

Hungarian Central Government Debt Ratio May Decline After 2009

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The following analysis concludes that the international credit line provided by the IMF, EU and World Bank creates no additional government debt outstanding for Hungary in the medium and long run. After a temporary rise, the Hungarian government debt ratio may start to decrease as early as 2010. The key factor in the development of the debt ratio is persistent fiscal discipline. Primary budget balances of 2-3 per cent of GDP in the following years seem to be sufficient for a descending debt ratio. In addition, fiscal discipline may have favourable indirect effects on the development of government debt through declining real interest rates and an appreciating foreign exchange rate. It might as well promote additional economic growth.

Introduction

There have been several articles published recently in the Hungarian online media forecasting explosive trends for the Hungarian government debt ratio. Some market analysts stated that the path of the Hungarian government debt had become unsustainable and therefore a drastic shock therapy was needed in fiscal policy.¹

Regarding Hungary's economic advancement, the relatively high government debt to GDP ratio is unfavourable due to the interest payments and does not promote the country's Eurozone membership, either. However, the Hungarian Government Debt Management Agency (ÁKK) considers it to be important to clarify the current misunderstandings about government debt trends.

In the following, we apply first a simple model to analyze the impact of the international credit line on debt ratio trends as well as to demonstrate the importance of calibrating reasonable values for decisive macroeconomic parameters. Later we will introduce a somewhat more sophisticated model to make projections for the Hungarian government debt ratio until 2020.

The Model

The path of the government debt ratio can easily be studied considering a simple economic model with variables including real interest rate, primary budget balance ratio and economic growth. Let b_1 denote the debt ratio at the end of the year, b_0 the debt ratio at the end of the previous year, r_1 the average real interest rate that applies to the real interest payments during the year in accordance with the real debt outstanding at the beginning of the year. In addition, let g_1 denote the real growth rate and f_1 the primary budget balance as percentage of GDP. It is then easy to see that the following equation holds:

$$b_1 = b_0 \cdot \frac{1+r_1}{1+g_1} - f_1$$

In the current circumstances, however, it seems to be inevitable in debt models to take account of the impacts of the international credit line. Ignoring the effects of this uncommon institutional credit may lead to serious miscalculations in both short and long-term forecasting of debt ratio trends. From 2008 on, one should therefore be aware that drawings on the credit line increase, debt

¹See István Madár (Portfolio.hu, 20.02.2009.), Péter Duronelly (Index.hu, 10.03.2009.), István Hamecz (Portfolio.hu, 10.03.2009.). Exceptions are e.g. János Samu (Index.hu, 18.03.2009.), Roland Baksa (Index.hu, 22.03.2009.).

redemptions and repurchases financed by this credit decrease, while new market credits to finance the pay-offs of this institutional credit increase the debt outstanding.

One should also note that the macro parameters in the model fully determine the path of the government debt ratio. Applying the above equation it is easy to understand that if one calculates with persistent high real interest rates and low economic growth, the debt to GDP ratio will necessarily explode unless a favourable primary balance ratio counterbalances the effects of the other two parameters. The task of economic policy is, however, to prevent such a debt spiral. Macro modelling indicates that the room for fiscal policy to stop undesirable processes is rather large². After studying the effects of the credit line we therefore take a closer look at the calibration of the macro parameters.

The Effects of the IMF-EU-World Bank Credit Line

Analysts at ÁKK believe that one of the main reasons certain market analysts induced a pessimistic picture of Hungarian government debt development might be the inappropriate treatment of the international credit line in debt models. It is not correct to assume that as an effect of drawing on the credit line government debt will permanently increase by 20 billion euros³, creating a high base of government debt to worsen further through mounting interest payments. By drawing down the institutional credit, headline debt outstanding is boosted, however, at the maturity of the credit line, government debt will return to its original path, picking up approximately the same values as if government financing were carried out “smoother in time” from market sources.

Part of the drawn credit forms a deposit from ÁKK at the National Bank of Hungary (NBH); increasing the foreign exchange reserves of the state. Other parts have been and will be used to finance redemption and repurchase of government bonds, while a smaller part is for stabilizing the local banking sector. The deposit at NBH is held for security purposes and this amount of money will be available for paying off the international credit. Most of the credit provided for the banking sector will also be available by the time of the maturity of the credit line. The government may as well profit from these transactions provided it overcharges the IMF-rates.

The sums from which ÁKK finances debt redemptions and repurchases will gradually lower the headline debt ratio, since there is no need to create new debt when financing from the international credit drawn previously. In addition, when paying off the credit during 2011-2014, debt outstanding will not increase as a result of the redemption process. As a matter of fact, the debt ratio will actually fall provided there remains unused institutional credit. It is important to understand that with the international credit line, there has arisen no additional financing need for Hungary. What happened is that for some years the government is financing parts of its bond redemptions and government deficit from an institutional credit that is drawn in a rather “front-loaded” way instead of from more evenly timed issuance of market instruments.

Figure 1 demonstrates why it is essential to properly manage the effects of the international credit in debt models. In ten years time, the aforementioned miscalculation may result in a 30 percentage point higher debt ratio.⁴ For clarity, there has also been modelled a hypothetical situation as if the government were financed from the market instead of institutional credit. According to the original financing plan of ÁKK for 2008, without the effects of the drawn and used international credit, government debt ratio would have been slightly above 63 per cent at the end of 2008. Starting with this debt level, according to the simple model, one can determine an alternative path

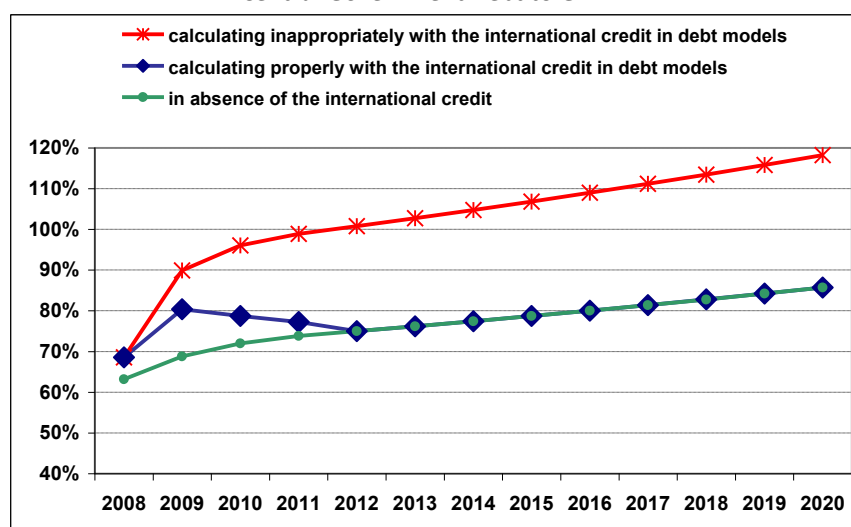
² One percentage point cut of expenses and therefore 1 percentage point improvement in the primary budget balance in ten years time may lead to an approximately 10 percentage point improvement in the debt ratio.

³ This is approximately the total sum of the joint credit facility.

⁴ Rise in the debt ratio after 2012 stems from the pessimistic macro parameters.

for the debt ratio. Figure 1 shows that institutional credit drawn in advance in huge tranches is lifting temporarily the government debt ratio – only to get back to its “original path” in a few years time.

Figure 1: The Debt Model with Pessimistic* Macro Parameters
*Central Government Debt to GDP***



* Table 1 contains model assumptions in detail.

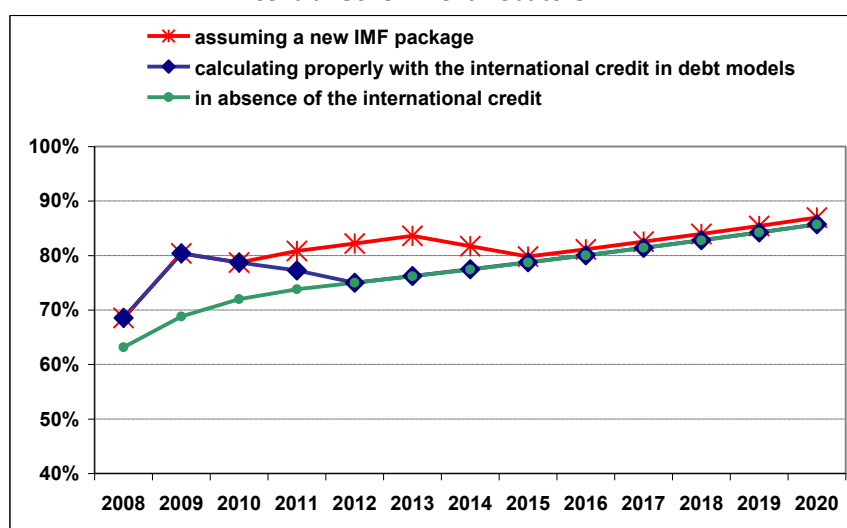
** When calculating the debt ratio we consider central government debt and do not take account of local government debt. At the end of 2008, the central government debt ratio was about 5 percentage points lower than the so called Maastricht debt ratio that is considered by the Excessive Deficit Procedure of the Stability and Growth Pact. However, strong co-movement of these two debt ratios is expected to continue in the future.

As we can see, IMF credit has no tangible effect on the debt ratio in the medium run; it just substitutes the narrowed financing sources, which was one of the economic consequences of the international financial crisis.⁵ Theoretically, the only difference between financing with or without the help of the international credit lies in the altering interest payments. There exists a so called trade-off, since the interests of the institutional credit are likely to be less than that of a possible alternative market-based financing from the foreign exchange bond market. At the same time, however, drawing large sums of credit tranches and keeping parts of them unused for a while (or even for years) results in interest losses for the state as comparison to market financing that matches better the actual redemptions and financing needs.

We have also studied the case of a “new IMF package”. It cannot be excluded that turmoil in the bond markets lasts longer than was expected at the time of the credit line agreement. However, a new IMF contract would be a refinancing package providing nothing more but additional years for confident financing until the reassuring stabilization of bond markets. The first package alike, a hypothetical second one would not make the debt ratio get out of its original track, though it might keep the headline ratio somewhat higher for some additional years. The new credit facility would mean an extension of the previous one as a matter of time and not as a matter of quantity, which implies that the IMF would not necessarily need additional financing sources to provide. Figure 2 shows the hypothetical effects of a renewed credit line on the path of the debt ratio.

⁵ Debt ratios in 2009 and 2010 may vary according to the timing of draws and use of the credit line. Assuming less redemption and more NBH deposit in 2010, for instance, it is possible that contrary to the above described basic scenario the Hungarian debt ratio will start to fall only from 2011 on. In the medium run, however, timing of draws and use does not affect the debt path, which means that the debt ratio will get back to the original trend, determined by the financing needs of the state.

Figure 2: Extension of the Credit Line under Pessimistic Macro Conditions
Central Government Debt to GDP



Macroeconomic Variables in the Debt Model

Besides miscalculations about the effects of the international credit in debt models, it is the unreasonably pessimistic values of macro parameters that may cause the explosive trends of Hungarian government debt ratio in the examinations of certain market analysts. They might calculate by assuming unreasonable real interest rates, too low primary budget surpluses and permanently slow economic growth.

Real Interest Rates

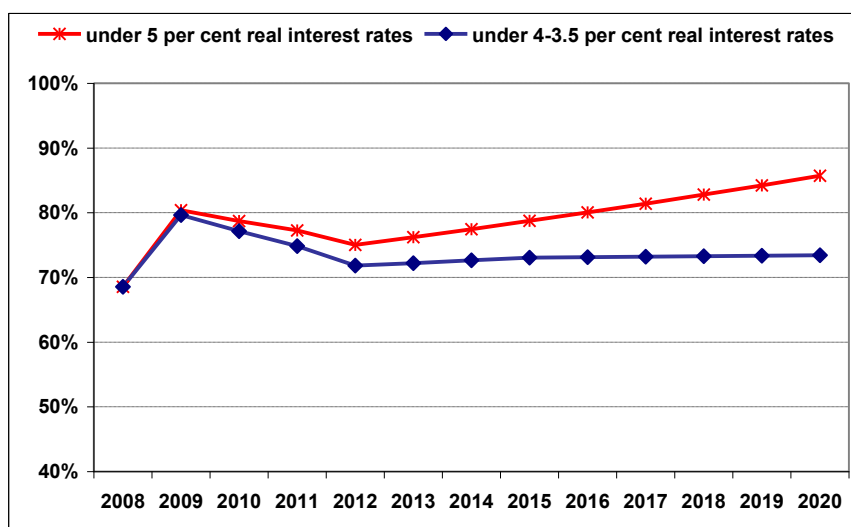
When calibrating the values of real interest rates, a possible mistake is to apply the current secondary bond market rates. Interest payments, however, are determined by the average interest rate that applies to the debt stock and they are not necessarily affected by secondary market rates. For instance, from October 2008 onward, there have been practically no Hungarian government bond auctions with maturities more than one year. As a consequence, the relatively high secondary market long-term yields were not realized in the primary market. Though auctions of short-term treasury bills have not been interrupted in the higher yield environment (this fact indicates that Hungary is being financed by the market, as opposed to several statements in the media), re-pricing of the aggregate debt outstanding is still a rather slow and gradual process.

One of the reasons for this is that ÁKK has been financing the state mostly with fixed rate long-term HUF denominated government bonds and hence in the upcoming years the average interest rate that applies to the debt stock is strongly affected by the yields of bond auctions held in the previous years. The duration of the HUF denominated government bond stock (with an average nominal interest rate of about 8 per cent in 2008) amounts to 2.35 years, which indicates that a hypothetical persistent high yield environment would only slowly and gradually re-price the debt outstanding over the years. It is also worth noting that ÁKK has financed the state in a proportion of about 30 per cent in euro-denominated bonds with relatively low yields. In addition, the interest rates of the international credit are relatively low as well.

Between 2005 and 2008 the average nominal interest rate of the HUF denominated debt outstanding was about 8 per cent while that of the euro denominated debt was around 4 per cent. This implied an approximately 6.9 per cent nominal interest rate and a real interest rate between 1.5-3 per cent (depending on the measurement of inflation, i.e. CPI or GDP-deflator) for the whole debt portfolio in the past four years. In addition, it seems to be more reasonable to assume that after

the turmoil has passed and Hungary comes closer to Euro zone membership, auction yields will be diminishing, which will eventually result in a decrease in real interest rates as well. Figure 3 shows the path of the debt ratio under the conditions of 3.5-4 per cent of real interest rates instead of 5 per cent of the values used in Figure 1 and 2. One can see how important the calibration of this single parameter can be when deciding whether the debt path is sustainable or not.

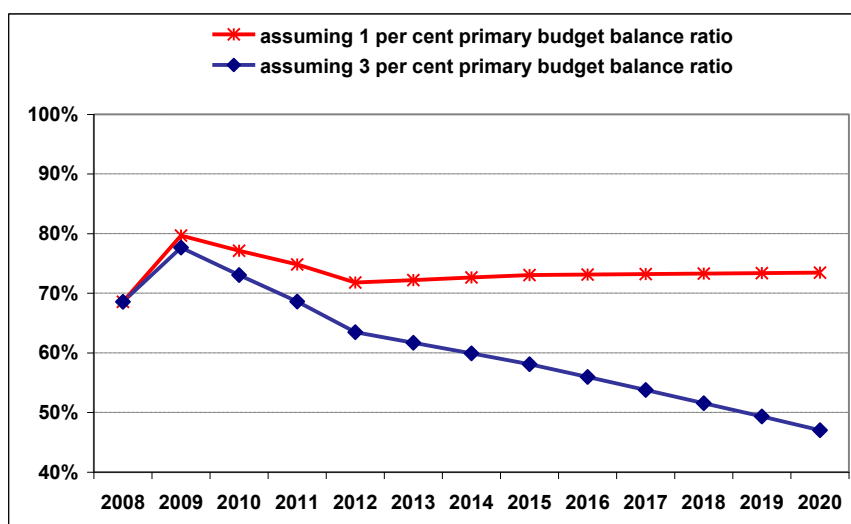
Figure 3: Applying Reasonable Assumptions of Real Interest Rates
Central Government Debt to GDP



Primary Budget Balance, Fiscal Room for the Government

Figure 3 shows that without miscalculations about the international credit, applying prudent but not unreasonable real interest rates for the following years, Hungarian government debt ratio would diminish between 2009 and 2012 to stagnate afterwards. The reason for that are a relatively low 1 per cent primary budget balance ratio and a rather pessimistic 2 per cent long-term economic growth in the model. Figure 4, however, demonstrates how remarkable fiscal room the Hungarian government may have in managing debt ratio trends. Suppose a resolute government that is concerned to bring down the debt ratio, reaching a permanent 3 per cent primary balance ratio, modelling shows that despite low economic performance, central government debt ratio would fall below 60 per cent as early as 2014.

Figure 4: Fiscal Room is Remarkable
Central Government Debt to GDP

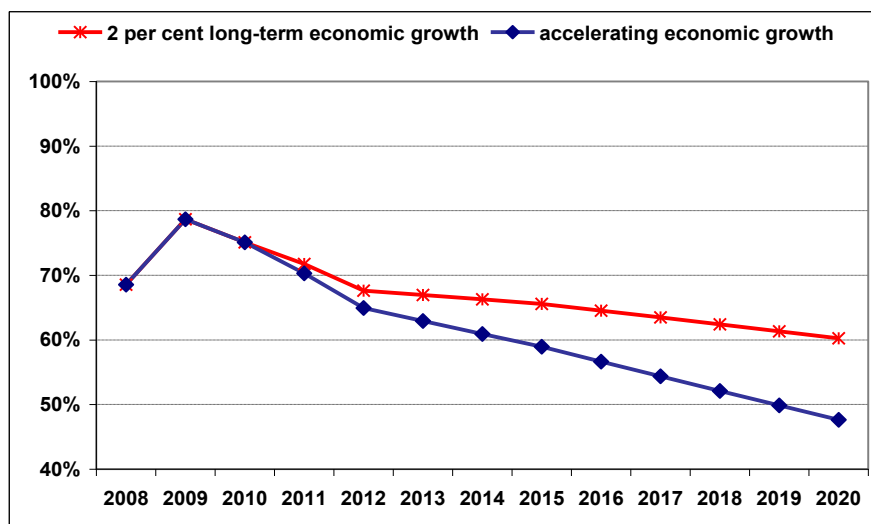


Accordingly, Hungary may have the potential to follow a reasonable policy under which debt outstanding declines dynamically in the following years. Fiscal discipline, however, should be persistent, which means that improvement in the primary balance ought not to be eroded during the following years. Structural fiscal restrictions that automatically conserve lower budget expenses could support this goal better than one-off charges.

Economic Growth

Market analysts tend to assume in their debt models a 2 per cent economic growth for the Hungarian economy. The National Bank of Hungary estimates currently a 2 per cent potential GDP growth rate, however, it does not mean necessarily the long-term economic growth. A few years ago the estimates were higher and it seems to be possible that adequate reforms to encourage employment would result in a 3-4 per cent or even higher potential GDP growth rate. Figure 5 represents the impact of an accelerated economy (this time we assume a 2 per cent permanent primary balance ratio).

Figure 5: Accelerating Economy Helps to Grow Out Government Debt
Central Government Debt to GDP



Fiscal policy makers may draw the lesson from the above examination that a smaller restriction that also encourages steady economic growth might be more favourable for the government debt path than larger scale austerity measures without structural changes.

Albeit the scale of recession Hungary will suffer in 2009 does not affect significantly the long-run path of the debt ratio, the degree of fallback determines the extent of the necessary cut to budget expenses, since budget incomes tend to be more flexible than budget expenses. Hence, along with worsening economic growth figures restrictions ought to be larger, provided the government insists on the 1.5 per cent goal of the primary balance ratio.⁶

Table 1 shows the assumptions for Figure 1 to Figure 5 in detail:

⁶ According to estimates a 1 percentage point decline in the growth rate implies approximately an additional HUF 70-80 billion cut in budget expenses, provided the government sustains its primary balance goal. As a matter of fact there exists rather a short-term growth trap than a long-term debt spiral since the greater the restrictions are the deeper the recession might be which implies further budget cuts again. In a situation like that fiscal policy becomes pro-cyclical instead of being counter-cyclical. Thus, a reasonable compromise is needed when planning budget expenses for 2009-2010.

Table 1: Model Assumptions for Figure 1-5 in Detail

	Assumptions of Parameters				
	Figure 1 pessimistic assumptions	Figure 3 4-3.5% real interest rates	Figure 4 3 per cent primary surplus	Figure 5 2 per cent growth	Figure 5 accelerated growth
Real Interest Rate	5%	Until 2015 4% From 2016 3,5%	Until 2015 4% From 2016 3,5%	Until 2015 4% From 2016 3,5%	Until 2015 4% From 2016 3,5%
Primary Budget Balance Ratio	1%	1%	3%	2%	2%
Real Economic Growth	From 2009 -5%, -1%, 1% From 2012 2%	From 2009 -5%, -1%, 1% From 2012 2%	From 2009 -5%, -1%, 1% From 2012 2%	From 2009 -5%, -1%, 1% From 2012 2%	From 2009 -5%, -1%, 3% From 2012 4%

* The euro denominated credits of IMF, EU and WB were calculated at 300 HUF/EUR

Debt Ratio Projection by ÁKK

Until now we have conducted our analysis with a simple real model that was presumably the analytical background for market analysts. We have demonstrated the significance of proper calculations with the international credit line, as well as the importance of reasonable assumptions for macroeconomic parameters. However, such simple models do not take account of indebtedness in foreign exchange.

Hungary has been financing the central government by about 30 per cent via foreign currency denominated bonds, so in the following we apply a somewhat more complicated model that also takes into account foreign exchange debt. This model is nominal and hence the effects of changes in foreign exchange rates and inflation can be modelled as such. In addition, when calculating the debt path we applied the financing plan of ÁKK to estimate the debt ratio at the end of 2009. Figure 6 shows a basic, an optimistic and a pessimistic debt path calculated by this model.

Figure 6: Path of Debt Ratio Calculated by ÁKK Model
Central Government Debt to GDP

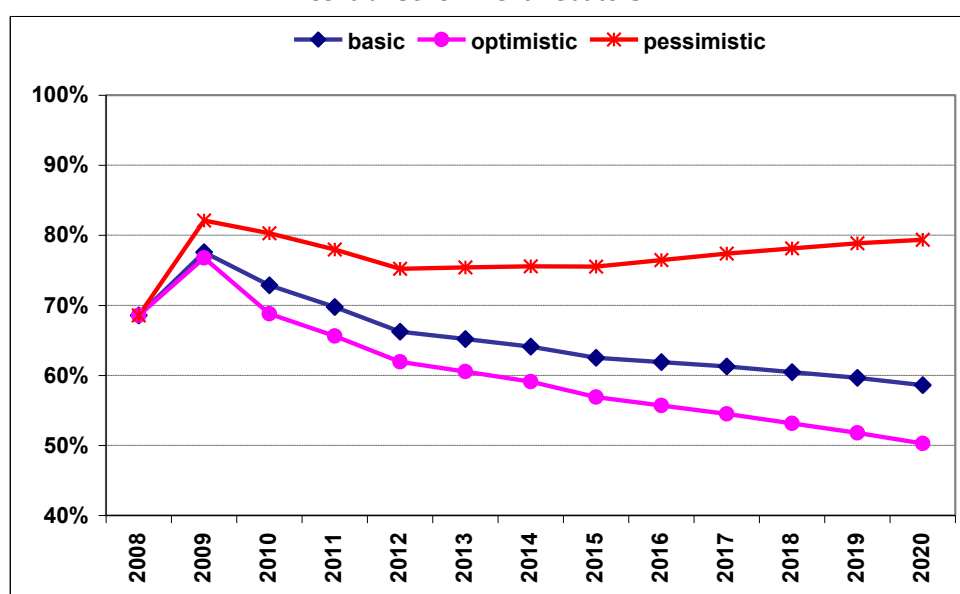


Table 2 contains the macroeconomic assumptions in detail:

Table 2: Macroeconomic Assumptions for Figure 6

	Assumptions of Parameters		
	Basic	Optimistic	Pessimistic
GDP-deflator	For 2009 4% For 2010 3.5% From 2011 3%	For 2009 4% For 2010 3.5% From 2011 3%	For 2009 4% For 2010 3.5% From 2011 3%
Average Nominal HUF Interest Rate	For 2009 8.5% For 2010 9% 2011-2014 8.5% 2015-2020 decreases gradually to 6.5%	For 2009 8.5% For 2010 8.5% 2011-2014 8% 2015-2020 decreases gradually to 6.5%	For 2009 8.5% For 2010 9.5% 2011-2014 9% 2015-2020 decreases gradually to 7.5%
Average Nominal EUR Interest Rate	Until 2011 4.4% 2012-2014 5.5% From 2015 5%	Until 2011 4.4% From 2012 5%	Until 2011 4.4% From 2012 6%
EUR-HUF Exchange Rate	For 2009 300 From 2010 290	For 2009 300 From 2010 270	320
Primary Budget Balance Ratio	For 2009 1.5% 2010-2015 2% From 2016 1%	For 2009 1.5% 2010-2015 2% From 2016 1%	For 2009 1.5% 2010-2015 2% From 2016 1%
Real Economic Growth	From 2009 -5%, -1%, 1%, 2% 2013-2020 3%	From 2009 -4%, 0%, 1%, 2%, 3%, 3% 2013-2020 4%	From 2009 -7%, -3%, 0%, 1% From 2013 2%

We would like to emphasize that all three above displayed debt paths are moderately optimistic in a way that they assume persistent fiscal discipline (i.e. 2 per cent primary budget balance ratio) between 2010 and 2015. At the same time, we consider even the “basic” scenario to be prudent, presuming rather high interest rates and slow economic growth, together with a permanently weak exchange rate. The “optimistic” path is intended to be conservative as well, while in the “pessimistic” scenario we calculated with deeper recession than generally expected, along with high interest rates and an unexpectedly weak exchange rate of 320 HUF/EUR.

As we can see, debt ratio diminishes gradually after 2009 both in the “optimistic” and “basic” version. We underline that debt development does not appear to be unsustainable under very pessimistic macroeconomic conditions, either. In the “pessimistic” scenario debt ratio peaks at about 80 per cent in 2020 and descends slowly afterwards (which is due to the assumed 6 per cent interest rates). As we stated before in the previous section, in comparison to the displayed paths the debt ratio could be reduced further without unreasonable fiscal restrictions, say, a persistent 3 per cent primary balance ratio instead of 2.

Also, we note that the headline government debt ratio strongly depends on the HUF/EUR exchange rate. As a consequence of the foreign currency denominated debt stock, a weaker foreign exchange rate automatically results in a higher debt figure. The headline debt is especially sensitive to the exchange rate in a period when the state has drawn large tranches from the foreign exchange denominated credit line. At the end of 2008 the forint-euro exchange rate was 265, in the meantime the exchange rate has reached levels above 300. In our basic scenario under the condition of a 300 HUF/EUR exchange rate at the end of 2009 the debt ratio would be 77.6 per cent; however, an exchange rate of 270 or 320 would mean 73.3 and 80.4 per cent debt ratios, respectively. In case we consider the current high exchange rate levels to be temporary, the exchange rate channel can be another important source of a diminishing debt ratio in the future.

One of the most important conclusions of this article is that the international credit line results in no additional indebtedness for Hungary in the medium and long term. Debt path is determined by financing needs of the government and it has little or nothing to do with financing technique. Thus, it has no perceivable effect on the debt ratio in the medium term whether the government finances through market credit or via institutional credit.

It is also worth stressing that after the temporary technical rise, the Hungarian government debt to GDP ratio may start to decrease as early as 2010. Whether the decline remains to be persistent after 2012 depends on fiscal discipline, real interest rates and economic growth at the time.

We found that the key parameter in shaping the debt path might be long-term fiscal discipline. On the one hand, central government has a remarkable fiscal room directly through the primary balance in diminishing government debt. On the other hand, fiscal discipline might be a key factor to reach lower real interest rates, strengthen and stabilize the real exchange rate or even accelerate economic growth; having additional indirect impacts on government debt development.

Modelling has proved that a permanent 2 or 3 per cent primary balance ratio may be sufficient to achieve a decreasing government debt path. In the long run, however, a sustainable positive primary balance could be attained rather through structural reforms than one-off budget cuts. When planning fiscal policy, one should also remember that steps to encourage employment could also be fruitful to a favourable debt development through the economic growth channel.