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# *The Relationship Between Fiscal Consolidation and Sovereign Debt*

## *Does Fiscal Correction Decrease or Increase Debt Rate?*

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**SUMMARY:** Today, the global economic environment can be described as “gracious”. The macro-economic framework created by interest rates close to zero and global excess liquidity enables the financing of high sovereign debt positions under market conditions. On the other hand, reducing sovereign debt as soon as possible is a necessary and indispensable economic policy measure. The study looks at the role of fiscal consolidation in debt reduction. Debt rate can be reduced in two main ways: by increasing the primary balance or through economic growth. Due to the Keynesian mechanisms of action, fiscal correction requires growth sacrifice, which may decrease or completely eliminate the positive effects of corrective measures. Corrective measures focusing on the revenue or the expenditure side may have different effects on output and debt reduction, depending on their degree, duration and nature. Based on the review of scientific literature and statistical analyses, it can be stated that the growth effect plays a key role in reducing the debt rate. In addition, the criteria for success include favourable economic environment, a low fiscal multiplier, and also identifiable steady expenditure-side measures.<sup>1</sup>

**KEYWORDS:** fiscal correction, debt rate, economic growth, sovereign debt, growth effect

**JEL CODES:** E62, H62, H63, O23

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**I**t has been ten years since the outbreak of the global economic crisis of 2007–2008. Currently, the global economic environment seems to be favourable. The character of global economic growth is healthier as underlined by the 2017 Q2 growth figures as well. The economy of the USA grew by 1.6 per cent, while the real GDP expansion in the euro area was 1.8 per cent in the previous quarter. Considering the whole European Union, the growth rate reached 1.9 per cent based on the

indicator above. However, imbalances have not ceased to exist in the global economy. A few quarters earlier, developed economies were threatened by slow recovery and secular stagnation, while in emerging and developing countries, the dynamics of growth slackened compared to the level before the crisis. In line with the acceleration of the growth rate, sovereign debt to GDP ratio has decreased, as well, but the level of real debt has not changed (in several economies, it has even grown). The debt rate playing a key role in fiscal sustainability has reached a historic level in

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developed economies, and may also become a risk factor in the event of a contingent shock. According to many analysts and economists, such a shock in the financial, real estate or currency markets can be considered a real hazard. As stock market indices and real estate prices have been steadily growing for several years, the bubbles exist both in the financial and the real estate markets.

Currently, only a limited number of economic policy options is available for the management of a crisis escalating due to bursting market bubbles and the turbulences generated. In today's economic environment, there is very little room for monetary policy manoeuvres. The increased money supply available in the global economy owing to interest rates close to zero and to quantitative easing programmes, may limit the success of future monetary policy. Current low interest rates restrict the possibility of further monetary easing considerably. Moreover, the further increase of money supply may also be limited and may have moderate effects. As a result, the stimulation of growth may be slowed through aggregate demand. Quantitative easing, which was used in the management of the crisis, has been given up only in the USA, where the Federal Reserve has started a trend of monetary tightening. Only with its announcement at the end of October 2017 did the European Central Bank join the *tapering* process, while the Quantitative Easing programme is still being implemented in the Japanese economy, though in part for different reasons. At the same time, low interest rates facilitate the financing of sovereign debt of severely indebted states. Together with the favourable global economic environment, easier market financing has created a gracious state that, with the help of lower yield, hides the structural and organisational problems of individual economies, including risks posed by high sovereign debt. In the event of a potential crisis caused

by the imperfect functioning of the market, hazards may come quickly to the surface and escalate. As the international investment environment becomes risk averse, the market financing of the sovereign debt of countries with a high debt rate may become more difficult or even impossible. The risk averse market attitude may deteriorate the credit rating of sovereign debt of economies with high state debt, increasing CDS spreads and interest rates. As a result, the increased level of sovereign debt and the financing difficulties it involves may restrict the freedom of action regarding fiscal policy. Consequently, the economic policy will have a limited number of options for crisis management on the fiscal as well as on the monetary side.

Nowadays, the global economic environment is characterised by duality. The start of economic growth and the end of the recovery period contributes to the improvement of the labour market situation, convergence processes and the increase of wealth in developed economies, as well. At the same time, certain risk factors should not be ignored, as on the one hand, they may aggravate imbalances arising from market turbulences, on the other hand, they may lead to the further restriction of possibilities in the field of economic policy. In view of the above, the management of increased sovereign debt is a justified economic policy measure and research field, a possible method of which is fiscal consolidation. Therefore, this study focuses on the analysis of the role of fiscal corrective measures in reducing sovereign debt. The aim of this study is to place the relationships between sovereign debt and fiscal correction into a complex framework system supported also by the established structure. The starting point is the examination of current sovereign debt positions, in the course of which the denominator effect and the numerator effect of the debt rate are separated in the Member States of the Euro-

pean Union. Once the growth aspects of fiscal consolidation are identified, mechanisms of action directly affecting sovereign debt are to be analysed. The study ends with a summary and the conclusions drawn.

### OUTLOOK ON TRENDS IN SOVEREIGN DEBTS ON A GLOBAL LEVEL

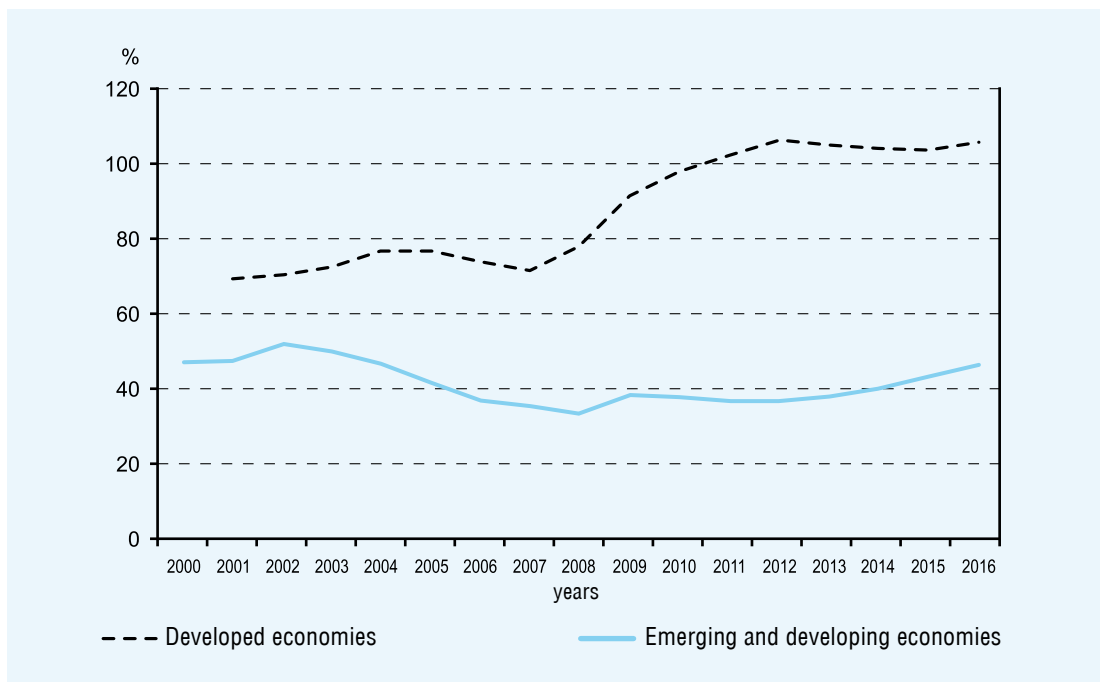
If you look at the change in the debt rates since the early 2000s, you will find that this indicator represented stagnation or slow increase in developed economies until the 2008 financial crisis. Its average value was 73.3 per cent. At the same time, in developing and emerging economies, the debt rate decreased owing to the higher growth rate. The tendencies in the two groups of countries became different

starting from 2002. The trend strengthened further more in the period of recovery, and the difference in the value of the debt rate grew more dynamically. In developed countries, stronger dynamics are attributable to the significantly increased total debt arising from the negative macro-economic processes during the crisis/crisis management as well as to lower growth rates. Meanwhile, the dynamics of the increase in the sovereign debt to GDP ratio in emerging and developing markets has been less intense since 2008 (see *Figure 1*).

The aspects of growth have to be highlighted, as the global economic crisis caused a discontinuity in potential growth, leading to global recession by 2009. Recovery after the crisis did not mean the continuation of the trend of growth paths preceding the Great Moderation. Moreover, the shift distorted the

Figure 1

#### THE CHANGE OF SOVEREIGN DEBT IN DEVELOPED, EMERGING AND DEVELOPING ECONOMIES (AS A PERCENTAGE OF GDP)



Source: Own editing based on IMF data (2017b)

earlier tendency and lead to more moderate growth rates both in developed and developing economies, which had a negative effect on the change in debt rates.

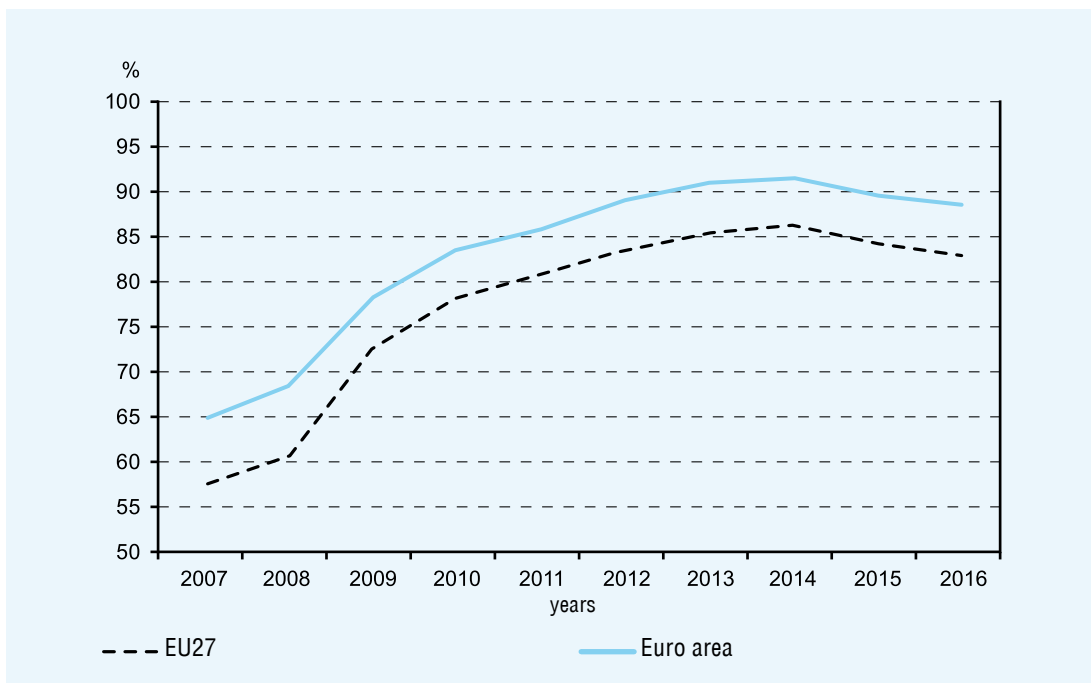
In 2010, the European sovereign debt crisis put a new light on the problem of sustainable national debt. The debt crisis in the periphery countries and especially in Greece was the first crisis that broke out in developed economies, revealing the weaknesses of the Economic and Monetary Union (EMU). Due to the deficiencies of the EMU and the implementation of monetary integration without the characteristics of supranational fiscal policy, uniform fiscal crisis management was more difficult in the EU, resulting in the escalation of negative turbulences. Although the growth rate seems to have been accelerating and the debt rate has decreased after the long recovery period, this

result can only be considered a moderate success. Compared to the historic level in 2014, the index has dropped only 3.2 percentage points in the European Union, while 2 percentage points in the euro area. The result is especially moderate considering the fact that during the crisis and the extended recovery period the debt rate grew by 26.9 percentage points in the euro area and by 28.9 percentage points in the EU28 Member States (see *Figure 2*).

A more detailed analysis of debt positions gives a more complex overview. When examining the connections, the composition of the falling debt rate should be regarded as an important factor, as well, because it indicates how the volume of debt and the growth contribute to the change of the indicator. It should be noted that the sovereign debt to GDP ratio has

Figure 2

**CHANGE OF SOVEREIGN DEBT IN THE MEMBER STATES OF THE EU28 AND THE EURO AREA  
(AS A PERCENTAGE OF GDP)**



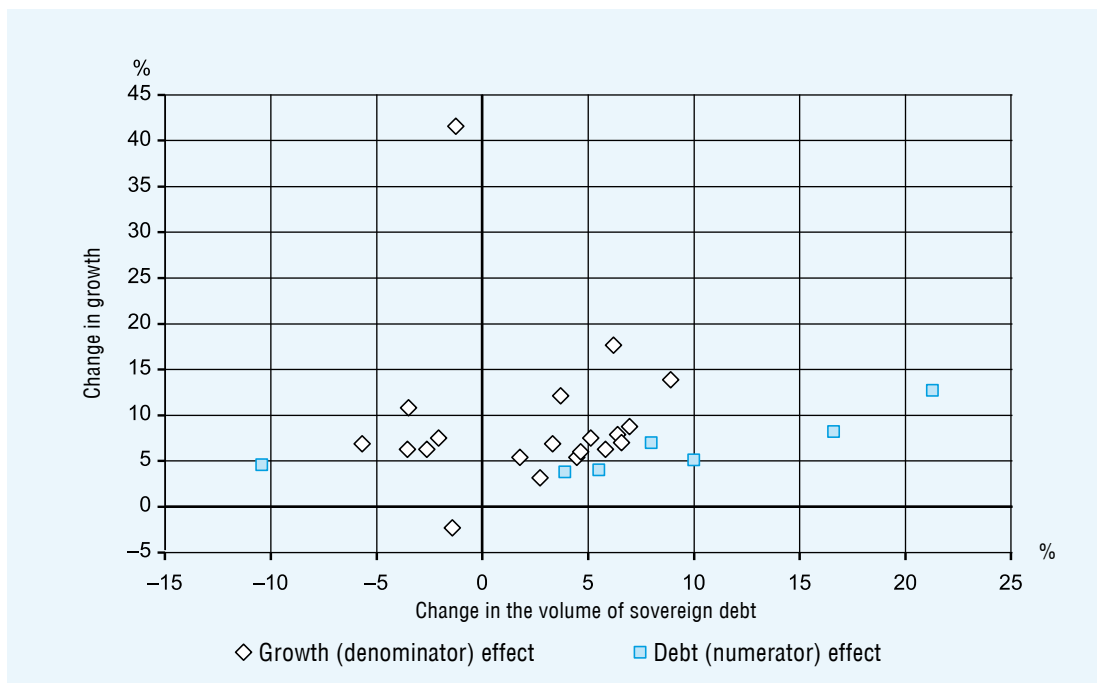
Source: Own editing based on Eurostat data

dropped in most Member States over the past few years due to the more intense growth after the recovery from the crisis. In other words, the debt has “grown away”. If the aforementioned statement is considered to be hypothesis and the change of the ratio over the past two years is examined by means of empirical data, it is obvious that the drop of the ratio is caused by the growth effect (denominator effect). Due to the short-term effects of the long recovery and crisis management period, significant economic growth started only in 2014, therefore I consider that as a starting year, and I compare data to the most recent available data from 2016. Based on the results, Member States can be clearly divided into two categories: countries affected by the numerator effect and countries affected by the denominator effect (see *Figure 3*).

The numerator effect can be proven in the case of 7 Member States (Bulgaria, Denmark, the United Kingdom, Finland, France, Italy and Poland), which means that the change of the debt rate was affected much more by the change in the volume of sovereign debt than by the change in growth. It should be emphasised that in countries influenced by debt, excluding Denmark, the debt rate increased owing to the change in the examined period, which means that the increase of the debt rate can be explained by the fact that the total debt grew at a higher rate than the output. When assessing the increase of the indicator, we should not ignore the macro-economic circumstance according to which the members of this country group, excluding France and Italy, have a lower sovereign debt to GDP ratio than the EU28 average. (Nevertheless, in

Figure 3

**GROWTH AND CHANGE IN THE VOLUME OF SOVEREIGN DEBT  
BETWEEN 2014 AND 2016 (%)**



Source: Own editing based on Eurostat data

the case of Bulgaria, Denmark and Poland, the value of the indicator does not even exceed the 60 per cent Maastricht threshold.) In the group of countries under the influence of the denominator effect, with the exception of Greece<sup>2</sup>, the debt rate dropped between 2014 and 2016, due to fact that the growth effect was stronger than the influence of the change in the volume of debt.<sup>3</sup>

We should not ignore the actual level of sovereign debt either, despite the fact that, as far as fiscal sustainability is concerned, the improvement of the debt rate due to the growth effect is beneficial. The aggregate level of the volume of debt grew in the European Community as well as in the whole euro area. In addition, the growth rate of the economies in the euro area is lower, while the increase of the volume of debt is higher than in the European Union, therefore the decrease of the debt rate was more moderate. At the level of the Member States, the tendency is clearer: the decreasing debt rate is due only to the growth effect. In the period under review (i.e. between 2014 and 2016), the value of the debt rate dropped in 23 of the 28 Member States, while the volume of sovereign debt was lower only in 8 countries.

If we look at the economic growth, we see that only Greece suffered from recession in the period in question, while the dynamics of real GDP growth slackened in 10 Member States between 2014 and 2016. At the same time, the real GDP increased by 0.1 percentage point at the EU aggregate level compared to 2014, while it dropped by 0.4 percentage points compared to the figure from 2015. In 9 countries out of the Member States in which the growth rate of the real GDP has become higher since 2014, the degree of growth was below the average growth level (in the case of Denmark, the two values were the same). Consequently, despite the favourable change in the real GDP rate, the growth dynamics

was changeable. Currently, its continuity is still regarded as limited.

In spite of the decrease in the debt rate due to the growth effect, the volume of sovereign debt is a problem that has to be still solved, as in the event of an incidental shock, the existing growth rates might suddenly trigger stagnation and recession. The decrease in aggregate demand may increase the sovereign debt rate in a multiplicative manner, owing to the denominator and through the revenue side of the balance of the budget. The discretionary fiscal policy measures applied during a crisis negatively affect the expenditure side of the budget through the numerator effect by increasing the total debt. Such measures may result in structural changes, but can also be suitable for crisis management (demand stimulation, stabilisation of the labour market). So sovereign debt rates, which are high in the period of economic boom, might soar during a recession. The low CDS spreads and the interest rates on sovereign debt might suddenly rise, which could question fiscal sustainability and lead to sovereign debt problems. Based on the mechanisms of action and empirical results above, despite favourable economic growth and the positive denominator effect, the maintenance or possible reduction of the volume of sovereign debt continues to be one of the fundamental fiscal policy related problems that need to be solved.

## THE KEYNESIAN MECHANISMS OF ACTION OF FISCAL CORRECTION

Based on the growth effect identified in the chapter above, it is essential to identify the mechanisms of action of fiscal correction on growth. The currently favourable economic environment and growth prospects can be seriously affected by consolidation measures applied for the purpose of reducing debt.

At the same time, the efforts taken to achieve fiscal correction and the permanently high surplus of the primary balance are important elements of debt reduction (ECB, 2009; ECB, 2011). Therefore, it is essential to examine the change in primary balances in the individual Member States over the recent period. According to IMF data (2017a), the average value of primary balance was  $-1.4$  per cent in the euro area. In the last closed financial year, this indicator showed a surplus only in  $\frac{2}{3}$  of the Member States. In the Member States with a surplus, the average value of the indicator was  $1.3$  per cent in 2016, which is considered to be fairly low. A similar rate was revealed during the examination of the cyclically-adjusted primary balance of the group of countries with surplus, where the value of the indicator was even lower ( $1$  per cent). On the other hand, the value of the indicator was  $-1.1$  per cent in the euro area in 2016. The negative value of the two indicators in the euro area as well as the low average of the countries with a surplus clearly show the necessity of fiscal correction in order to promote the reduction of total debt. The idea above is supported by the fact that the primary balance and the cyclically-adjusted version of it showed a surplus in most countries only in the last two years, which means that today, even the future permanence of the surplus is questionable.

In the course of the sovereign debt crisis, there was negative reaction to fiscal correction due to the fiscal multiplier. The fiscal multiplier expresses to what extent and how the changes in the individual fiscal variables affect the level of potential output as a result of discretionary fiscal policy measures. The value of the multiplier was significantly higher in an economic environment suffering from recession than during an average period or economic prosperity (Gechert et al., 2015). Based on the analyses conducted by *Blanchard, Leigh* (2013), we have to state that in the research

findings of the IMF, the value of the short-term fiscal multiplier was significantly higher, and it was much higher than one during the crisis.<sup>4</sup> During the crisis and crisis management, the value of the fiscal multiplier was underestimated, which could have considerably affected the efficiency of the applied fiscal policy measures, generating more serious effects on the potential output. The underestimation of the multiplier can lead to irrelevant consolidation targets. If a state fails to meet such targets, its credibility may be questioned (Eyraud, Weber, 2013). Despite problems related to the estimation of the fiscal multiplier, fiscal correction was necessary in the Community, especially in periphery countries, in the period after the sovereign debt crisis in order to restore confidence in fiscal sustainability and the sustainability of sovereign debt positions.

Theoretical and empirical research related to fiscal correction primarily focuses on the effects of the problem on economic growth. As far as economic growth is concerned, we can distinguish consolidation with Keynesian and non-Keynesian effect. The analytical framework of this study does not cover the identification of either the Keynesian effects or long-term relationships. The reason for this is that the Keynesian effects can have expansive influence through certain indirect and direct channels, as a result of which the denominator effect can clearly contribute to the decrease of the debt rate. However, this study seeks to analyse the possibilities of minimizing the growth sacrifice arising in addition to the traditional and more and more common Keynesian effects. Although the examination of changing debt paths and the convergence to equilibrium is required in the long run, the study focuses on debt positions and the changes that may occur therein.

Budgetary restriction may have Keynesian effects in the short run, which means that the implemented consolidation measures might



have a negative effect on the output. The degree of the growth sacrifice of various measures can be different. *Alesina et al.* (2014) emphasise that the effect of consolidation depends on the composition and time consistency of the correction, as more permanent measures have less negative effect. Corrective measures implemented on the expenditure side may be of greater benefit to the government than revenue-based measures (*Alesina, Ardagna, 2012*). The consolidation of the revenue side is more likely to lead to recession than the reduction of items of expenditure (*Alesina, Ardagna, 2009*). Given these assumptions, I focus on corrective measures on the expenditure side and on the identification of their mechanisms of action.

The short-term effects of consolidation on the expenditure side are arguable, but the reduction of expenditures in the long run may change the future expectations of the private sector related to taxes and may increase consumption, which might have a positive effect on growth (*Giavazzi, Pagano, 1990*). Empirical analyses have proven that the reduction of budgetary expenditures has only temporary and procyclic effects (*Cahuc, Carcillo, 2012*). Nevertheless, correction that only cuts expenditures is more likely to reduce primary deficit and have a positive effect on sovereign debt rate than restrictive measures based on tax increases (*Alesina, Ardagna, 2009*). On the other hand, an insufficiently implemented expenditure-reducing measure might have more serious negative effects than an unimplemented correction. Therefore on the expenditure side, it is important to distinguish productive and non-productive items of expenditure, as productive expenditures may generate additional income and profit, resulting in additionally higher efficiency and revenue. The reduction of productive expenditures might cause multiplicative losses. The elimination of non-productive expenditures may lead to

lower, sustainable taxes and positive effects on the supply side. Their reduction may have a positive effect on the output very fast (*Carnot, 2013*). However, it is important to note that households with limited access to financial markets depend the most on welfare transfers (*European Commission, 2010*). The reduction of transfers limits the disposable income of households, therefore it has high social costs. In the economies of the EU, transfers that are a kind of welfare expenditure constitute one of the main items on the expenditure side. In the short run, their reduction reduces consumption owing to their negative effect on households. On the other hand, in the long run, the reform of public welfare services can boost efficiency, increasing the level of employment and potential output (*Carnot, 2013*). The state of the economy can also have a serious influence on the growth sacrifice of correction. Economies where trade is more open and no fiscal consolidation is applied in recession environment are more likely to face Keynesian effects in the short run than economies with closed trade, suffering from recession (*Cugnasca, Rother, 2015*). *De Cos and Moral-Benito* (2011) also threw light upon the problem of endogeneity. The non-Keynesian mechanisms of action arise from exogenous fiscal consolidation. If the change in growth as well as the development are considered for fiscal policy measures (or in other word, endogenous fiscal consolidation is assumed), the Keynesian effects of correction will work. *Cottarelli, Jaramillo* (2012) identified three main channels through which growth slowed down due to Keynesian effects, influences financial variables: the debt rate, automatic stabilizers and the role of the financial market. As the role of automatic stabilizers is getting more important (in recessive economic environment), the expenditures are increasing, while tax revenues are decreasing. The deterioration of short-term growth prospects and



the increasing debt rate might result in the distrust of financial markets, thus questioning financeability and fiscal sustainability.

### THE MECHANISMS OF ACTION OF FISCAL CORRECTION AFFECTING DEBT RATE

The aspects of the growth effects of fiscal correction are closely related to the mechanisms affecting debt rate, as an improvement in debt rate may result from growth effect and a decrease in total debt. The two factors can ensure fiscal sustainability separately or jointly. In economics, the theoretical background of the lower rate can be derived from the equation of the fiscal constraint of the government:

$$b_t = \frac{1+r}{1+g} \times b_{t-1} - p_t$$

where  $b_t$  represents the debt rate in the period under review,  $b_{t-1}$  is the value of the cumulative debt rate prior to the period under review,  $r$  refers to the real interest rate,  $g$  to the change in growth rate, while  $p_t$  represents the value of the primary balance in the period under review.<sup>5</sup> If the rate of economic growth exceeds interest rates, the degree of indebtedness stagnates (Dedák, 1998). In this case, the growth effect works. *Dedák* (1998) emphasises that debt rate growth depends on the primary balance and the cumulative debt in the period preceding the year under review if the level of interest rates is higher than the growth rate. If interest rates exceed nominal growth, sovereign debt grows due to the so called snowball effect.

Growth is only an indirect factor in the reduction of the actual volume of debt. In the equation,  $b_{t-1}$  is an exogenous variable, while the change of interest rates may be influenced by monetary policy, the environment in international financial markets and the willingness

of investors to take risks. The role of changing interest rates should be defined, as well. In the case of debt contracts which are due to expire in the year under review, new liabilities may be only realised at a level lower than the stipulated interest rates, equalling the number of expiring liabilities, as new debt with higher interest rates would increase the percentage of interest costs spent on debt service, thus the debt rate, as well. Fiscal policy affects the value of the debt rate through primary balance. The surplus of the primary balance reduces, while its deficit increases the level of the total debt. Surplus enables the repayment of the existing debt service liabilities without creating new debt obligations, and the reduction of the total debt. Financing the deficit of the balance involves the accumulation of new debt obligations and an increase in total debt. *Ceteris paribus*, the reduction of the total debt has two basic requirements in connection with debt service. On the one hand, the interest condition pursuant to which the interest of debt liabilities should not exceed the interest rates of expiring liabilities. On the other hand, the surplus criterion for primary balance, which means that the newly realised total debt should be lower than the fulfilled liabilities related to sovereign debt due to expire in the year under review. Fiscal policy can have an influence on the improvement of primary balance and its surplus through corrective measures. Therefore, the aforementioned need for the reduction of total debt can be satisfied by means of fiscal correction. Nevertheless, it is essential that we examined whether the Keynesian effect of correction eliminates the positive effects of fiscal consolidation or not. In other words, the problem of restrictive measures affecting the change of the debt rate in a counterproductive way, arises, i.e. growth sacrifice will be greater than the positive effects arising from the improvement of the primary balance.

Despite the importance of the problem, international literature on the effect of fiscal correction on the debt rate is scarce. The existing theoretical and empirical literature is diverse, but mainstream research trends focus on the identification of mechanisms of action (especially on their short- and medium-term influence), relationships with the fiscal multiplier as well as the character of consolidation and the actual international environment. Regarding the effects, there is a consensus among different analyses. In the short run, correction has a negative effect on the output, and lower GDP influences the change of debt rate through the denominator effect, while automatic stabilizers through the numerator effect (Eyraud, Weber, 2013). Regarding the character of consolidation, there is relative agreement. The measures on the expenditure side can be regarded as successful in debt reduction. The reducing effect of fiscal consolidation on debt rate is significantly influenced by economic growth. In the case of growth problems, debt rate can demonstrably increase in the short run, especially in the event of correction on the expenditure side. Nevertheless, expenditure-based measures have proven to be more successful in debt reduction in the long run. As far as their composition is concerned, the low efficiency of the public sector, the reduction of subsidies, the number of public employees and wage expenditures are considered to be key to success. At the same time, the reduction of public investments has a counterproductive effect (Heylen et al., 2011). Almeida et al. (2011) analysed the short- and long-term effects of consolidation on the small economy of the euro area by using the new Keynesian model of general equilibrium. The reduction of transfers provided to households and that of government consumption entails lower short-term costs in the fields of investment and private consumption, resulting in lower

growth and welfare sacrifice. In the long run, the shift in taxes from taxes on labour to taxes on consumption may maximise advantages. This measure would be an incentive for investments, labour supply, and it would improve competitiveness owing to the decrease in real exchange rate. In the short run, debt increase is expected to last for no more than three years, but this period may be longer for severely indebted countries (Boussard et al., 2012). Based on their analysis conducted by means of the panel VAR model, Attinasi, Metelli (2016) anticipate that this period will last for four quarters.

The success of measures on the expenditure side in debt reduction is also underlined by the findings of analyses conducted on empirical data series. Based on their empirical analyses conducted in 13 EU Members States between 1980 and 2009, Cafiso, Cellini (2012) stated that consolidation measures taken on the expenditure side are more likely to reduce the debt rate than measures on the revenue side. Based on their examinations conducted in the EU-15 country group between 1985 and 2009, Nickel et al. (2010) emphasised that interest rates, the increase in the real GDP and the efficiency of measures on the expenditure side play an important role in debt reduction. High debt service costs may also contribute to the success of consolidation, as high interest rates encourage the government to implement fiscal correction. The analyses conducted by Attinasi, Metelli (2016) by means of the panel VAR model in 11 states of the euro area show that despite the fact that consolidation measures implemented through primary expenditure increase the volume of debt, they decrease it, subsequently, to a level lower than before the crisis. In the case of revenue-based consolidation, the initial debt increase is higher and lasts longer, however, later the debt rate reaches only the pre-crisis level. The differences between restrictive

measures implemented on the two sides are due to the growth effect, that is the significant drop in output, as well as to the numerator effect, that is the slower improvement of the primary balance in the case of revenue consolidation. At the same time, *Baldacci et al.* (2013) refute the success of measures on the expenditure side. Assuming that the credit supply is limited, they found that consolidation focusing on the initial phase on expenditure side has a negative effect on growth, as the reduction of expenditures cannot compensate for the negative effects of the decline in the economic activity of the private sector. In the case of gradually implemented correction, combination of measures on the revenue and the expenditure side may contribute to higher growth, and thus to debt reduction. The reduction of expenditures lowers aggregate demand, which decreases the inflationary pressure of the debt and may increase medium-term output, supposing public expenditures remain unchanged. The increase in revenues may have similar effects. In the short run, the entailing growth effect is less negative. The wider tax base and the reforms supporting productivity and competitiveness may stimulate medium-term growth.

By questioning the efficiency of fiscal corrections introduced after the European sovereign debt crisis, a new term has gained ground in scientific literature: the concept of *self-defeating fiscal consolidation*. In the course of such consolidation, the reduction of expenditures or the increase of revenues limits the aggregate demand to such an extent that the growth sacrifice will be greater than the profit resulting from the correction. Consequently, the value of the debt rate will grow contrary to the desired reduction. However, this mechanisms of action can work only in the short run if the initial debt rate and the fiscal multiplier exceed one (Gros, 2011). The completely self-defeating correction presumes high multiplier

values, a high-level of short-sightedness in the financial markets and the serious reaction of interest rates due to consolidation and change in debt (Boussard et al., 2013). Nevertheless, consolidation postponed in the hope of a decreasing future fiscal multiplier does not result in a decreasing debt rate. Moreover, it may delay debt reduction, as well. Further debt increase may trigger adverse reactions in the markets (Berti et al., 2013).

According to *Boussard et al.* (2013), the success of debt rate reduction depends on the value of the fiscal multiplier in the first year of the fiscal consolidation. If the level of the multiplier remains high, the debt is likely to increase in the short run due to the correction. However, the length of its effect is influenced by how permanently the value of the multiplier can remain at a high level. Based on the simulations conducted by *Berti et al.* (2013) in EU Member States, if the value of the multiplier is 0.5 per cent, consolidation does not lead to debt increase. Such a debt increasing effect requires a multiplier of 1.5 per cent.

Among studies emphasising the importance of the international environment, *Heylen et al.* (2011) highlight that debt reduction proves to be more effective in low interest rate environment with high international economic growth. In states with high debt, it is easier to realise short-term profit. On the other hand, the fiscal multiplier and the growth sacrifice may be higher, as well. Fiscal correction implemented in favourable growth environment reduces output sacrifice. Consolidation implemented during recession has less negative growth effect and results in a much lower debt rate if it reduces the percentage of public consumption and investments, while focusing on increasing net revenues on the revenue side (Batini et al., 2012). Consolidation undertaken in the period of fiscal stress is less successful, which especially applies to consolidation on the expenditure side (Attinasi, Me-

telli, 2016). *Castro et al.* (2015) examined the short-term effects of correction on debt rate by means of the DSGE model, focusing on three separate cases (a country with favourable economic environment and a relatively low debt rate; a country with high debt rate and favourable economic environment; a country with high debt rate and unfavourable economic environment). Based on their findings, in the less indebted economy, revenue- and expenditure-based corrective measures have a less negative effect on debt rate. The snowball effect is limited, as output losses are low, while inflation remains stable. In the case of the country with a higher debt rate, stricter budgetary correction leads to higher debt rate growth in the short run, especially if the corrective measures are implemented on the revenue side. The snowball effect is stronger than that on primary balance. In an unfavourable economic environment, the increase of the debt rate and that of output losses can be even sharper. In the medium term, the snowball effect was limited in all the three cases, therefore fiscal correction effectively reduces debt rate, while output losses can be considerable. Based on their simulations, in the case of restrictive fiscal policy implemented during the financial crisis, measures focusing on the final phase on the expenditure side result in less output sacrifice, but the increase of debt rate may be higher in the short run.<sup>6</sup> As opposed to the aforementioned measures and steady consolidation, corrections focusing on the initial phase generate greater shrinkage, delaying the reduction of debt rate (Batini et al., 2012). In the short run, front-loaded consolidation has more serious negative mechanisms of action in the areas of output, consumption, investment, working hours and welfare than steady consolidation (Almeida et al., 2011).

Based on the theoretical and empirical analyses referenced above, we can identify the economic circumstances and factors along

with which fiscal corrective measures result in the least growth sacrifice and debt increase, as well as the greatest mid-and long-term advantages. Altogether there are four such factors: favourable economic environment, low fiscal multiplier, steady measures on the expenditure side. In a favourable economic environment where economic growth is healthy, fiscal correction entails much less growth sacrifice. In addition, the importance of low value fiscal multiplier has to be emphasised as well. Also, regarding the character of consolidation, debt reduction is the most effective if the corrective measures are implemented on the expenditure side (through public investments remaining unchanged and transfers being reduced) and the correction period is steady. We also need to state that the limited realisation of the four factors may result in stronger negative mechanisms of action, depending on which criteria are fulfilled and to what extent they are limited.

## SUMMARY

Nowadays, in spite of the fact that the favourable global economic environment hides imbalances, turbulences are already visible in the financial and real estate markets. In the event of a contingent shock, the existing high level of sovereign debt may question fiscal sustainability and lead to difficulties in debt financing. Based on the analysis of state debt positions, it can be established that the decrease in the sovereign debt to GDP ratio in 23 Member States and on the level of the European Union and the euro area is caused by the growth effect. Compared to the baseline values from 2014, the value of debt rate has dropped in 21 countries, but the actual total debt has decreased only in 8 Member States. In the group of country where total debt had the most significant influence on the change

of the index, the debt rate has risen in 6 out of 7 countries.

The volume of debt can be reduced through the primary balance with fiscal correction, which owing to the debt crisis is now viewed much more negatively. Nevertheless, fiscal consolidation is a necessary for avoiding future fiscal sustainability being questioned and for ensuring the required fiscal space. After classifying the theoretical and empirical findings resulting from the analysis of the relationship between sovereign debt and fiscal correction, it can be established that fiscal correction may increase the level of debt rate in the short run, however, it is only a temporary state. In the medium term, fiscal correction has a debt-reducing effect. In the light of the above, the “self-defeating” mechanisms of action can only work in the short run. In order to minimise the short-term effect on the output and the debt rate and maximise medium-term advantages, four requirements can be defined: favourable international economic environ-

ment with healthy growth, the low value of the fiscal multiplier and steady consolidation on the expenditure side. At the same time, one should be cautious about such assumptions, as the factors are relative, they may depend on country-specific factors. If certain conditions weaken or are limited, short-term negative effects might even escalate.

The current global economic environment generates the need (especially owing to debt rate levels of developed economies) and ensures the criteria for the maximisation of the debt-reducing effect of fiscal correction. Nevertheless, since the end of the recovery period is close, currently, the growth prospects would be significantly distorted by the application of a potential restrictive fiscal policy measure. At the same time, the need still exists. If the favourable global economic environment remains unchanged and the economic growth is permanent, the process of fiscal correction can be started within a few quarters, but no later than one year.

#### NOTES

<sup>1</sup> This article was drafted within the framework of the Ludovika High Priority Research Workshop run as part of the priority project *Public service development establishing the basis of good governance* (ID no.: KÖFOP–2.1.2-VEKOP–15–2016–00001), at the request of the National University of Public Service.

<sup>2</sup> The special situation of Greece goes back to the processes during the sovereign debt crisis in 2010, as well as the structural changes and the restructuring of debt implemented in the course of crisis management.

<sup>3</sup> In this respect, the group can be considered to be heterogeneous, as the level of the volume of debt decreased in 7 countries, while it increased in 16.

<sup>4</sup> In its World Economic Outlook (WEO) report published in October 2008, the IMF examined the value of the fiscal multiplier in altogether 21 countries between 1970 and 2007. The average value of the indicator in the economies in review was 0.5 over a period of three years. Due to the expansive crisis management measures, the values of the fiscal multiplier were different between 2008 and 2010 (IMF, 2009).

<sup>5</sup> The primary balance is the part of the balance of the budget which is exempt from debt service related revenues (loan and interest revenues) and expenditures (interest costs) as well as revenues from privatisation, and also accounts related to the central bank.

- <sup>6</sup> In the case of consolidation focusing on the initial phase, i.e. *front-loaded consolidation*, in the first half of the correction phase 50 per cent of the total deficit reduction is effected. In the case of correction focusing on the final phase, i.e. *back-loaded consolidation*, processes are totally contrary to the situation mentioned above (Baldacci et al. 2004).

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