120	5 120	3.27%
Auction	Y3	KTV	2019/C	2016.06.09	2016.06.15	20 000	2019.10.30	34 810	23 000	1.74%
Auction	Y5	KTV	2021/B	2016.06.09	2016.06.15	15 000	2021.10.27	33 900	18 000	2.29%
Auction	Y10	KTV	2027/A	2016.06.09	2016.06.15	10 000	2027.10.27	69 600	15 000	3.27%
Auction	M3	DKJ	D160914	2016.06.07	2016.06.15	40 000	2016.09.14	65 000	40 000	0.90%
Subscription	M12	KKJ	K2017/25		2016.06.20	37 900	2017.06.21	53 222	53 222	
Subscription	M6	FKJ	F2016/51		2016.06.20	9 300	2016.12.21	16 386	16 386	
Auction	M12	DKJ	D170524	2016.06.16	2016.06.22	30 000	2017.05.24	30 412	24 500	0.96%
Auction	M3	DKJ	D160921	2016.06.14	2016.06.22	40 000	2016.09.21	76 458	40 000	0.87%
Subscription	M12	KKJ	K2017/26		2016.06.27	60 100	2017.06.28	52 724	52 724	
Subscription	M6	FKJ	F2016/52		2016.06.27	9 300	2016.12.28	26 271	26 271	
Non-comp	Y3	KTV	2019/C	2016.06.23	2016.06.29	4 760	2019.10.30	1 571	1 571	1.74%
Non-comp	Y5	KTV	2021/B	2016.06.23	2016.06.29	5 368	2021.10.27	1 355	1 355	2.23%
Non-comp	Y15	KTV	2031/A	2016.06.23	2016.06.29	1 600	2031.10.22	1 200	1 200	3.41%
Auction	Y3	KTV	2019/C	2016.06.23	2016.06.29	10 000	2019.10.30	17 400	13 000	1.74%
Auction	Y5	KTV	2021/B	2016.06.23	2016.06.29	10 000	2021.10.27	25 581	15 000	2.23%
Auction	Y15	KTV	2031/A	2016.06.23	2016.06.29	5 000	2031.10.22	8 900	5 000	3.41%
Auction	M3	DKJ	D160928	2016.06.21	2016.06.29	40 000	2016.09.28	77 790	40 000	0.85%
Auction	M12	DKJ	D170524	2016.06.30	2016.07.06	30 000	2017.05.24	39 800	30 000	0.94%
Auction	M3	DKJ	D161005	2016.06.28	2016.07.06	40 000	2016.10.05	117 250	60 000	0.83%

Source: ÁKK

The methods of government securities issue auctions show only a small difference in international practice as well, since the interconnected financial markets and, for example, the introduction of the euro support the standardisation of the debt management processes and the types of securities. For example, in terms of the issue of securities, long-term and short-term securities are issued at auctions in most countries, whereas the repeated or tap issue is a less widespread form of issue according to the analysis of the OECD (see Table 8).

<b>Table 8</b>						
<b>Methods of issue in the individual countries</b>						
	Auctions		Type of auctions		Repeated or tap issue	
	Long-term securities	Short-term securities	Single price	Multiple price	Long-term securities	Short-term securities
Czech Republic	x	x	x	x		
Poland	x	x	x	x		
Hungary	x	x		x	x	x
Slovakia	x	x	x	x	x	x
<b>All examined countries</b>	<b>29</b>	<b>30</b>	<b>18</b>	<b>23</b>	<b>14</b>	<b>10</b>

*Source: OECD Sovereign Borrowing Outlook, 2012*

#### **5.4.2 Buyback and switch auctions**

At the buyback auctions, the debt management agency buys back the government securities traded on the secondary market. Purposes of buybacks may include smoothing the maturity structure, reducing the large amount of securities with close maturity, and, at the same time, decreasing the risk of refinancing. Another objective may be to strengthen the liquidity of the secondary market for accelerating the issue of new series. Similarly to the normal auctions, primary dealers submit their tenders of sale related to the yields or the prices in these cases as well, which are accepted in part or in full by the debt management agency, after consideration.<sup>32</sup>

The switch auction essentially consists of a normal auction and a buyback auction, in the course of which a government security of given market value

<sup>32</sup> The schedule of buybacks is included in the issue plan and, in general, these take place every other week, on Wednesdays.

is issued and the buyback of the same market value occurs. Its objectives and rules of procedure are identical with the buyback auction, with the difference that in this case the smoothening of the maturity structure and raising the new finance take place in one step. Furthermore, an important goal of the switch auctions is to increase maturity, since, in the framework of switch auctions, the ÁKK switches a short-term government security to a longer term government security.<sup>33</sup> At the same time, the liquidity of the series to be issued improves as well with the switch auction, without raising new finance.

In the international practice, holding buyback auctions is not common among developed countries, while switch auctions are even less widespread.

**Table 9**  
**Prevalence of buyback and switch auctions**  
(2012)

Country	Bond buyback	Bond switch	Country	Bond buyback	Bond switch
Australia	x	x	Canada	x	x
Austria	x	x	Korea	n.a.	n.a.
Belgium	x		Poland	x	x
Chile			Luxembourg		
Czech Republic	x		Hungary	x	x
Denmark	x	x	Mexico	x	x
United States	x		Germany	x	x
United Kingdom	x		Norway	x	x
Estonia			Italy	x	x
Finland			Portugal	x	
France	x	x	Spain	x	x
Greece	x		Switzerland	x	
Netherlands	x		Sweden		
Ireland	x	x	Slovakia	x	
Iceland	x	x	Slovenia	x	x
Israel		x	Turkey	x	x
Japan	x		New Zealand	x	

Source: OECD Sovereign Borrowing Outlook, 2013

<sup>33</sup> In general and depending on market demand, the ÁKK holds switch auctions every other Wednesday, when there is no buyback auction.

### **5.4.3 Process of issuing foreign currency bonds**

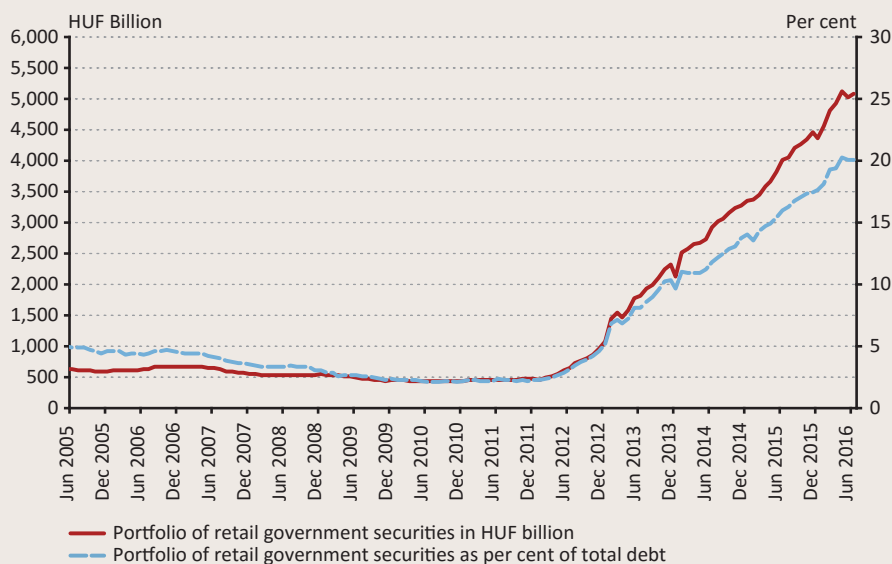
The sale of foreign currency bonds does not occur with an open auction; instead, the ÁKK commissions one or more international financial institutions to complete the issue. After preliminary information, these institutions undertake to offer for sale the bonds to investors in a yield range consisting of a benchmark yield and a spread, or if there is still no demand, they undertake to buy those themselves. In general, the issue is preceded by a “roadshow”, in the course of which the leaders of the ministry responsible for the budget and economic affairs and the debt management agency negotiate with the institutions organising the issue and potential investors. The amount to be issued and the yield range are decided during this. The transacting banks, conciliating with the ÁKK and considering the demand and the changes in the benchmark, determine the final price of issue and the coupon of the security. Over the last ten years, the Hungarian state has issued foreign currency bonds mostly in euro and US dollar, but there were issues in British pound, Japanese yen and Swiss franc as well. Measured in euro, the amount issued is typically between EUR 0.5–1.5 billion, but since the crisis bond issues of USD 2 billion have not been rare either.

### **5.4.4 Retail government securities portfolio**

Small investors can purchase the retail government securities either directly from the Treasury, or via primary dealers or other retail dealers, via subscription or tap issue. In the course of the sale, the dealers collect the investors’ subscription assignments and forward those to the ÁKK, then finally the investors receive the securities via the dealers. In recent years, households have increased their government securities portfolio significantly, thanks to the following factors: increased demand because of the higher interest vis-à-vis other forms of investment; attractive supply appearing as a result of the wider product range; simpler availability because of IT developments and the expansion of the dealer network; and the strong marketing campaign. This is supported by the fact that the government securities denominated in forint are exempt from the payment obligation of the health contribution tax to be paid on the interest, and thus, only the interest tax has to be paid on the interest income. As a result of this, the ratio of retail government securities

within the total debt has increased significantly during the last four years, and it was almost HUF 5,000 billion at the beginning of 2016.<sup>34</sup> However, retail government securities can be purchased not only by the households, since several non-profit organisations can also buy these; and households can buy non-retail government securities as well, thus, the retail government securities portfolio and the portfolio of government securities actually held by the households are somewhat different. Among households, the most popular retail government securities are the 1-year interest bearing treasury bills (KKJ) and the half-year interest bearing treasury bills (FKJ).

**Chart 17**  
Amount and ratio of retail government securities within total debt



Source: ÁKK, MNB

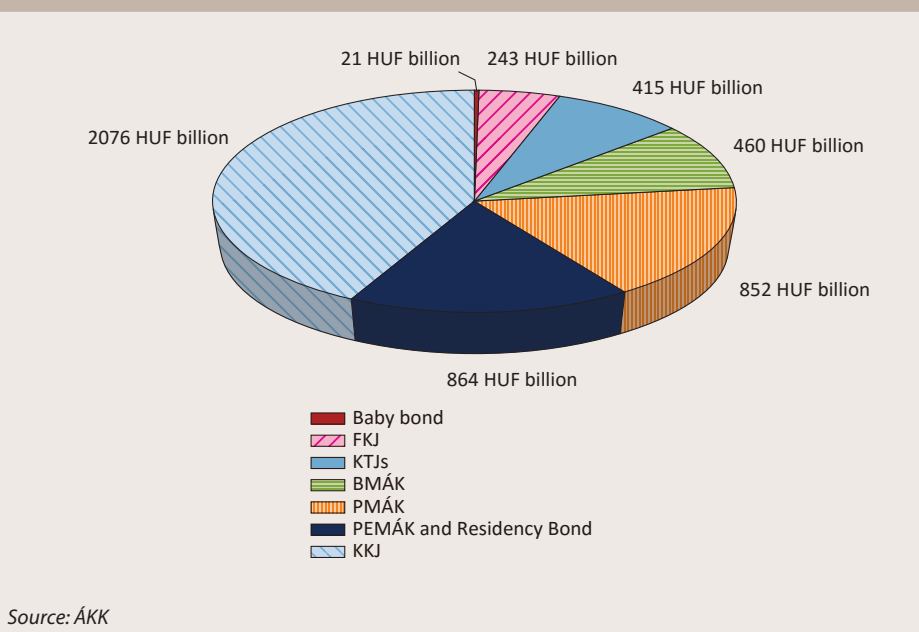
The portfolio of the households contains government securities not only directly, but indirectly as well. For example, households can hold government securities indirectly via many investment units or via pension fund savings. Bond funds include the highest ratio of government securities, but the ratio of government securities and treasury bills is also high in most money market

<sup>34</sup> The Premium Euro Hungarian Government Bond and the Residency Bond appear only in aggregate in the public statistics.

funds, capital and yield protected funds and in many mixed investment funds as well.

There is a favourable effect for the government if the ratio of household savings increases within the public debt, since the internal financing of the debt is more stable and it depends less on international money market sentiment. One disadvantage is that, for the time being, the average remaining duration of the retail securities is short, although on the basis of the increase of the portfolio we can deduce that the households renew their maturing portfolio. In order to increase the average maturity, in recent years the ÁKK has issued retail securities with longer maturity as well. Another disadvantage is that the interest rate of retail government securities is generally higher compared to other government securities of similar maturity, however, this interest directly increases the available income of the households. Retail government securities cannot be redeemed, yet it is possible to sell these at the dealers before the maturity: for the bonus and premium Hungarian

**Chart 18**  
**Portfolio of retail government securities in a breakdown by types at the end of March 2016**  
*(HUF billion)*



Source: ÁKK

government bonds, the interest bearing treasury bills, and the half-year treasury bills, the Hungarian State Treasury quotes a purchase price until the 5th day prior to the maturity, whereas other dealers have a purchase price quotation obligation if the small investors intend to sell their government securities. The treasury savings bills can be redeemed at the branches of the Hungarian Post Office at any time before maturity, in the manner stipulated in the official guidelines of redemption.<sup>35</sup>

#### **5.4.5 Detailed presentation of retail government securities<sup>36</sup>**

The ÁKK sells the **half-year interest bearing treasury bills (FKJ)** to a limited sphere of investors.<sup>37</sup> Its advantage is that, because of its short maturity, it can provide an alternative vis-à-vis the bank deposits placed for a very short period.

The **1-year interest bearing treasury bills (KKJ)** are the most popular retail government securities and at the same time these have been available for the longest time; it is available to the same limited sphere of investors as the **half-year interest bearing** treasury bills. At the end of the maturity, the interest is credited together with the principal (after deducting the interest tax). Its advantages for investors are its favourable interest payment and short maturity.

The scope of investors of the **premium Hungarian government bonds (PMÁK)** is limited similarly to the interest-bearing treasury bills. The PMÁK is a variable-rate government security of 3-5 years of maturity. Its interest rate is identical with the inflation and a spread of 250-500 basis points, depending on the series and the date of maturity and issue. Its advantage is that it pays high real interest rate above inflation, and thus, its interest rate risk is low despite its longer maturity.

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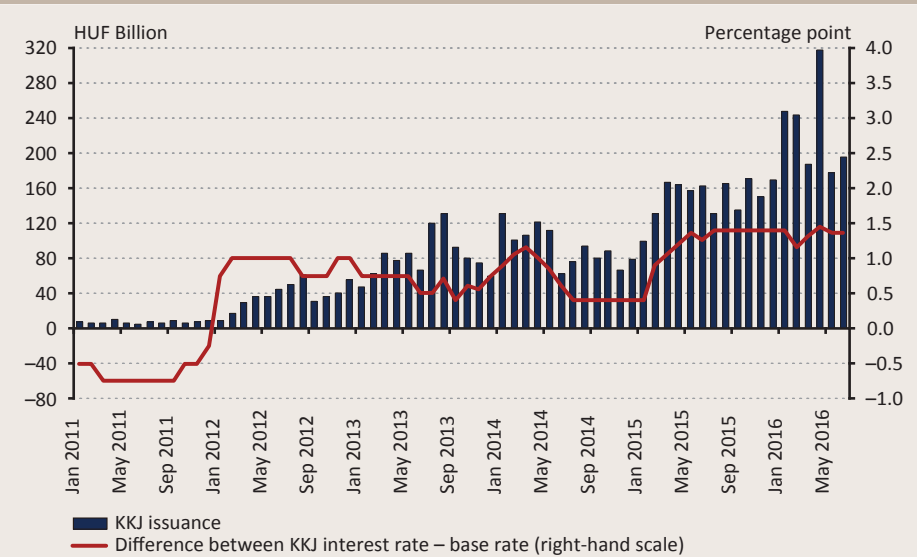
<sup>35</sup> <http://www.allampapir.hu/tudastar/gyik> only available in Hungarian.

<sup>36</sup> In the course of the presentation, in the case of the individual types of securities, the advantage is meant from the point of view of the savers.

<sup>37</sup> Natural persons qualified as foreign exchange residents and foreign exchange non-residents, and legal entities qualified as foreign exchange residents and organisations without legal entity can purchase this, except for the companies not qualified as non-profit companies, and organisations qualified as institutional investors according to Section 5 (1) 60 of the Act CXX of 2001 on the Capital Market.



**Chart 19**  
**Interest rate spread of the KKJ compared to the central bank base rate and**  
**monthly issue of KKJ**



Source: ÁKK, MNB

The **bonus Hungarian government bonds** are similar to the premium Hungarian government bonds in terms of issue, negotiability and ownership restrictions, and the parameters of interest payment. The difference is in the maturity, which may be 4, 6 and 10 years, and the interest rate, which is a spread of 175-250 basis points above the yield of the 12-month DTB, depending on the series and the date of maturity and issue. Its main advantages: because of the method of determining the interest rate, it is of favourable interest payment even in a low inflation environment (even compared to the PMÁK), while the face value of HUF 1 makes it accessible and easier for anyone to reinvest the interest.

The **baby bond (BABA)** can be purchased for children with a Start securities account and from the interest realised on this account after reaching 18 years of age. The amount due on the basis of the Act on the Support to Young People at the Beginning of Their Career,<sup>38</sup> and the payments of the parents

<sup>38</sup> Act CLXXIV of 2005 on the Support to Young People at the Beginning of their Career.

and nursing parents can be deposited to the account. A new series is issued each year and its interest base is the consumer price index of the previous year and a spread of 300 basis points (which may differ by series). Its objective and advantage: savings that cannot be spent until the children reach the age of 18 years can be accumulated, with the most favourable interest payment possible.

The **premium Euro Hungarian government bonds (PEMÁK)** can be purchased by natural persons qualified as foreign exchange residents and foreign exchange non-residents, and legal entities qualified as foreign exchange residents and organisations without legal entity, except for companies not qualified as non-profit companies, and organisations qualified as institutional investors according to Section 5 (1) 60 of the Act CXX of 2001 on the Capital Market. The PEMÁK is a variable-rate government security of maturity of 3 years, interest period of 6 months, base denomination of 1 EUR, whose interest base is the consumer price index of the euro area, whereas the interest premium above this is 200-250 basis points. Its advantage is that the households can also invest their euro-based savings in a safe government security, paying high real interest rate, more favourable than on the market. Its disadvantage, however, is that health contribution tax has to be paid on the interest income, in addition to the interest tax, in contrast to other retail government securities.

The **treasury savings bills (KTJ)** are fixed-rate, tiered interest payment securities that can be purchased solely by domestic private individuals, which are sold by the branch network of the Hungarian Post Office with maturity of 1 or 2 years. The treasury savings plus bills (KTJ Plusz) are dematerialised securities of face value of 1 HUF, with fixed-rate, tiered interest payment and maturity of 12 months. The advantage of treasury savings bonds is that the security can be redeemed after a grace period of three months by crediting a part of the annual interest, thus, after this, there is no total interest loss even in the case of redemption before the maturity.

**Table 10****Latest attainable interest rates in case of individual government securities***(at the end of June 2016)*

Type	Interest rate
FKJ	2.00%
KKJ	2.25%
KTJ_I	2.00%
KTJ_II	2.50%
KTJ_PLUS	2.25%
PEMAK	2.20%
PMAK	2.75–3.25%
BMAK	3.05–3.80%
BABA	3.00%

*Source: ÁKK*

#### **5.4.6 Forint and foreign currency loans from investment banks**

Part of the forint and foreign currency loans are loans taken from international development banks. The two largest creditor banks are the European Investment Bank (EIB) and the Council of Europe Development Bank (CEB). Information on the conditions of the loans are available at the website of the ÁKK.

#### **5.4.7 Loans from international organisations**

Hungary has been a member of the International Monetary Fund (IMF) since 1982, and until now Hungary has utilised the facilities of the Monetary Fund in the form of stand-by, extended and compensation loan arrangements. Since Hungary became a member of the IMF, the country has concluded nine IMF loan arrangements and has fully prepaid all the loans received from the organisation.

**Table 11**  
**Summary of Hungarian IMF arrangements**

	Date of agreement	Date of last drawing	Amount awarded, SDR million	Amount drawn, SDR million
Stand-by loan	2008.11.06	2010.10.05	10 538	7 637
Stand-by loan	1996.03.15	1998.02.14	264	0
Stand-by loan	1993.09.15	1994.12.14	340	57
Extended financing facility	1991.02.20	1993.09.15	1 114	557
Stand-by loan	1990.03.14	1991.02.20	159	127
Stand-by loan	1988.05.16	1989.06.30	265	215
Stand-by loan	1984.01.13	1985.01.12	425	425
Stand-by loan	1982.12.08	1984.01.07	475	475
<b>Total</b>			<b>13 580</b>	<b>9 494</b>

Source: IMF

The last borrowing took place after the outbreak of the 2008 financial crisis. On 6 November 2008 Hungary concluded a standby arrangement of value of SDR 10,537 million, available for 17 months.

In Q4 2008, after the outbreak of the financial crisis, investors turned away from Hungarian government securities, which were considered as too risky. In order to finance the deficit of the general government, to repay the maturing debts, to increase the foreign exchange reserves of the MNB and to fund the support of the banks, the government and the central bank turned to the IMF, the EU and the World Bank for support. Within a short time, the three organisations approved a credit line of almost EUR 19 billion for Hungary. The credit line of the IMF existed until 5 October 2010. The available loan could be utilised (“drawn”) in instalments, but it was not obligatory to utilise the entire available credit line.

**Table 12**  
**Annual schedule of the drawing and repayment of the IMF/EU loan<sup>39</sup>**  
*(EUR billion)*

	IMF		EU	
	drawing	repayment	drawing	repayment
2008	5.0	–	2.0	–
2009	3.9	–	3.5	–
2010	–	–	–	–
2011	–	–	–	2.0
2012	–	3.5	–	–
2013	–	5.5	–	–
2014	–	–	–	2.0
2015	–	–	–	–
2016	–	–	–	1.5
<b>Total</b>	<b>8.8</b>	<b>8.9</b>	<b>5.5</b>	<b>5.5</b>

*Source: IMF, European Commission*

The agreement assisted in alleviating the arising financing problems, in general, however, international borrowing has several advantages and disadvantages as well.

The stand-by loan represents a certain distinctive mark from the points of view of the investors and the general public, on the one hand because it sheds light on the difficulties of market financing, on the other hand because it entails a partial surrender of economic policy independence. Moreover, a stand-by fee must be paid also for the credit line not drawn. Another disadvantage of the loans taken between 2008–2009 is that their maturity was relatively concentrated between 2011 and 2016, which resulted in a high repayment burden in this period.

However, upon taking the loans, the interest rate of the loans was more favourable than the interest rates available for both forint and foreign currency bonds. The interest rate of the EU loan was fixed and exceeded the level of yield at which the European Commission itself had access to the liabilities

<sup>39</sup> Together with drawing by the MNB. In the case of the IMF loan, the difference between the drawing and the repayment is caused by the change in the exchange rate of the SDR currency basket expressed in euro.

on the bond markets, with a smaller spread. By contrast, the IMF granted a variable-rate loan to Hungary, whose interest rate was determined each week together with the interest rate of the SDR, the currency basket of the IMF. The SDR interest rate was favourable for Hungary, since the IMF ties that to the short-term money market interest rates of the large economies, and these were low after the crisis. However, it is worth examining the interest rates of the foreign currency loans consolidated with the central bank costs (Chapter 4.7). The utilisation of foreign currency loans increased the amount of central bank money in the economy, for which the MNB paid the central bank base rate, which was very high during the crisis. Taking this into account, the interest rate of foreign currency loans is not necessarily more favourable than that of forint bonds even in the general case. As a result of the decrease in forint yields, forint financing was already cheaper at the end of the maturity of the loans.

#### **5.4.8 Can the central bank provide a loan to the government?**

Based on economic history experiences, the regulation was made in the European Union that central banks cannot finance the government. This rule is valid with respect to Hungary as well. The MNB cannot provide a loan to the general government and it cannot buy government securities on the primary market. By contrast, the central bank can buy, under strong constraints, government securities at market prices on the secondary government securities market, if it does not, thereby, upset the market balance. The ECB itself has bought large amounts of government securities on the secondary market in recent years.

The regulation in other parts of the world is similarly strict, but if the legal regulations allow it, the respective parliaments can lift the ban. During the crisis, the Fed and the Japanese central bank purchased large amount of government securities (on the secondary market), but not with the purpose of financing the government, instead in order to influence market liquidity. In the less developed countries the direct financing of the general government by the central bank occurs as well.

## 6 Economic effects of public debt

Public debt may have several effects on the economy of a specific country. Although there is a debate in the literature about some of the effects, it can be generally stated that the high level of debt may have negative effect, directly or indirectly, on both the government and the private sector. The most direct effect is that the budget must finance the interest burden of the debt from taxes, which have a distorting effect on economic decisions. Moreover, the increase in the financing requirement of the budget may have a crowding-out effect on the investments of the private sector. The rise in public debt may increase the money and capital market interest rates, via the rise in demand for loans, which may result in a fall in investment. The decrease in investments results in a decrease in the capital stock, as a result of this output and income fall. The higher government financing need damages the country risk assessment by investors and, via this, it increases the yields expected vis-à-vis resident borrowers and may have an adverse effect on growth as well. Because of the deterioration in the risk assessment, the high foreign currency ratio and the high interest paid to non-residents, the high level of debt may have a serious effect on the stability of the country.

Based on the publications examining public debt, there is a debate about what is the optimum level of debt and what is the debt threshold where the negative effects already have a stronger effect. In the developing countries, the “optimal” debt level may be lower. In addition to the level, naturally, the appropriate composition of the debt structure is important as well.

Debt, of course, does not only have negative economic effects. As with all borrowing, it may assist in the execution of investments which otherwise could not be implemented because of a lack of funds. In an ideal case, the positive effects of these investments assist in the repayment of the debt. The role of public debt in creating and maintaining the financial markets cannot be disregarded. By offering standardised securities of various types of maturity and relatively low risk, and with the availability of a government securities market yield curve accessible at all times, it represents a benchmark for other money and capital market segments.

## 6.1 Debate about the growth effect

Based on the summary of Szabó (2013) about the theoretical effect of debt on growth, there are essentially three types of approaches. According to the Keynesian school, in the case of an economic downturn, although a fiscal impulse of appropriate structure may lead to an increase in debt, at the same time it increases aggregate demand and this may result in higher growth. By contrast, according to the neoclassical school of thought, fiscal easing decreases the savings rate via the increase in present consumption, and thus may lead to a fall in investments and then in future growth as well. According to the third approach, based on Ricardo's equivalence, the growth effect of indebtedness is neutral because of the adjustment of the other participants.

Several attempts have been made in the literature to quantify the debt threshold, the crossing of which already has a significantly slow-down effect on the performance of the economy. One of the best-known of these is: Carmen Reinhart and Kenneth Rogoff, in their article entitled „Growth in a Time of Debt“, using the data series of 44 countries and encompassing several decades, divided the observations of the individual years to 4 groups. Those observations were included in the first group when the debt rate was below 30 per cent, the second group contained those between 30 and 60 per cent, the next one included the observations between 60 and 90 per cent, and the last group contained those years when the debt-to-GDP ratio was over 90 per cent. The authors concluded that there is no relationship between debt and growth at low and moderate debt levels. However, according to their analysis, debt has a detrimental effect on growth if the debt rate exceeds the 90 per cent threshold. That is, in the periods with debt-to-GDP ratio higher than 90 per cent, the median growth is 1 percentage point lower, for example, in the case of the developed countries, whereas average growth is 4 per cent lower (and is negative) compared to the observations with low debt. Moreover, in developing countries, a 60 per cent external debt-to-GDP already causes a significant decline in growth.

According to Kumar–Woo (2010), a significant growth difference can be observed only between the very low debt levels (below 30 per cent) and the very high debt levels (above 90 per cent). The 10 percentage point increase



in the initial debt level lowers the real growth rate of per capita GDP by 0.2 percentage point in the next 5 years. In the developing countries, the coefficient is higher, the financing constraints are stronger and, thus, the growth sacrifice is larger in the case of higher indebtedness.

After publication of the Reinhart–Rogoff study, several people challenged their results. For example, Irons–Bivens (2010) formulated several criticisms taking into account the characteristics of the US. The authors argued against the statement that the level of debts existing at a given time would have an effect on growth concurrently with that. In the years after World War II, the debt of the US was higher than the threshold level, but during those years rapid growth was coupled with high debt. They mentioned as a criticism that the original study only found a correlation between growth and the debt level, but did not examine the causal relationship. According to the authors, however, the direction of causality between the level of public debt and the GDP growth concurrently with that is exactly the opposite of the finding of the Reinhart–Rogoff study, i.e. the extent of growth affects the level of the debt and not vice versa. In turn, according to a previous study – Ferreira (2009) – the relationship works in both directions. Finally, Irons–Bivens mentioned that the original study analysed gross debt, whereas according to them an analysis of net public debt would have been relevant.

Herndon–Ash–Pollin (2013) called attention to the calculation and methodological errors of the Reinhart–Rogoff study. Confirming the other criticisms, they emphasised that the direction of causal relationship between the two variables is not unambiguous. On the one hand, low growth may cause a high debt rate via the denominator, while on the other hand a (so far unknown) third factor may concurrently affect both processes. However, they recalculated the results of the publication because of the calculation problem. After analysing the new calculations the authors found that, in contrast to the original results, the growth of countries reaching or exceeding the debt rate of 90 per cent does not differ significantly from the growth of countries not exceeding the threshold. In a reply, Reinhart and Rogoff contested that this difference cannot be considered as significant, and while they acknowledged the calculation error, they stood by their methodology

as well. Pescatori–Sandri–Simon (2014) found that there is no evidence for the existence of a specific threshold figure, whereas other authors<sup>40</sup> argued in favour of different thresholds. However, it seems likely that the determination of the threshold in an arbitrary way or according to a specific methodology may greatly influence the results received.

## 6.2 Effect on money and capital markets

Market investors view a high debt level as an indicator of country risk. The yield expected on the debt components of the specific state is higher because of the increase in the likelihood of bankruptcy of the indebted countries. Thus, because of the high debt, financing the government becomes increasingly expensive, which may lead to further indebtedness and ultimately the development of a debt trap. The increase in government securities market yields entails a rise in yields expected from the private sector, which also increases the costs of financing private investments. All in all, the increase in yields causes the crowding-out of private investments. At the same time, the increase in yields reduces the value of long-term savings and causes a potential welfare loss, decreasing the expenditures that can be spent on future consumption. Moreover, the increased interest expenditures decrease budgetary expenditures that can be spent on efficient investments, which may indirectly cause a decline in economic growth.

Up to a certain level, debts can be useful, and thus it is not optimal to reduce the debt level of a country completely to zero. This is because debt management transactions are essential for the appropriate operation of domestic money and capital markets. However, for this it is necessary that the government should solve financing the debt at least in part by issuing securities, as government securities issued with the most diverse maturity structure possible assist in the pricing of market loan products, and even that of companies and business shares as well. The government securities market yield curve serves as an important input, for example, for the evaluation of simple or more complex financial products: it may also serve as a starting point

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<sup>40</sup> CANER, M. – GRENNES, T. – KOEHLER-GEIB, F. (2010): Finding the Tipping Point – When Sovereign Debt Turns Bad. *World Bank Policy Research Working Paper*. No. 5391 July 2010.

for futures, options or swaps, and for the risk-free yield of other assessments as well.

### **6.3 Effect on stability**

The amount and structure of public debt have an effect on the stability and vulnerability of public finances as well. Market investors consider that countries with high external debt are, in general, more vulnerable than countries that solve the financing of their debt mainly using internal funds. The risk represented by external debt is reduced if the given country has – in the central bank – an appropriate amount of accumulated foreign exchange reserves.

We can also include in the effect on stability in the wide sense the already discussed growth and market effects. Furthermore, within the debt structure, the foreign currency ratio and the average remaining duration may have an effect on stability. In the case of the weakening of the domestic currency, the ratio of the debt existing in foreign currency, expressed in the domestic currency, can increase considerably, which may lead to a significant increase in the debt even in the case of disciplined fiscal policy. Interest expenditures paid to non-residents appear in the balance of payments of the country as well, and, as a result of the weakening of the domestic currency, the balance of interests paid and received may turn over significantly, increasing the vulnerability of the country. In the case of a high level of debt, refinancing the debt with long-term securities is more difficult and more expensive and, as a consequence of this, the average duration may become shorter. Meanwhile, the decrease in remaining duration further increases renewal risk.

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