György Barcza

The Changing Role of Public Debt in Economics and the Basic Principles of Hungarian Debt Management

SUMMARY: This paper presents the strategy of public debt management in Hungary, which is based on the core principles of reducing the debt ratio and its foreign-currency-denominated portion as well as developing a retail market for government securities. However, the limited availability of research makes assessing the role of public debt in macroeconomic theories uncertain. An overview of academic literature is therefore important as it allows tracking how the 2008 financial crisis raised the profile of public debt. Formerly, public debt was factored into few macroeconomic models. Crisis prediction literature came into existence in the wake of crises afflicting developing countries between 1982 and 2003, where indebtedness and public debt also played a role as a factor increasing the likelihood of financial crises. However, recent years have seen the opening of new fields of research into the impact of long-term sustainable debt and how public debt affects economic growth. Empirical experience suggests that Hungary's public debt, whose rate is the highest in the region, may have contributed to slower convergence in the post–1990 period, even to the stagnation observed between 2004 and 2008, and then to the deepening of the 2009 crisis. Overcoming the problem of the Hungarian public debt has therefore become an important goal of post–2010 economic policy, a process underpinned by debt management principles and the selected tools.

KEYWORDS: macro-economics; macro-economy; public debt; debt management; indebtedness; Ricardian equivalence
JEL CODES: E620, H630,

INTRODUCTION

The approach to the role of public debt in the macro-economy changed significantly after the 2008 financial crisis. Following the international financial deregulation starting in the 1970s, developed countries gained access to opportunities to accumulate both private and public sector foreign debt. However, large waves of indebtedness would mostly end with severe crises, highlighting significant risks inherent in economic growth driven by external indebtedness and rising public debt. It was in response to practical experience that research into the role of indebtedness, specifically public debt, emerged in the onset and during the course of financial crises. Substantial academic literature has developed on the subject; even so, no response has been found to what a national economy should consider an optimal public debt level from the aspect of long-term development.

General indebtedness was brought into focus by the financial crisis that erupted in

E-mail address: barcza.gyorgy@akk.hu

the USA and spread to numerous developed countries in 2008–2009, while public debt gained importance after the 2010–2011 euro crisis. Extensive research began concerning the re-interpretation of empirical data with a view to finding new relationships between indebtedness and the risk of financial crisis or growth. The inclusion of the growth effect creates an opportunity to find an answer to the question of what to regard as an optimal debt ratio. From the aspect of creditors, the optimal debt level is obviously the one that maximises profitability while steering clear of bankruptcy. The interests of the specific national economy, however, are in stark contrast to this view; for the national economy the optimal debt ratio is that which serves long-term growth the best.

Regional experience concerning the consequences of public debt has not yet been subject to analysis; but since Hungary's public debt over the past 40 years – except for a few brief periods – has exceeded those of its peers in the region, an overview of empirical data can furnish information about how the level of public debt affects the process of convergence.

Due to the scarcity of literature the practice of public debt management has insufficient theoretical foundations to rely on; therefore, the management of Hungary's public debt should be built on principles that ensure harmony between predictability and flexibility. These three principles are: reduce the public debt ratio; reduce the foreign-currency portion of public debt; develop the retail segment of the government securities market. Within economic policy, the recovery of fiscal credibility after 2010, persistently low levels of public deficit and the central bank's self-financing programme also support the achievement of debt targets. Successful debt management contributes to cheaper public debt financing by making public debt more secure.

INTERNATIONAL LITERATURE BEFORE THE CRISIS

Following the 2008–2009 financial crisis and the 2010–2011 euro crisis, economic research began to focus more intensively on the relationship between indebtedness and the economy. By today, research has produced wide-ranging literature that can basically be grouped around three subject areas: the role played in the emergence of financial crises, negative impacts on long-term growth and debt sustainability.

The optimal debt ratio can be traced back to an early study conducted by *Barro* (1974), who called into question public debt neutrality, i.e. the Ricardian equivalence proposition. In his reasoning he disproves the assumption that as public debt rises, tax payers reduce their consumption and increase their savings in anticipation of future tax increases. The theory on the optimal debt level put forward by Barro (1977) has remained a rare exception rather than the rule. The author concluded that public debt needs to be shaped in function of the level of savings to ensure that debt-financed investments accelerate real growth. But it was not until after the 2008 crisis that quantitative estimates were made, which will be presented in the section dedicated to that period.

The reason for limited research into the implications of debt and the public debt level before the pre–2008–2009 international financial crisis lied partly in the practical experience that over-indebtedness in developed countries had not been a central issue since the 1970s. During the two decades after WWII, developed countries succeeded in reducing their public debt to a manageable level. After WWII, the United States slashed its debt of over 100 per cent to below 60 per cent in two decades. From the 1980s, in Europe the public debt criterion for adopting the euro

required the reduction of public debt below 60 per cent. It was only in a few developed economies that over-indebtedness occurred. The issue of indebtedness in Sweden (in 1993) or in Japan (since 1990 to date) were the exceptions rather than the rule. In addition, the two countries also followed different debt trajectories. Sweden recorded a public debt ratio of over 90 per cent during the financial crisis, which was successfully reduced to 40 per cent in the course of the next 10 years; a level considered low among developed countries. In the course of 25 years since the financial crisis of 1989–1990, Japan has reached a public debt ratio exceeding an unprecedented 230 per cent along a rising debt trajectory, and has so far avoided the risk of a sovereign debt crisis, even though the growth rate has remained low.

Thus, the question of public debt sustainability had remained confined to developing countries until the 2008 financial crisis, an event that also affected developed economies. Financial deregulation in the 1980s and 1990s opened opportunities for developing countries to raise funds in international markets. Financial crises following periods of indebtedness – such as in Latin America in 1982 or in Asia in 1997, or subsequent crises in Russia, Brazil, Argentina or Turkey – demonstrated that debt can reach excessive proportions and that growth driven by eternal debt may give rise to growth problems.

In response to recurring crises in developed countries, research also began to look into the relationship between financial crises and indebtedness. However, studies were primarily focused on the role of indebtedness in the emergence of a crisis. They sought to identify those macro-economic variables which demonstrably had an important role to play in the evolution of crises and also built models to estimate the likelihood of the occurrence of a financial crisis. These were known as "early warning systems" (*Kaminsky et al.,* 1998).

Although indebtedness as a contributory factor to a crisis was demonstrable, in the absence of a debt crisis these models were not applied to developed countries (*Lestano et al.,* 2003). In short, debt overhang, especially external debt, was interpreted as the "original sin" but conclusions were limited to its role in the emergence of a crisis and later in the adjustment phase (*Eichengreen* and *Hausmann*, 1999; *Eichengreen et al.,* 2002).

It is an interesting question why research did not go beyond crisis models and why the optimal debt level did not become a relevant subject. Obviously, there is a difference between optimal and sustainable levels of debt. The optimal debt level cannot exceed the sustainable level since in this case the unsustainable debt trajectory would lead to public default. The optimal debt level would reveal whether a given country should reduce its debt ratio or let it rise to stimulate growth. The question of the optimal debt ratio is therefore fundamentally contradictory to a tenet of economics often cited in the 1990s, whereby undercapitalised developing countries benefit from the accumulation of external debt as a means to implement more investment and accelerate growth. Naturally and undisputedly, external sources of funding can help increase the investment level but if growth fails to produce the resources needed to repay external debt, the level of indebtedness will grow. If this process persists, the debt will become, over time and inevitably, untenable and the danger of sovereign default will emerge; therefore, sooner or later the country will ultimately seek help from the International Monetary Fund, which will only be available on the basis of an economic programme accepted by the IMF.

It is an important issue whether the optimal debt level should be examined from the perspective of the creditor or the debtor. Obviously, from the creditors' perspective, the highest achievable rate of return, or yield, is

what "optimal", provided that no default occurs, i.e. the debt service – principal plus interest –- is met under any circumstances, as a last resort, based on the International Monetary Fund's programme. However, whatever is optimal from the creditors' perspective is not the same as the optimal debt level for the given national economy. From a national economy viewpoint, the optimal debt level is whatever is optimal for the long-term development of the given country.

In view of the financial crises in developing countries, besides the subject of sustainability, it is also important to review the theoretical literature of the same period. Before the global financial crises between 2008 and 2011, the debt level was essentially ignored in economic theories. Growth models based on the production function approach of mainstream economics or those splitting real growth into short-term (cyclical) and long-term (potential) components retrospectively did not include any variables capturing the debt level, and hence gave no information about the consequences of indebtedness. Public debt did not become a part of the models even though the procyclical or countercyclical nature and cyclical adjustment of the budget deficit have always been the subject of extensive study. Growth models based on the theory of real business cycle suited for a breakdown by cyclical and long-term potential growth components are widely used by central banks, international institutions and investment analyses to split real economic growth into cyclical and potential components retrospectively (*Jahan – Mahmud,* 2013; *ECB,* 2011).

The characteristics and macroeconomic impacts of public debt – with the exception of the issue of sustainability applied to developing countries as mentioned above – were, however, left out of the research focus in the pre–2008 period.

Before the crisis, it was models based on the "accelerator effect" hypothesis that obtained the farthest insight into the role of indebtedness by including financial sector indicators (*Bernanke et al.,* 1999). In essence, they found that excessive risk-taking in the financial sector and the overall level of indebtedness can aggravate and accelerate the financial crisis. However, even these models fail to consider the long-term impact of excessive indebtedness on economic growth, nor do they view it as a direct trigger – besides the accelerator effect – for the financial crisis.

INTERNATIONAL LITERATURE SINCE THE CRISIS

The approach to indebtedness and public debt gained a new perspective after the outbreak of the global financial crisis in 2008 and the euro crisis in 2010, respectively. Initially, research attempted to study the economic role of indebtedness on new foundations by exploring the widest possible range of macroeconomic linkages and effects with the use of long-term empirical data and simple statistical indicators. Empirical research findings eventually became the subject of a great deal of subsequent research, including a more thorough testing of conclusions by means of econometric tools, the application of formalised models and the verification of causative relationships.

However, in respect of Central-Eastern European countries there have not been any studies that would provide a reliable point of departure concerning the role of indebtedness in the region's economies. This may be partly attributed to the fact that, while long time series are also available for the applied macroeconomic indicators with respect to developed countries, reliable datasets are limited to the relatively short period following the regime change for CEE countries; in addition, since fewer countries have been covered compared

to developed countries, statistical economic analyses involve more uncertainty.

Some financial leaders of the government have proclaimed that debt is sustainable as long as it remains problem-free even during a financial crisis. In the case of developing countries, this level may be around 40 per cent.

However, the financial crisis in 2008–2009 "created a new situation and knowledge about crises had to be revisited in many respects" (*Magas,* 2011). New research has begun with a focus on uncovering the characteristics and macroeconomic implications of a debt crisis. Initially, it was based on long time series and sought to capture the linear and non-linear relationship between average debt and growth indicators calculated for a period of a few years. Studies were conducted relying on econometric models that both tested and complemented the research collecting empirical evidence.

Schularick and Taylor's (2009) study collecting data on developed countries from the period between 1870 and 2008 should be highlighted among those describing the general tendency of indebtedness, including both private and public debt. The most important conclusion of the study is that in the post-WWII period real economic growth not only significantly accelerated in developed countries but was also coupled with a process of debt build-up. As a forty-year average of the same period, total debt level grew at a rate of 8.5 per cent per year in real terms, significantly exceeding the real earnings growth of 3–4 per cent, even though the latter is considered a rather fast increase by historical comparison. As a consequence, after 1945, the banking assets to GDP ratio increased to 200 per cent from 50–100 per cent typical in the 70-year period before WWII.

This clearly shows that for decades, especially since the financial deregulation of the 1970s, debt had accumulated in developed countries, before it was halted by the 2008–2009 crisis and subsequently reversed into debt reduction in several countries. This process is known as "deleveraging", which central banks attempted to slow down – or even turn into credit growth – through non-conventional means after the zero-interest-rate policy had been exhausted. However, few countries have seen a decline in public debt. In Europe, it was Germany that achieved a balanced budget, i.e. a budget balance close to zero, while some other countries spent faster growth on reducing the debt ratio. The latter process also started in Hungary after the government change in 2010.

The above mentioned study by Schularick and Taylor interpreted debt in the light of money supply indicators, primarily because it was these data that were available for such a long horizon for several developed countries. Their research revealed that even though average growth rates exceeded earlier levels during the post-WWII period, cyclical downturns continued to deepen despite active economic policy interventions. The authors attempted to explain this by several factors, including the fact that the increased size of the financial sector also diluted the quality and concealed the risks of debt portfolios, and thus financial crises deepen recession. Moreover, they did not rule out the possibility that the procyclical nature of the financial sector itself can be a trigger for a crisis in case of excessive lending – hence, excessive risk-taking – in the period of boom. Overall, in terms of the tools intended to mitigate cyclical downturns and restore growth, a problem to reckon with is the fact that even though the stimulation of lending coupled with rising money supply indicators and public debt ratios can improve the real growth trajectory on a temporary basis, ever growing indebtedness exerts a dampening effect in the longer run. At the same time, the more serious implications arising from

growing indebtedness, such as deeper cyclical downturns and slower recovery, render a debt-driven policy to stimulate economic growth into an increasingly less effective measure.

In their research focusing on public debt in the narrow sense relative to general indebtedness, *Reinhart* and *Rogoff* (2008, 2011A) sought to discuss the implications of public debt from a new perspective. Their research analyses public sector indebtedness in terms of the role in the emergence of financial crises and, from the opposite perspective, as a causative factor in output decline contributing to unsustainable public debt; thirdly, they examine how debt arrests long-term economic growth.

In the case of the growth effect, they found a public debt ratio of 90 per cent to be an important threshold in the sense that with a debt ratio below this level no negative impact on economic growth can be demonstrated. From the aspect of the quantitative effect on growth, they received a negative impact of 1 percentage point on a 10-year average growth rate over the 90 per cent threshold, but they did not examine whether this relationship changed in the range above the threshold.

Their conclusion quickly became popular not only in economics but also with the broader public, albeit not in its original meaning. When quoted it was interpreted that once the public debt ratio exceeded the 90 per cent threshold it would enter on an unsustainable debt trajectory and pass the "point of no return". However, this statement in this form is not included in the articles written by Reinhart and Rogoff: even though they demonstrated the likelihood of sovereign default and restructuring in cases above the threshold, they associated it, in part, only with the slowdown of economic growth. They also mentioned the pressuring of the financial sector through negative real interest rates as an example for governments' successful reduction of public debt ratios even from levels above 90 per cent. For developing countries, they calculated similar values for external debts and demonstrated a significant growth impact at a debt ratio of 60 per cent.

The effect of the public debt ratio on economic growth was examined through the role of a given threshold in other studies as well. *Caner et al.* (2010) identified a threshold of 77 per cent for developed countries and 64 per cent for developing countries in the case of foreign debt – as opposed to public debt –, above which economic growth slows down significantly. *Kumar* and *Woo* (2010) examined developed and developing countries in the period between 1970 and 2007, and their public debt ratio estimates demonstrated that a 10 percentage point increase in the debt ratio led to a 0.2 percentage point deceleration in growth.

However, a number of studies refuted the connection between debt and growth. *Herndon* (2013) calls into question the findings of Reinhart and Rogoff fundamentally because of the inaccuracy of the long time series. The causative relationship between indebtedness and growth and the prominent role of a threshold have been refuted by several formal econometric tests (*Panizza* and *Presbitero,* 2013; *Égert,* 2013). It should be added that Reinhart and Rogoff clearly stated that, while they did not rule out the problem of a causative relationship, they had no intention to perform research in that regard.

The endogenous nature of the relationship between indebtedness and growth posed a challenge that even research was unable to address unambiguously. Naturally, the process of debt accumulation has an impact on real economic output, and since the denominator of the debt ratio includes an output indicator, economic growth trends, in turn, will also affect the debt ratio.

In their research, Reinhart and Rogoff also looked into the endogenous factor and the

causative relationship in the opposite direction, i.e. whether there is an increased risk of a sovereign debt crisis after a decline in real economic output. In other words, how does output affect debt sustainability? In theory, it is obvious that slower growth or falling output can make unsustainable a debt trajectory that would otherwise be sustainable at a higher growth rate. Studies based on empirical data found that a public debt crisis is likely to occur within three years from a slowdown or recession caused by a financial crisis. In quantitative terms, following the bank crises emerging in the period between 1977 and 1998, the public debt ratio grew by 84 per cent and after 2007 by 134 per cent on average, but higher indebtedness did not always entail a sovereign debt crisis. Therefore, financial crises in general raised the public debt ratio and also the likelihood of a public debt crisis.

After the 2010–2011 euro crisis, Taylor et al. also studied the role of public debt in the financial crisis (*Jordá et al.,* 2014). They found that the level of public debt in itself was not a significant predictor of a financial crisis, but once the public debt level was included in the explanatory variables in addition to total debt, a high public debt level increased the likelihood of the occurrence of a crisis. Amid high public debt, an increase in private debt can cause a crisis earlier than in the case of low public debt. Thus, similar to the *early warning system* studies of developing markets, this study looked at the role of public debt in the emergence of financial crises. In another novel conclusion, the authors found that it is not primarily the level of the debt ratio but the acceleration of its trend that can predict the unfolding of a financial crisis.

Other than examining the relationship between financial crises and indebtedness or between long-term growth and a debt ratio threshold, few studies cover the issue of an optimal debt ratio. *Checherita et al.* (2012), for example, found a debt ratio between 43 per cent and 63 per cent to be optimal for maximising the real economic growth rate.

EMPIRICAL EXPERIENCE IN THE CENTRAL AND EASTERN EUROPEAN REGION

There is limited literature on the trends and consequences of the region's indebtedness. Before the crisis, the working paper published by the National Bank of Hungary – the most comprehensive work on the subject – had expected that indebtedness – which might be unsustainable in certain Baltic states and show more trend-like features in other countries – could be considered sustainable if combined with growth and falling interest rates (*Bethlendi et. al,* 2005). However, the aftermath of subsequent crises made it clear that significant external financial and real economic shocks triggered a crisis in several countries in the region, including, in particular, Hungary, the first country to seek help from the IMF among EU Member States.

However, as both the 2008–2009 crisis and the 2010–2011 euro crisis revealed, countries with higher debt levels had fallen into a deeper recession. Thus, it can be assumed on an empirical basis that there is a relationship between indebtedness and economic growth. This can be interpreted to mean that the debt burden weighs on the economy in booms and busts alike. In addition to the cyclical nature of growth, the question arises as to whether the level of indebtedness has an impact on long-term trend growth.

After 1990, convergence to the European Union began in every country of the region, albeit to different degrees. The relationship between real and nominal convergence taken as an average of the period of 2004–2013 showed a strong correlation across the European Union, including the CEE region.

However, convergence was not even. The Visegrád countries also underwent periods where divergence or stagnation prevailed instead of real convergence. That can be explained by several reasons, in which the role of debt and public debt is difficult to separate. Hungary and Poland, for instance, had periods when following a period of rapid nominal revaluation, i.e. an overvalued real exchange rate, they had to return to a level closer to real convergence or even to a slightly undervalued nominal convergence level before convergence could restart in the economy. Public debt did not play a prominent role in the long-term trend of nominal and real convergence, both processes progressing concurrently in both highly indebted and less indebted countries. This, however, does not mean that simultaneous nominal and real convergence was progressing at the same rate. On the contrary; there were significant differences in its pace. For example, Baltic states starting from low convergence and low public debt levels displayed the strongest degree of convergence. The Czech Republic and Slovenia, considered to be the most developed initially, showed a slower convergence at their respective average public debt levels. Hungary achieved slightly lower than average convergence following the regime change, but this process was not even either.

It can be concluded that the indebtedness of Central and Eastern European countries increased compared to their debt levels in 1990. Hungary is an exception in that its public debt ratio had already reached 60 per cent by 1979 – fully in foreign currency at the time –, which grew to 90 per cent as result of the recession in the aftermath of the collapse of communism. Subsequently, the debt crisis recurred in two subsequent waves. After temporary declines it rose back to 80 to 90 per cent by 1995 and 2009, respectively. Public debt bottomed out at an annual level of 52 per cent in 2001.

The period between the EU accession in 2004 and the sovereign default in 2008 was strikingly bad. During this period, indebtedness increased significantly and the public debt ratio grew from the above mentioned initial 52 per cent to over 80 per cent. This notwithstanding, the country became stuck at the 61 per cent to 64 per cent real convergence level, i.e. this was the share of per capita gross domestic output in the EU27 average based on purchasing power parity. The stagnation of real convergence was coupled with a steep rise in debt, which indicates that in this case, debt can also have a short-term negative cyclical effect. The long-term effect is well demonstrated by the 7 per cent fall in GDP in 2009, which depleted years of the real convergence achieved that far. Given that among the Visegrád countries Hungary saw the sharpest decline, the high debt level was probably burdensome in Hungary's case as well.

The problem of recurring waves of indebtedness in Hungary is all the more regrettable as, in addition to employment, the problem of high public debt has persisted since the 1970s, and while there have been several opportunities to overcome this dilemma, in the years following 2010 Hungary had to return its focus to the reduction of the debt ratio once again.

THE HUNGARIAN STRATEGY OF DEBT MANAGEMENT

As bitter experience has shown during the decades since 1970, Hungary's public debt has caused a number of problems that have remained a significant drag on long-term growth. The major characteristics of Hungary's public debt are the following:

- high public debt ratio
- high interest rate burden
- high foreign currency portion
- high external debt

- low domestic ownership in both HUF-denominated and foreign currency debt.

Unfavourable public debt indicators pose macroeconomic risks, including:

- "extra weight" on the real economy causing slower growth over a longer horizon
- deeper downward phase and slower upward phase of cyclical fluctuation than in "peer" countries
- the country's increased vulnerability to external and internal shocks due to the high rate of external debt and foreign currency debt
- higher rollover risk due to debt maturities involving high amounts
- higher financing costs due to aggregate risks
- demand for government securities is influenced by global capital market sentiment
- the interest on government securities correlates to EUR rates to a lesser degree compared to regional competitors and significantly more strongly to USD rates, which militates against countercyclical interest rate trends
- the fluctuation of the historical exchange rates and the exchange rate implied in options (EUR/HUF) is higher than in other countries of the region and poses uncertainty
- domestic savings barely contribute to the financing of internal public debt.

This list makes it clear that excessive public debt and structural weaknesses significantly add to the public debt risk not only from the debt manager's but also from investors' perspective. Evidently, higher risks increase the cost of public debt financing and the interest rate required by investors, which adversely acts back on economic growth through the interest burden arising from public debt.

A false argument is often provided whereby Hungary's indebtedness is not excessive since the EU28 or the euro area average is at around 80 per cent of the public debt ratio. This is true, but it is not the public debt level alone that matters; the characteristics of its structure and the interest burden are just as important. Clearly, concerning the interest burden, in Germany with a similar debt ratio debt financing costs are half as high, interest costs being 2 per cent relative to the GDP. In Hungary, this value climbed over 4 per cent by 2010 and, due to a downward shift in the yield curve and thanks to a lower public debt ratio, it dropped to 3.4 per cent by 2015.

What can the debt manager do in this situation? How can it take its share in economic policy efforts to achieve public welfare and sustainable equilibrium – i.e. non-debt-financed – growth?

Post–2010 economic policy announced the reduction of the public debt ratio as its debt management objective. To this end, Hungary's new Constitution, the Fundamental Law, included a public debt ratio of 50 per cent as a target objective, while the upper limit of the budget deficit was defined by the debt rule of the Economic Stability Act.

However, the money market crisis in early 2012 was a clear indication that the debt ratio is only one of the parameters of vulnerability, as high foreign currency and external debt levels also contribute to vulnerability. Meanwhile, the public debt ratio is a consequence of budget deficit and nominal growth, which public debt management can improve by enhancing debt security primarily through the reduction of financing costs.

An important factor in shaping the strategy of debt management is that debt management can only be feasible if backed by basic principles that are predictable, credible, and at the same time, responsive to macroeconomic changes. Determining objectives without principles will not ensure that the selection of the tools of debt management will indeed result in public debt levels consistent with the objectives. In

the lack of such principles, the application of a certain toolset – which was designed to minimise the risk of debt – may render the achievement of the goals uncertain in view of the fact that changes over time would have warranted different directions. A case in point is when debt management is based on raw theoretical models designed to implement the theoretically best practice of debt management, but the given model's framework changes in the meantime. Consequently, the applied theoretical model will not be consistent in time either, even though it appeared to be the best choice at the time.

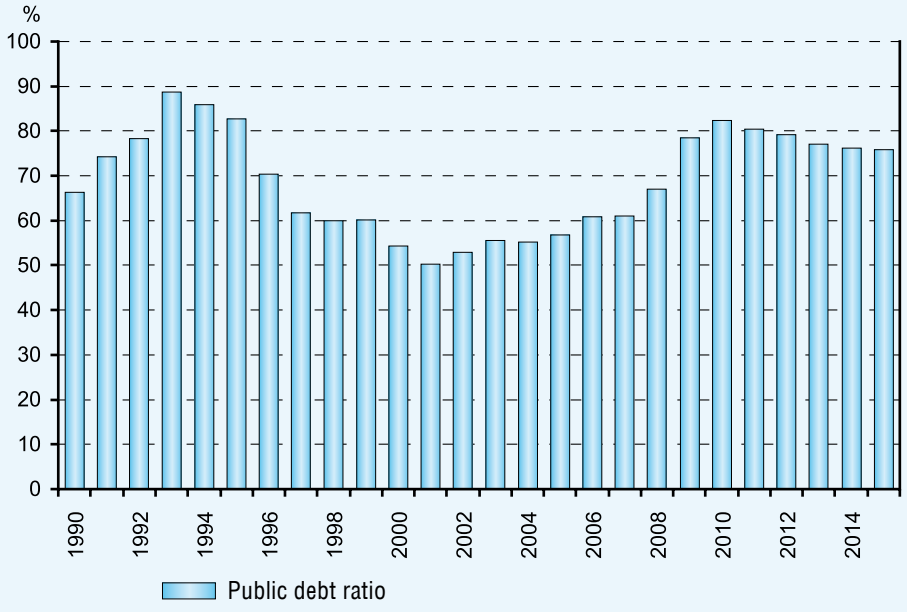
The combined requirement of credibility and flexibility will be best fulfilled by means of applying the basic principles in the debt management strategy.

As from 2015, the following three debt management principles have been followed:

Reduce the public debt ratio. Debt management has a limited and indirect effect on this; improved public debt security can minimise both financing costs and vulnerability. With a high public debt ratio, risks can be reduced by segmenting debt into several types of markets and creating new government securities markets. This is served by the domestic foreign exchange bond (P€MÁK) and other retail government securities, as well as by the option to issue foreign exchange bonds denominated in foreign currencies other than the euro or the dollar. This leads to the evolution of public debt the individual elements of which are no longer considered conspicuously large in themselves; in addition, different government security markets correlate with each other to a lesser extent, and any wholesale market turbulence can only have a limited impact on the retail government securities market *(Figure 1).*

Figure 1

PUBLIC DEBT RATIO



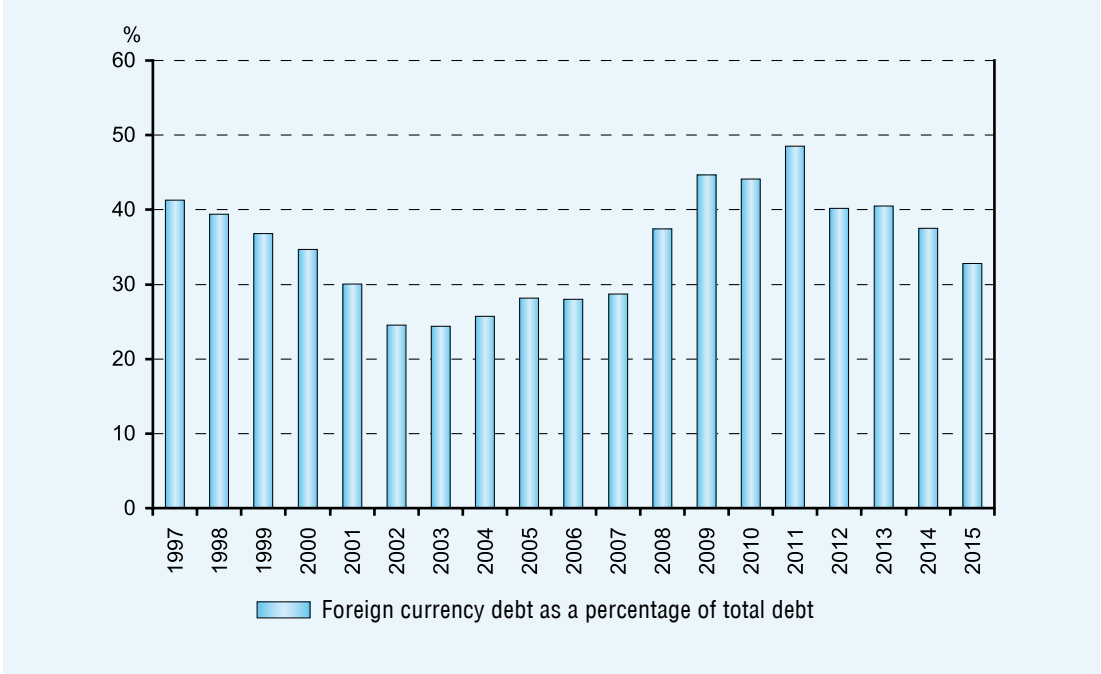
Source: Government Debt Management Agency

Reduce the foreign currency portion. Foreign exchange debt is basically external debt with the above mentioned negative implications, thereby undermining the general risk perception of debt. While at the level of nominal interest rates the cheapest solution may appear to be foreign currency borrowing, this, in turn, will affect the level of domestic interest rates through the increase in risks. It is not easy to quantify the combined effect of these two factors; however, in addition to costs, another important consideration is reduced vulnerability, which will mitigate the likelihood of money market turbulences *(Figure 2)*.

Increase the retail segment of the government securities market and retail ownership. Direct retail ownership was negligible in earlier decades. The development of retail government securities markets is rare even by international standards; with the exception of a few countries (Malta and Bangladesh), the rate of direct retail ownership is low. The remaining maturity of retail government securities is normally shorter than in the case of the wholesale market. This shorter maturity (1.7 years vs 3.1 years) is, however, offset by the high renewal rate, i.e. the reinvestment of a large portion of maturing debt, and by the fact that market demand moves with demand in the wholesale market to a lesser extent, which is an important consideration in case of money market turbulences. Retail government securities decrease the issuance of wholesale government securities, and thus contribute to lowering foreign ownership in HUF-denominated debt. In the period of market-building and depending on the required retail rate of return, it is therefore worth paying a certain amount of addition-

Figure 2

FOREIGN CURRENCY DEBT AS A PERCENTAGE OF TOTAL DEBT



Source: Government Debt Management Agency

al interest, as this will be offset, in part or in full, by lower wholesale market rates. In other words, taken together, higher retail interest rates will not necessarily raise the total financing costs of debt *(Figure 3)*.

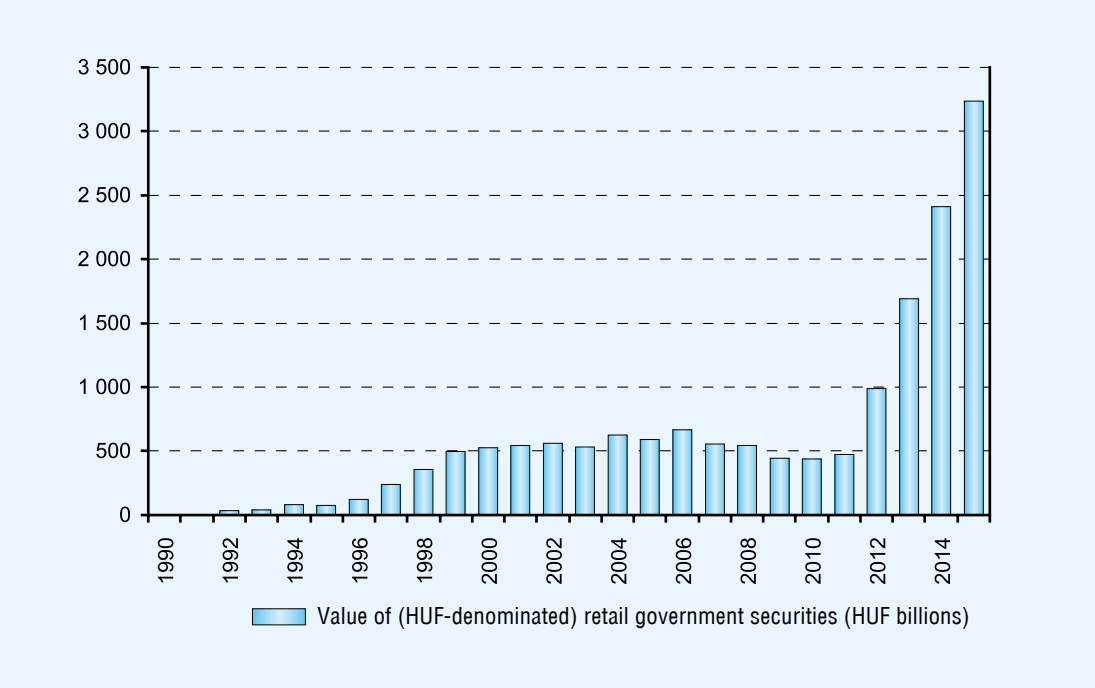
When assessing public debt financing costs it is important to emphasise that, in this case, only changes affecting total public debt financing costs are relevant. While costs may vary by submarket, the benefits of diversification can also appear in other submarkets and hence, the total cost of debt can be lower. The yield drop taking place in the period of 2012–2015 can also be explained by this factor besides a credible fiscal policy, sustainable debt and lower central bank base rates. At the end of 2015, the yield curve ranged between 0.8 per cent and 3.5 per cent between maturities of 3 months and 15 years, which had been the lowest level since the regime change.

Beginning in the spring of 2015, strengthening bank demand has played a major role in improving the public debt structure as regulatory changes in the context of the central bank's self-financing programme require banks to hold higher government security portfolios. The issuance strategy is thus built on two pillars. One is to stimulate the issuance of retail government securities. If the net financing requirement of public finances is covered by the net issuance of retail government securities (in excess of the maturity amount), the budget deficit will be financed fully from domestic savings, which will curb foreign indebtedness in the case of public debt.

If the basic principle of retail financing is implemented, in the wholesale market it will be enough to refinance maturing debt and there will be no need for new funds or "fresh money". If the savings of the domestic institu-

Figure 3

VALUE OF (HUF-DENOMINATED) RETAIL GOVERNMENT SECURITIES (HUF BILLIONS)



Source: Government Debt Management Agency

tional sector are at least partially based on net demand for government securities, the level of external debt will be lower. External debt can be lowered by means of reducing the HUF-denominated holdings of non-resident investors or by repaying the foreign currency debt.

By following the principle of prudence, the amount of HUF-denominated government securities exceeding demand during the year will, as a first step, increase the level of the state's liquid funds, which will provide security, should demand for government securities drop. If a significant amount of surplus HUF funds accumulates, it can be used to prepay the foreign currency debt. In that way, the conversion of foreign currency debt into HUF can be accelerated not only by repaying in HUF the foreign currency debt maturing in the given year, but also by prepaying the foreign currency debt or redeeming foreign currency bonds.

By 2015, significant progress had been made in respect of the stability of the yield curve and the exchange rate – two of the aforementioned consequences of public debt –, which has contributed to the country's financial stability and thus to minimising the likelihood of financial turbulences and their negative implications. A more secure system of public finances, in turn, accelerates growth through lower interest rates and money market stability.

During the debt accumulation of the 40 years since the 1970s Hungary has faced a series of severe debt crises; therefore, the reduction of debt-related risk is a clear national interest. By 2015, this process resulted in effective collaboration between economic policy stakeholders, in the context of which the low level and the credibility of the budget deficit, the transformation of the central bank's instruments and the debt management strategy function in a concerted manner.

Literature

Barro, R. (1974): Are government bonds net wealth. *Journal of Political Economy*

Barro, R. (1979): The determination of the public debt. *Journal of Political Economy*

Bethlendi, A. – Czeti, T. – Krekó, J. – Nagy, M. – Palotai, D. (2005): Driving forces behind private sector foreign currency lending in Hungary. *MNB Working Papers*

Bernanke, B. – Getler, M. – Gilchcrist, S. (1999): The financial accelerator in a quantitative business cycle framework

Caner, M. – Grennes, Th. – Koehler-Geib, Fr. (2010): Finding the tipping point – when sovereign debt turns bad. World Bank

Cecherita-Westphal, Cr. – Hallett, A. H. – Rother, C. Ph. (2012): Fiscal sustainability using growth-maximising debt targets. *ECB Working Paper*

Égert, B. (2013): The 90 per cent public debt threshold. *OECD Working Papers*

Eichengreen, B. – Hausmann, R. (1999): Exchange rates and financial fragility. *NBER Working Papers*, No. 7418

Eichengreen, B. – Hausmann, R. – Panizza, U. (2002): Original sin: The pain, the mystery and the road to redemption (paper presented at a conference on Currency and Maturity Matchmaking: Redeeming Debt from Original Sin. Inter-American Development Bank

Jahan, S. – Mahmud, A. S. (2013): What is the output gap. *IMF Finance and Development,* Vol. 50, No. 3

Jordá, O. – Schularick, M. – Taylor, A. (2014): Sovereigns versus banks: Credit, crises, and consequences. Federal Reserve Bank of San Francisco

Kaminsky, Gr. – Lizondo, S. – Reinhart, C. (1998): Leading indicators of currency crisis. *IMF Staff Papers,* 45/1

Kumar, M. – Woo, J. (2010): Public debt and growth. *IMF Working Paper*

Lestano – Jacobs – Kuper (2003): Indicators of financial crisis do work! An early warning system for six ASIAN countries. University of Groningen

Magas, I. (2011): Világgazdasági folyamatok és pénzügyi liberalizáció *[Global economic processes and financial deregulation]* 1970–2010. Corvinus University of Budapest

Panizza, U. – Presbitero, F. A. (2013): Public debt and economic growth in advanced economies: A survey. *OECD Working Paper*

Reinhart, C. – Rogoff, K. (2011): A decade of debt. NBER, 2011a

Reinhart, C. – Rogoff, K. (2008): This time is different: A panoramic view of eight centuries of financial crises. NBER

Reinhart, C. – Rogoff, K. (2011): This time is different: Eight centuries of financial folly. *Princeton University Press,* 2011b

Schularick – Taylor (2009): Credit booms gone bust: Monetary policy, leverage cycles and financial crises, 1870–2008. NBER

European Central Bank (2011): Trends in potential output. *Monthly Bulletin,* 2011/1