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The Change of Government Debt Management in the Visegrád Countries

Summary

Management of government debt in Hungary is a particularly important task, as the country has a relatively high level of debt above 70 per cent of GDP, despite its declining trend in recent years. The same indicator is lower in the other Visegrád countries, in Czechia, Poland and Slovakia, it is between 32 and 49 per cent. Since 2010, the Hungarian Government Debt Management Agency has also placed considerable emphasis on making public debt financing more secure and has achieved significant results. In terms of managing public debt, three types of risk factors are distinguished and are called 'original sins' in the economic literature. The first one is indebtedness in foreign currency, the second one is short-term indebtedness, and the third one is indebtedness to foreigner investors. This study examines the effects of these three risk factors from a theoretical point of view. The evaluation of these risk aspects between 2010 and 2018 in Hungary is also presented in comparison to Czechia, Poland and Slovakia. The results obtained suggest that at present Hungary and Slovakia are in a better position than directly after the crisis in two parameters, and Czechia has improved in one, while Poland has increased its risk exposure in all the three criteria.

Journal of Economic Literature (JEL) codes: E44, F34, H12, H63, H74
Keywords: government debt, original sin

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Introduction

Professional discourse on public debt is mostly about its size relative to GDP, and this is the only debt indicator even in the Maastricht criteria of euro adoption. However, the indebtedness of a country and the stability of its debt are defined by many other factors as well: the composition of the debt (foreign currency or domestic currency), its maturity structure, and the actors (domestic or foreign, household or financial institutions) holding it. A combination of all these influence public debt and the government's room for easing in a turbulent period. In this paper the evolution of the current structure of Hungarian government debt is tracked down from the 2007–2008 crisis and compared to the other Visegrád countries (Czechia, Poland and Slovakia).

After a presentation of the evolution of public debt in the surveyed countries, developments in the main structural indicators between 2010 and 2018 are described on the basis of the "original sin" concept, coined and elaborated by Eichengreen and Hausmann (1999) and Eichengreen et al. (2002). This is to assess the extent the countries of the Visegrád Group are prepared for a possible future crisis and the adverse effects of a low level of preparedness on debt.

Developments in government debt and interests

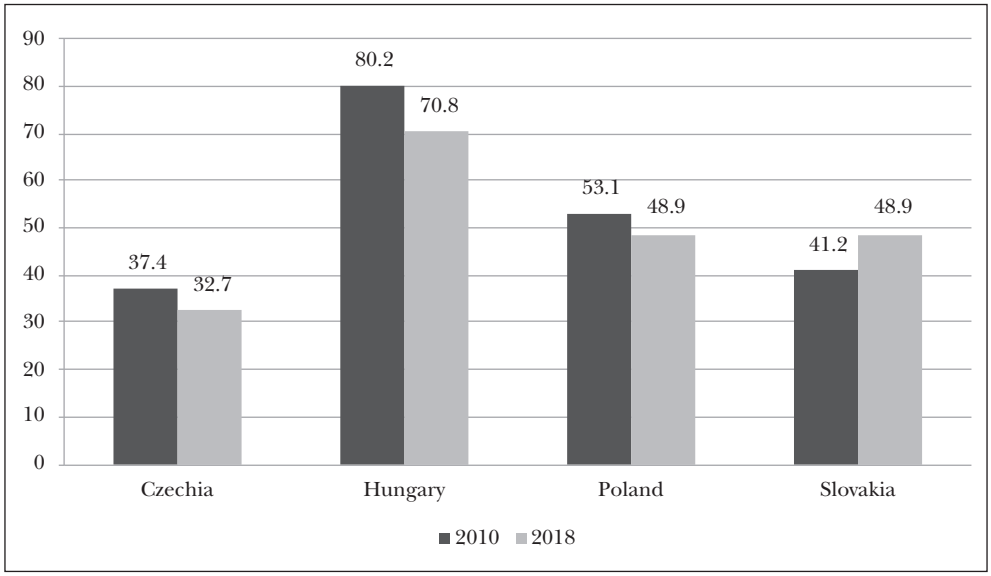
The high level of government debt has an effect on the country's growth prospects. Reinhart et al. (2012) illustrated that very high government debt, above 90 per cent of GDP, slows economic growth: they measured an average 1.2 per cent point slower growth rate in periods with high indebtedness compared with periods when the debt level was below this rate. Thus, it is worth examining how indebtedness developed in the Central European region. Government debt to GDP changed differently in the various countries of region between 2010 and 2018: in Czechia, it decreased by 4.7 percentage points to 32.7 per cent, in Poland by 4.2 percentage points to 48.9 per cent and in Hungary by 9.4 percentage points to 70.8 per cent. In contrast, in Slovakia, public debt increased from 41.2 to 48.9 per cent per of GDP in the reviewed period. The reason behind Slovakia's growing debt is a looser fiscal stance. The primary deficit (deficit indicator excluding interest income and expense) of the Slovakian budget was on average 1.5 per cent of GDP between 2010 and 2018, while the primary deficit in Poland was 1.3 per cent and in Czechia 0.2 per cent. In contrast, the Hungarian budget, excluding interest payment, had a 0.9 per cent surplus on average between 2010 and 2018, which significantly contributed to a substantial reduction in public debt despite the higher interest burden resulting from higher indebtedness. It was achieved by a fiscal policy discipline and the fact that reduction in the public debt to GDP ratio was made a government priority. It is called "fiscal turn", while in the 8 years before 2010 opposite developments took place: as a result of high budget deficit, the debt ratio rose from 55.3 to 80.2 per cent of GDP in this period.

It is worth noting that before the 2008 crisis, not only the state suffered from excessive indebtedness in Hungary but also companies and households. Similarly to public

debt, in addition to the volume of borrowing, the structure of the debt portfolio, i.e. the share of foreign currency loans in household lending was significant, as their repayment caused problems after the crisis. As a result of the unfavourable experience in lending, which was restarted to enterprises under various programmes (different phases of the Growth Credit Programme) led by the National Bank of Hungary.

The level of public debt is regulated by the Maastricht criteria, which include the requirements of joining the euro area, also as a general rule applicable to the members of the euro area. IN theory, an EU Member State wishing to join should not have debt exceding 60 per cent of GDP, but in practice, the European Central Bank also accepts continuously decreasing debt. Hungary applies a stricter fiscal rule, also included in the Fundamental Law: as long as the public debt exceeds 50 per cent of GDP, Parliament can only adopt a budget that reduces the government debt relative to GDP. In addition, according to the Stability Act, if both the inflation and real GDP growth exceed 3 per cent, rise of the nominal public debt cannot exceed the difference of the inflation rate and half of the real GDP growth rate recorded in the previous year. The Hungarian regulation is special because it applies not only to planning and approvale but also to implementation (Kovács, 2016).

Chart 1: Government debt to GDP (%)

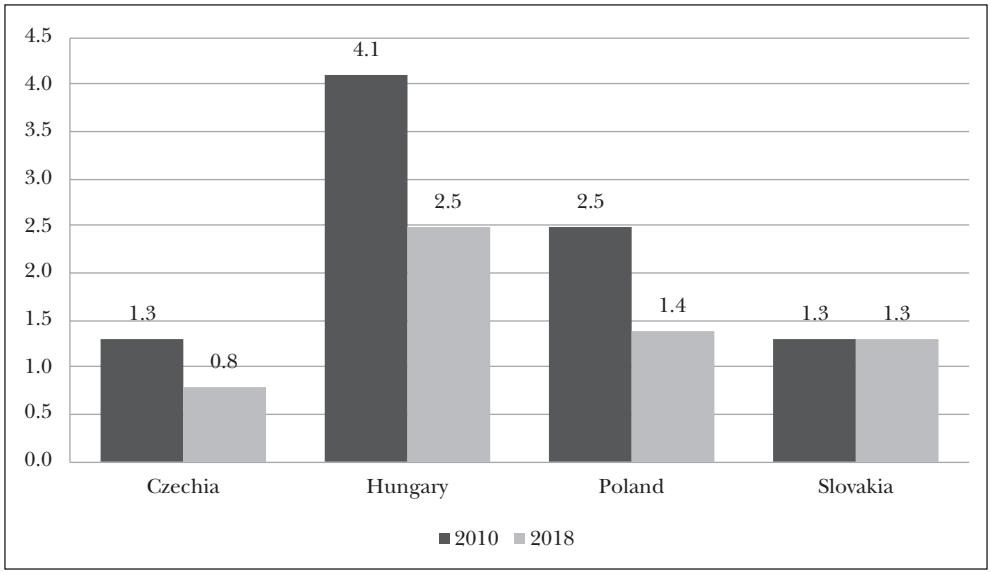


Source: Eurostat

In addition to the government debt to GDP, it is also important to examine a country's spending on interest each year, as it demonstrates the actual cost of public debt. According to the Eurostat data, in Czechia, the interest paid by the budget fell from 1.3 to 0.8 per cent of GDP between 2010 and 2018. Over the same period, interest expenditures fell from 2.5 to 1.4 per cent of GDP in Poland and from 4.1 to 2.5 per

cent in Hungary. In Slovakia, despite increase in public debt, the interest rate to GDP remained unchanged. Reduction in interest is extremely important for governments, as it allows use of the available resources for economy development, increases competitiveness and improves welfare through social benefits.

Chart 2: Interest payment to GDP (%)



Source: Eurostat

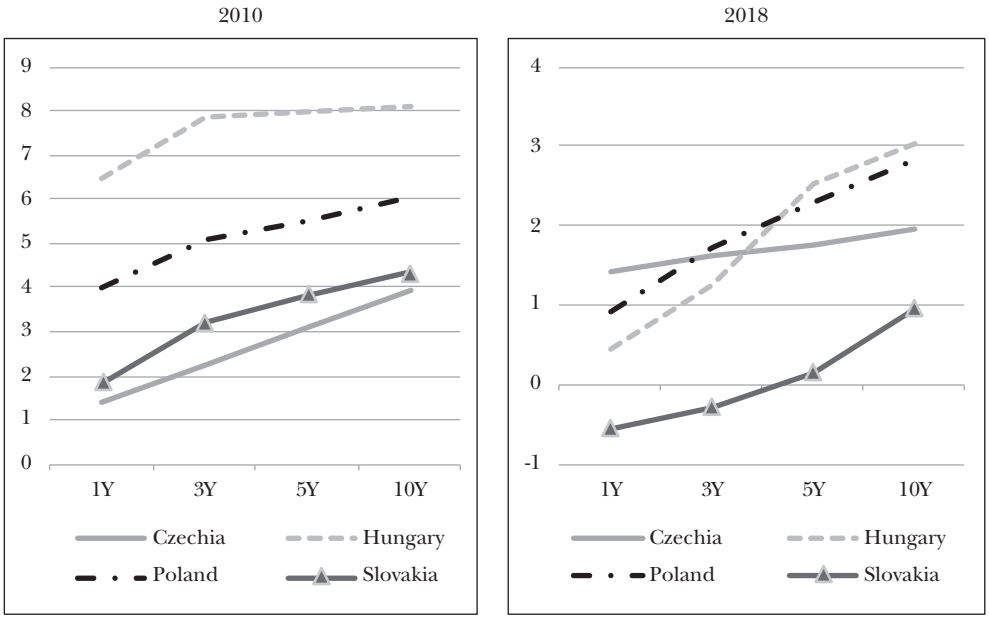
Decline in interest in Czechia, Poland and Hungary can also be explained by the low-interest-rate environment, which also explains why the Slovakian interest expenditure did not rise in parallel with the rise in public debt.

In 2010 secondary market yields were the highest in Hungary: on a 1-year maturity yield was 6.5 per cent, while over a 3-year maturity it was around 8 per cent. However, by the end of 2018, yields had declined significantly: on a 1-year maturity, the government was only able to issue bonds at a rate of 0.45 per cent, and 10-year yields had also decreased by more than 5 percentage points during the examined 8-year period. The data are somewhat misleading because due to changes in the international environment, yields had already risen in 2018. Yields were influenced partly by monetary policy between 2010 and 2018. At the end of 2010, the central bank base rate stood at 5.75 per cent, which had dropped to 0.9 per cent by the end of May 2016. However, the National Bank of Hungary influenced yields not only by changing the base rate but also by launching various programmes to reduce them (Lentner, 2018). In addition, the favourable international environment and the improving perception of Hungary also contributed to decline in interest rates. This is clearly visible in the change of 5-year CDS spreads, which is a country-risk indicator: its value was 386.75 basis points in Hungary at the end of 2010, the highest value in

the reviewed four countries, but it had decreased to 88.14 basis points by the end of 2018.

Similar developments have occurred in the case of the other countries in the region. In Poland, the short, 1-year yields fell from 4 per cent to 0.9 per cent, while the long-term 10-year yields fell from 6.1 to 2.8 per cent. Similarly to Hungary, monetary policy also had a significant impact on the yield curve in Poland. At the end of 2010, the base rate of the National Bank of Poland stood at 3.5 per cent, while in 2018 it was only 1.5 per cent. In addition, perception of the Polish economy had improved significantly: the value of the 5-year CDS spread fell from 146 basis points to 67.55 basis points in the period reviewed. However, the 2018 developments had a different impact on the Polish indicators than on Hungarians: yields could decrease further but the CDS spread slightly increased by nearly 12 basis points.

Chart 3: Yield on the last day of the year (%)



Note: For Slovakia, the 5-year reference yield at the end of 2010 is the authors' estimate Source: Reuters Datastream

Yields decreased the least in Czechia during the period under review, as a result of several factors. On the one hand, the Czech yields were the lowest in the region at the end of 2010: 1.4 per cent on one-year maturity and slightly below 4.0 per cent on the ten-year maturity in the secondary market. Thus, there was only a very slight room for the decrease in bond yields up to the end of 2018: it declined to 1.9 per cent on the ten-year maturity, 1.7 per cent on the five-year maturity and it has not changed on the one-year maturity. Another factor that contributed to this was that the Czech National

Bank's base rate was already at a low 0.75 per cent in 2010. The European Central Bank started a tightening policy in 2018: it increased its 0.05 per cent base rate in two steps to 0.5 per cent in the second half of 2017, and then to 1.75 per cent in 2018. It also had an impact on bond yields because there were negative yields on the five-year maturity in the secondary market in the case of Czech government bonds at the end of 2016. Similarly to Hungary and Poland, the Czech five-year country risk premium also fell during the analysed seven-year period, although slightly: from 91 to 40.86 basis points, the lowest among the Visegrád countries.

While in Slovakia yields were still between 1.8 and 3.8 per cent on the one-year and five-year maturities at the end of 2010, on the three-year maturity they went into the negative at the end of 2018, but at the maturity of five years, yields were also at a minimum 0.15 per cent. The ECB's monetary policy, which had a direct impact on Slovakian yields and an indirect one on the other yields in the region, played a key role in creating negative yields in Slovakia. The ECB's base rate was still 1.0 per cent at the end of 2010, which then gradually decreased to 0 per cent. Besides, the ECB's bond purchase programme had a significant impact on bond yields. From July 2009 the ECB implemented asset purchase programmes, but the Public Sector Purchase Programme (PSPP), the most significant one of all, only started in March 2015. In the PSPP the ECB buys government bonds issued by the Member States of the euro area, as well as bonds issued by acknowledged agencies, regional and local governments, international organisations and multilateral development banks. Within this framework, the central bank bought bonds for more than net EUR 2170 billion at the end of 2018, of which nearly 90 per cent were government bonds issued by Member States. This had a significant impact on yields at the long end of the yield curve. In the case of Slovakia, the European Central Bank had bought Slovakian state bonds for nearly net EUR 11.7 billion in the framework of its asset purchase programme by the end of 2018, which represented 26.5 per cent of the country's public debt in 2018. As the other three Visegrád countries are not members of the euro area, they were only be indirectly affected by the asset purchase programme through the rearrangement of investor portfolios. However, the Slovakian 5-year CDS spread was still the lowest among the Visegrád countries (83 basis points) partly also because of the euro area membership, and then it decreased to 48.58 basis points. Consequently, besides the favourable yield environment, improvement in Slovakia's perception has also contributed to decline in yields.

Consequently, the Visegrád countries could benefit only slightly from the favourable market developments (loose monetary policy and significant improvement in the international perception of the region) to reduce their public debt, and moreover Slovakia was characterised by increasing public debt relative to GDP, despite the unconventional monetary policy of the European Central Bank. In spite of this, countries in the region are in a favourable situation because the debt ratios of Czechia, Poland and Slovakia are considerably below the Maastricht threshold of 60 per cent and the Hungarian indicator is also 9.2 percentage points lower than the EU average.

The role of foreign currency debt

The literature on debt management contains the concept of the "original sin", which was adopted by Eichengreen and Hausmann (1999), and by Eichengreen et al. (2002). In these papers, the authors considered three cases as original sins.

The first type of original sin is a case when a country is unable to issue bonds in its own currency abroad, and so the country is compelled to issue them in foreign currency. Depending on the share of foreign currency funds, this may cause several adverse effects on the country:

– An open foreign currency position is generated in the country's balance sheet, raising the debt level denominated in domestic currency in the case of severe exchange rate fluctuations or significant depreciations of the domestic currency exchange rate;

– The central bank must pay particular attention to avoid unfavourable exchange rate movements when setting the base rate, and this reduces the effectiveness of the monetary policy;

– The central bank is forced to maintain significantly higher foreign exchange reserves, and this also means higher costs;

– Foreign exchange debt, therefore, limits the central bank in preventing liquidity crises and fulfilling its lender-of-last-resort role;

– High FX debt increases the risk premium and downgrades credit rating;

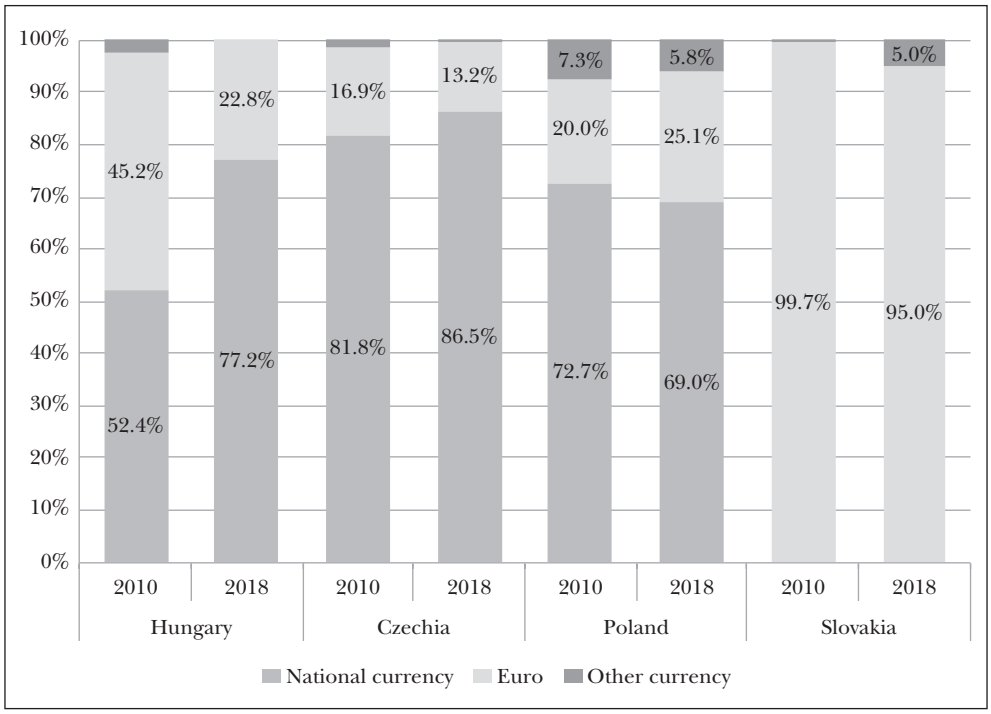
– The volatility of capital flows increases in the country.

Olivier (2002) confirms Eichengreen's and Hausmann's (1999) assertion and highlights that certain less developed countries are unable to finance their public debt by issuing domestic currency denominated bonds abroad or on a long maturity. Instead, less developed countries finance their public debt in foreign currency, through the issue of government bonds abroad. As a result, they are more vulnerable to financial turbulences. The author undoubtedly blames the lack of credibility of the monetary policy for rising foreign exchange indebtedness. The more credible a monetary policy, the higher the chance to issue long-term government bonds in domestic currency.

Claessens et al. (2007) examined a new aspect of foreign currency indebtedness and used panel data to show that not only the size of the economy but also the extent of the domestic financial system (measured as loans for the private sector and stock market capitalization) also plays a role in the development of bond markets with higher domestic currencies. If such a market emerges, the state is less compelled to issue bonds in foreign currency.

In spite of the above, the argument for indebtedness in foreign currency is mainly that government securities become available to a broader investor base, and this results in lower yields than in indebtedness in domestic currency. In addition, the government and the central bank have access to foreign exchange and there may also be political benefits for their presence in certain foreign markets.

Chart 4: Composition of the Maastricht debt by currency



Source: European Central Bank

The share of the Maastricht debt denominated in foreign currency varied differently in the Visegrád Group. In Czechia, it decreased slightly, from 18.2 to 13.5 per cent, and in Hungary significantly, from 47.6 to 22.8 per cent. In contrast, the ratio of public debt denominated in foreign currency increased from 27.3 to 31.0 per cent. The role of foreign currency in public debt was the lowest in Slovakia in 2010 and in 2018 as well. However, Slovakia's situation is partly different from the other Visegrád countries: as a member of the euro area, the Slovakian central bank does not have the same level of influence on its own currency as the monetary policy-makers of the other three countries, and therefore it has less room to change the size of the debt.

However, it is important to highlight that the above chart about the FX debt by currency is somewhat deceptive because of the European Central Bank's methodology. For example, in Hungary, only 42.3 per cent of foreign currency debt was denominated in euro at the end of 2018, based on data from the Government Debt Management Agency. However, the debt manager performs swap operations to convert the total cash flow (capital and interest liabilities) of the issued debt denominated into euro, and thus the debt only runs the forint-to-euro exchange rate risk.[1] In addition to the euro, the Hungarian state also issued government securities in dollar, Japanese yen and Chinese yuan, the latter two on the local markets (Samurai and Panda bonds). The 2017 Panda bond issue was extremely important for Hungary: as a result, the

Hungarian State became the first foreign issuer to have yuan bonds issued both in the internal (Panda) and in the external (Hong Kong) market, and the transaction was part of the "One Belt, One Road" Initiative of the Government of China. The Polish public debt manager executes swap operations similarly to Hungary, although not for its total foreign currency debt. In 2017, 78.3 per cent of the Polish foreign currency debt, including swap operations, was denominated in euros, 12.9 per cent in dollars, 5.5 per cent in Swiss francs and 3.3 per cent in Japanese yen. The Czech public debt manager only ran the euro-to-koruna risk.

As a conclusion it can be established that while public debt exposure to the first original sin has significantly decreased in Hungary, has reduced slightly in Czechia, and has increased in Poland. Slovakia is not exposed to the first original sin in the classical sense of the term, due to its membership in the euro area. But it is important to note that exposure of the debt to foreign currency is a high risk in terms of finances, and it is not an optimum strategy for debt management bodies to fully terminate this kind of debt, as it has its advantages, and with swap transactions the risk can be reduced significantly.

Maturity of the government debt

According to Eichengreen and Hausmann (1999) and Eichengreen et al. (2002), the second type of original sin is to be indebted in the short-term. The problem arises when a country is unable to finance its long-term debt with fixed interest rates, so the risk of renewing funding can be high. Thus an increase in the remaining maturity of a debt is welcome because it reduces the vulnerability of the debt issued in domestic currency.

Stein (2012) specifically emphasizes that in the case of significant or predominantly short-term financing, individual actors (bank intermediaries) underestimate the social costs of fire sale generated by individual market players. Banks can decide to increase their capital or sell their financial assets in order to improve their solvency. Both lead to a prudent operation on a micro-economic level, but if banks choose the latter massively, the prices of financial instruments may fall drastically, which leads to systemic risks. A similar situation evolves when certain countries are primarily indebted in the short term and underestimate the importance of liquidity constraints and interest rates/yields increase when government bonds are renewed.

In contrast, Greenwood et al. (2015) point out that governments can also pursue macro-prudential policies through the management of public debt. If the state is indebted in the short term, it displaces the private sector's short-term liabilities and directs them towards longer maturities. According to the authors, the government should be indebted in the short term as long as the social costs of short-term indebtedness fall short of the private sector's money generation costs. In other words, the state should be indebted in the short term until it has a comparative advantage over the private sector in issuing risk-free financial instruments. Among the costs of short-term indebtedness, the authors highlight the fluctuation of taxes. Angeletos (2002) points

out that a change in the tax system, in any case, reduces social welfare, and thus the government must always strive to ensure a stable tax system. This is only possible if the change in the debt perfectly compensates the changes in budget expenditure and in the tax base (given that the present value of taxes is equal to the sum of the present value of expenditures and debt service). In the case of short-term indebtedness, the government has to react to the fluctuations in the budget balance by raising taxes (and increasing debt in order to smooth taxation), but if it is indebted in the long term, the market value of bonds decreases during a crisis, resulting in profits for the state, thus compensating the rising expenditures and declining tax revenues.

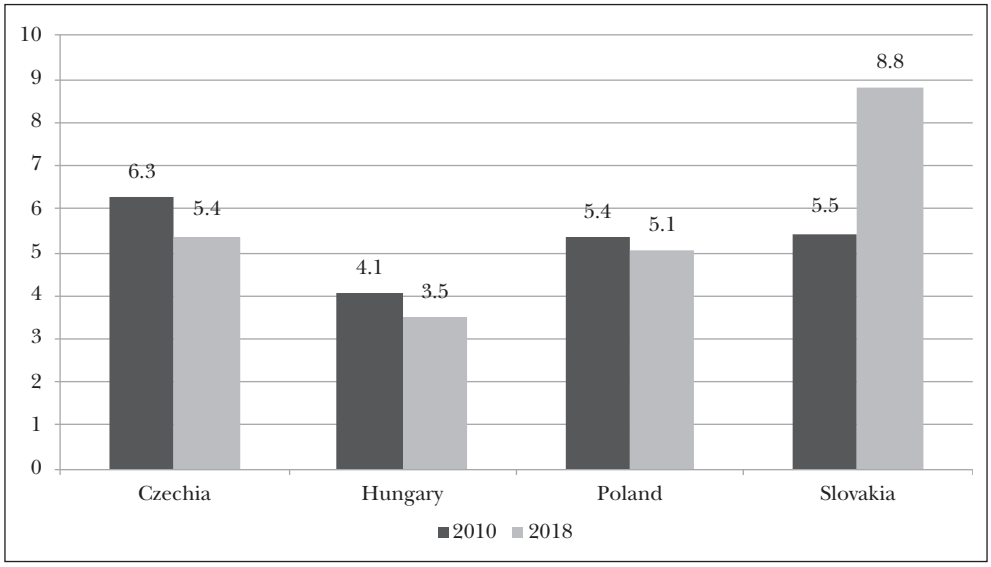
Broner et al. (2013) analyse the reasons for the fact that emerging countries (EMEs) primarily issue short-term bonds as opposed to long-term financing. They find that this is mainly due to the fact that short-term financing is cheaper than long-term financing. During a crisis, the interest rate/yield difference between short- and long-term bonds (term premium) increases. This shifts the government securities portfolio even further towards short-term financing and shorter average maturity. In addition, Missale and Blanchard (1991) argue that in economies with high public debt the government is forced to reduce the maturity in order to maintain its credibility and ensure investors that it is not its goal to vanish public debt through increased inflation.

However, it is important to draw attention to the duality of maturity too. The long maturity is favourable during a crisis because rising interest rates appear only delayed in yields. Thus, the interest on the budget will only increase delayed, which means that budget resources can be used to alleviate the symptoms of the crisis. In contrast, if the economy has a long maturity at the start of a prosperity cycle then the resources are needed for paying the yields of government securities issued earlier in a crisis period (in a higher interest environment), and for repurchasing them before they expire. The optimum strategy is to increase the average maturity of the public debt as much as possible during the prosperity, and when the economy slows down and, if the market environment allows, issuing only in the shorter term.

Several indicators are available in the literature to measure maturity. Three are worth highlighting: the average time to maturity (ATM), the average time to re-fixing (ATR), and the duration. All the three indicators measure the maturity of public debt but taking into account different types of risk (Mohai, 2018). The average time to maturity is the weighted average of the remaining maturity in the government debt portfolio, thus showing the risk of renewing public debt. In contrast, the ATR takes into account that floating rate instruments may be repriced several times during maturity. Therefore, the indicator shows, in the case of fixed rate government bonds, the average of the remaining maturity, and the average remaining maturity until the next interest rate re-fixing for floating rate securities. Thus, the ATR primarily shows the interest rate risk of public debt, i.e. the time horizon of a potential rise in interest rate within the portfolio. Duration differs between the ATR and the ATM in several repects: it is based on market value instead of the face value and takes into account the payable interest due to maturity. However, due to the latter, it responds primarily

to changes in the market environment, which does not fundamentally affect public debt management and is therefore mainly used by investors. Nevertheless, several government debt managers use this indicator for setting benchmarks. Up to 2019 the Hungarian government debt manager used duration as a benchmark, but from this year it has switched to the use of the ATR, and the Polish and Czech government debt managers also include both the ATR and the ATM in their objectives. On the other hand, the Slovakian debt manager sets a target for the ratio of bonds maturing within 1 and 5 years for the refinancing risk. Similarly, in the case of repricing risk, they primarily look is at the proportion of bonds repriced within 1 and 5 years, while the duration is the secondary indicator.

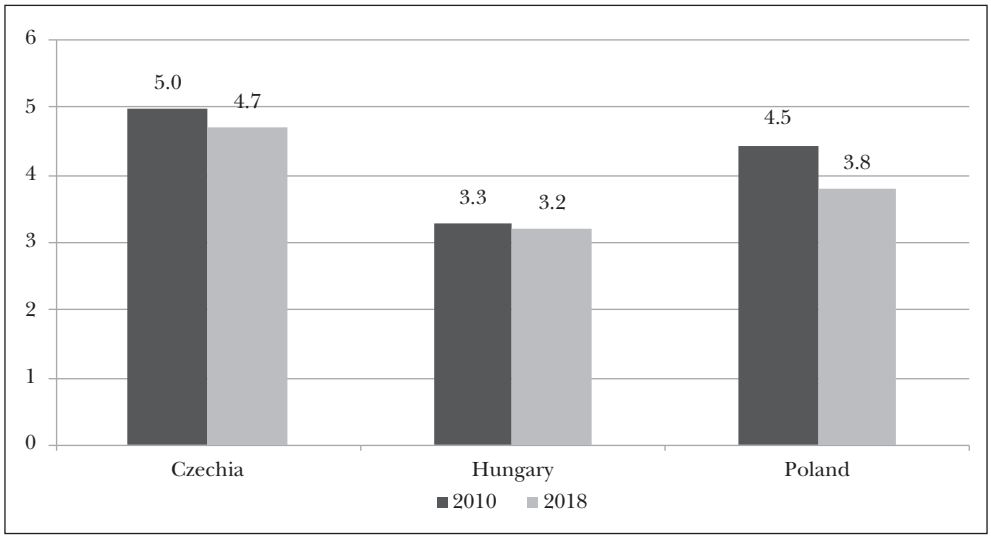
Chart 5: Developments in the average time to maturity, ATM (year)



Note: October data for Hungary and June data for Poland in 2018
Source: Czech Ministry of Finance, Hungarian Government Debt Management Agency, Polish Ministry of Finance, ARDAL

The average remaining maturity decreased in three of the four countries: in the greatest extent in Czechia, by 0.9 years to 5.4 years, as against the target set by the public debt manager in the financing plan, being 6 years in 2018. The value of the ATM decreased in Hungary to a lesser extent by 0.6 years to 3.5 years. In Poland, data also show a decreasing trend, but it is important to note that in contrast to Czechia, in Poland the value of the ATM is still above the benchmark set by the government debt manager (minimum 4 years for domestic and 5 years for foreign public debt). Notwithstanding the above, the three countries were more exposed to the risk of renewal in 2018 than in 2010. By contrast, the average remaining maturity of the government debt portfolio rose significantly from 5.5 years to 8.8 years in Slovakia.

Chart 6: Developments in the average time to re-fixing, ATR (year)



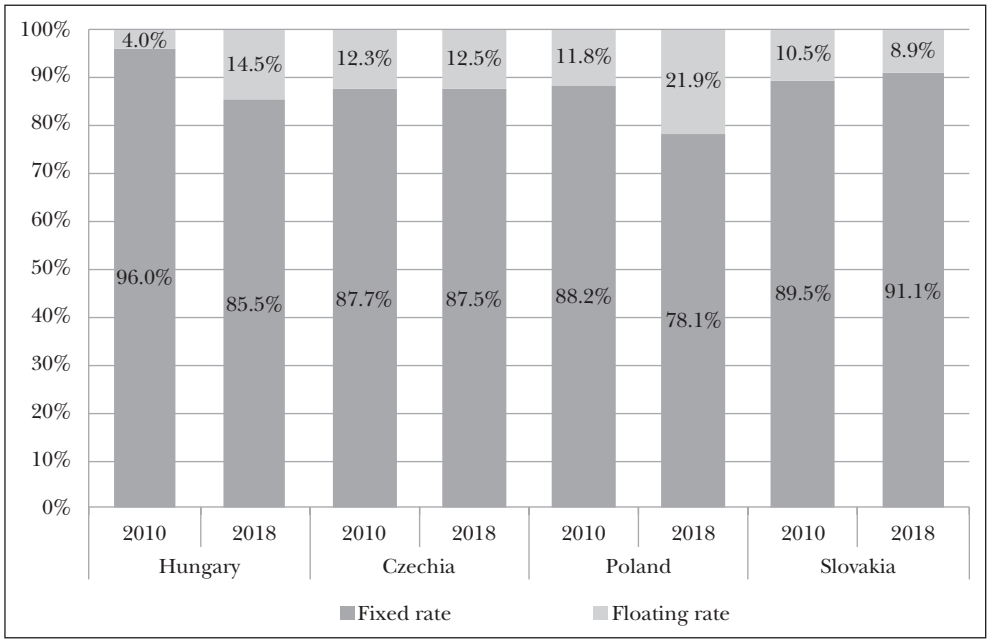
Note: October data for Hungary and June data for Poland in 2018
Source: Czech Ministry of Finance, Polish Ministry of Finance, Mohai, 2018

A similar picture emerges for the ATR: the Czech indicator declined from 5.0 to 4.7 years, exceeding the 4-year target set by the government debt manager. The value of the Hungarian indicator decreased from 3.3 to 3.2 years, while the Polish indicator fell from 4.5 to 3.8 years.[2] In other words, the interest rate sensitivity of public debt portfolios increased slightly during 8 years under review in the three countries. However, the Slovakian government debt manager does not provide data on the ATR. This is mainly due to the fact that the government debt it manages is fully fixed, i.e. the repricing of floating rate bonds in Slovakia is not a risk when interest rates increasing.

It is worth noting the role of variable interest rates in other countries as it shows the difference between the ATM and the ATR. Only the European Central Bank's data series are available about this difference, but they fail to show the public debt managed by government debt managers, with the exception of the Maastricht public debt. Besides, in the database, the breakdown into fixed and variable interest rates applies only to government debts with a maturity of over one year.

The role of floating rate government securities is marginal in the region. Between 2010 and 2018, there was a slight decrease in Slovakia, while in Czechia the role of floating interest stagnated within the Maastricht public debt: in both economies, around 10 per cent of the government debt with maturity of over 1 year had floating interest rates. In contrast, in Hungary and Poland, the role of floating rate government securities increased significantly, by more than 10 percentage points, and as of 2018 more than one-fifth of long-term Polish debt had floating interest rates.

Chart 7: Long-term government debt (over 1 year) by interest type



Source: European Central Bank

Government debt by holder

For public debt management the ownership structure, i.e. whether the issued public debt is held by domestic or foreign actors, is also important. This is related to the third type of original sin, when a significant part of debt denominated in domestic currency is held by foreigners. In the domestic currency portfolio of foreigners the activity may be quite volatile, which can significantly outperform the behaviour changes of domestic market participants. This may affect the country in particular during a crisis. Yields can suddenly rise and sales by foreigners on the domestic secondary market can cause significant financing difficulties. In contrast, if a significant portion of government debt is held by residents then the interest paid by the state remains within the country and no capital outflow occurs as a result of interest payments.

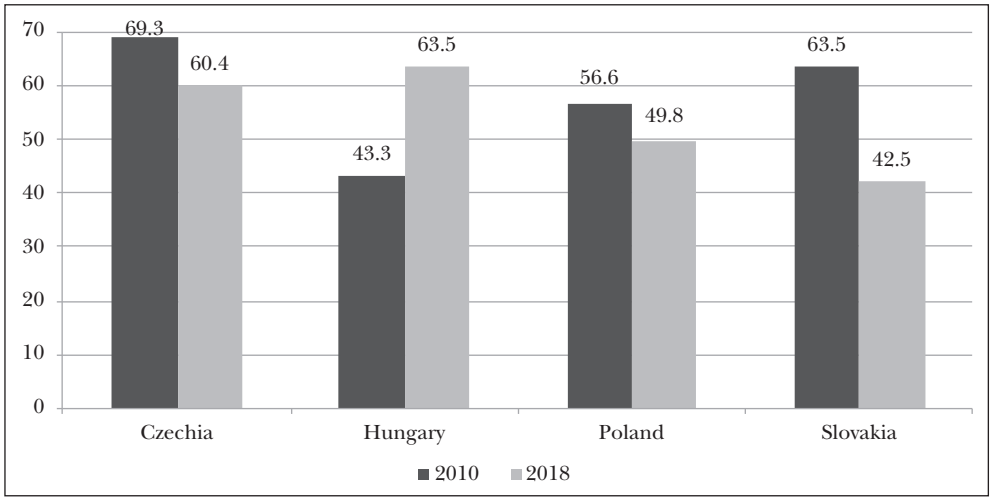
In addition, Panizza (2008) emphasizes that companies in emerging countries often do not have access to the international capital market, and so the state acts as an intermediary either by providing guarantees or by issuing the amount needed. In addition, widening the domestic investor base may reduce risks, so the efforts made by decision-makers to this end should be supported but they should make significant compromises. Most of the emerging countries are unable to be indebted in the internal market over long maturities at an acceptable interest rate. The Polish data give a good illustration: at the end of 2017, the average remaining maturity of domestic Polish debt was 4.49 years, while that of foreign debt was 6.46 years.

According to Panizza (2008), the presence of capital control may play a role in the success of internal indebtedness but the literature has various results in this regard. In addition, the author highlights the size of the internal market in terms of the success of internal indebtedness, but a wider circle of investors may cause problems if they are not well informed. Attracting foreign investors to the domestic market may have unfavourable effects on the volatility of capital flows and can lead to financial instability. Panizza emphasizes that despite the fact that indebtedness in the domestic market is more expensive, governments should use this form as the creation of the internal market can generate significant positive externalities.

A well-functioning domestic government security market can also contribute to the development of domestic financial markets, by increasing savings and investments. As government bonds are marketable instruments, they are suitable for trading in interbank markets, which improves banks' liquidity and thus reduces the need for monetary policy intervention. Besides, interest rates on government securities can also serve as benchmarks for financial actors to issue bonds that help the corporate bond market development. In addition, government bonds offer investors an alternative against foreign investment which can reduce capital flows and result in a return on savings, deepening the financial system (Abbas and Christensen, 2010).

Additional risks for domestic indebtedness in the domestic market include the crowding out effect. By issuing government securities domestically, governments absorb some of the savings that could be also used by the private sector, thereby reducing investment and slowing economic growth. However, this is only a problem in countries without an extensive financial system and with private sector players having no access to international capital markets. Besides high and safe yields, the banking sector is less motivated to finance risky projects, which can reduce investment activity.

Chart 8: Government debt held by residents (% of debt)



Source: European Central Bank

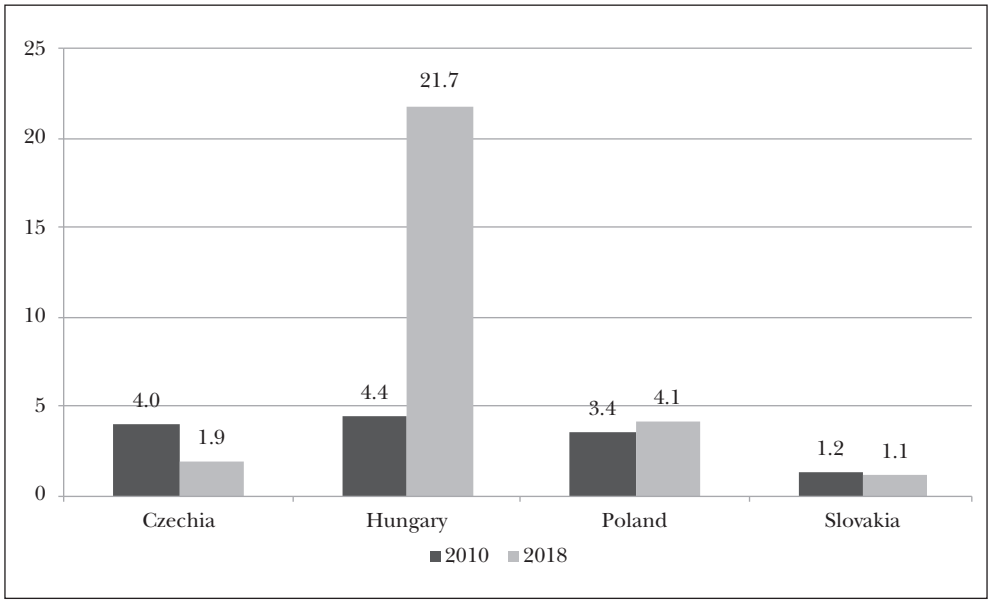
According to the data of the European Central Bank, the ratio of foreigners was the highest in the Hungarian Maastricht debt among the Visegrád countries in 2010: the Hungarian state paid interest rates to abroad after more than half of its debt. By 2018, this had radically changed: domestic residents hold the majority of the public debt, and thus, they have the most important role in financing public debt. The other Visegrád countries have experienced opposite developments: the ratio of public debt held by domestic residents has decreased. As a result, in 2018 foreign ownership is in majority in Poland and Slovakia and the share of domestic investors have fallen by 8.9 percentage points in the Czech Republic too, but the 60.4 per cent ratio of Czechs is still considered high in the region.

In addition to the ratio of domestic to foreign ownership, the composition of investors (fund managers, banks, the central bank, households) holding government securities in the given country is also important. In Hungary, one of the key factors in the transformation of public debt management in recent years has been the encouragement of households' participation. There are two arguments for increasing this participation. Firstly, people are less sensitive to changes in the market environment, so it is unlikely that in a turbulent period they will decide to get rid of the government securities, which means a stable investor group for the government. Secondly, the budget pays interest to the population after government bonds, some of which is returned to the budget through consumption, in the form of taxes. The disadvantage is primarily higher cost: a sales network needs to be maintained by the public debt manager and the public should be familiarised with the bonds. In addition, the interest rates must be higher than those offered for institutional investors in order to make the individual schemes attractive.

The chart below shows changes in the role of the households in financing public debt. According to the European Central Bank's data, the share of the non-financial sector in government debt is marginal in Czechia, Poland and Slovakia. Slovakia does not offer government bond schemes to households, and although such government securities used to available in Czechia, they were withdrawn at the end of 2014. On the basis of the financing plans at that time, the Czech public debt manager continued to take into account household investors, however, in order to reduce the cost of sales they wanted to solve the sale directly by avoiding financial intermediaries. Since 2016 the public debt manager has no longer been counting on this segment due to declining public debt and interests.

In Poland households, foundations and social organizations can buy various government securities with maturity between 3 months and 10 years, at a nominal value of 100 zloty, through the PKO Bank Polski network. The role of the sector in the total debt remains low, although slightly increased since 2010. By contrast, in Hungary, the role of the non-financial sector increased significantly between 2010 and 2018. In 2010, the share of the sector was close to that of other Visegrád countries. However, by 2018 more than one-fifth of the total debt had been concentrated in the hands of non-financial players. In Hungary, growth in government securities held by households can be attributed to several factors. Firstly, various types of

Chart 9: Government debt held by the non-financial sector (% of debt)



Source: European Central Bank

schemes (maturity, interest rate) are available for household investors, so it can be an attractive investment opportunity for individuals with diverse savings preferences. Secondly, the yields of the bonds are significantly higher than those of bank deposits, so they are very attractive for those who want to save, and are also widely known through the notable marketing activities of the Government Debt Management Agency.

According to the calculations of Kicsák (2016), the change in the Hungarian ownership structure, i.e. the growth relative to household government securities was not accompanied by an increase in budget expenditures, as higher interest rates were offset by rising tax revenues and lower market yields due to lower supply. Besides, the portfolio reorganization has reduced Hungary's external debt and thus its vulnerability.

In summary, among the countries of the region in Czechia, Poland and Slovakia, exposure to the third original sin increased between 2010 and 2018. In the case of the latter two, foreign owners had the majority of government debt. In contrast, domestic financing has become a core strategy in Hungary: with the involvement of household investors, government decision-makers have succeeded in getting foreign funding into the minority in public debt. However, the government is planning further advances: in the next 5 years in order to fully replace foreign financing, efforts are made at doubling the stock of household government securities (Kuti and Koroknai, 2019).

Summary

In recent years significant changes have taken place in sovereign debt in the countries of the Visegrád Group. Due to the low-interest environment and to the more favourable international perception of the region, interest on public debt has significantly decreased in the V4. However, in Czechia and Poland, the government debt relative to GDP decreased only marginally, while in Slovakia it rose even further between 2010 and 2018. Hungary's public debt declined most (almost 10 percentage points) between 2010 and 2018, but it still remains the highest among the four countries. In Hungary, the reduction of the government debt to GDP ratio was primarily driven by the disciplined fiscal policy of the government, which was also supported by the low-interest-rate environment created by the National Bank of Hungary. The latter was made possible by the money surplus in the international financial markets. However, preparedness for a potential crisis is only partially reflected in GDP-proportionate public debt, it is also influenced by other factors of public debt. In recent years, Hungary has also taken steps to financing public debt in a more secure way.

This paper has shown changes in the structure of public debt in the Visegrád countries in respect of the original sins defined by Eichengreen and Hausmann (1999) and Eichengreen et al. (2002). The role of foreign currency debt, i.e. the first original sin, has declined significantly in Hungary and slightly in Czechia, so these two countries are in a better position than in 2010. In Poland, on the other hand, the role of foreign currency debt has slightly increased along with the exposure to the exchange rate risk, while in Slovakia nearly the total national debt is denominated in the domestic currency, namely the euro.

The literature considers indebtedness in the short term as the second type of original sin. There were unfavourable developments in the two analysed indicators, the average time to maturity and the average time to re-fixing. In Czechia, Hungary and Poland, the maturity of public debt have decreased, while in Slovakia it has increased significantly. In other words, the Visegrád countries were more exposed at the end of 2018 to the risk of renewal and interest rate than in 2010.

The third original sin is indebtedness to foreign investors. In this respect, only Hungary managed to secure a more favourable position during the reviewed 8 years, primarily due to the encouragement of household participation. In Slovakia and Poland, however, opposite developments have taken place: majority domestic ownership recorded back in 2010 has been replaced by foreign majority, and the role of non-residents has also increased significantly in Czechia.

In summary, the Visegrád countries have achieved mixed performance with regard to the three original sins: Hungary and Slovakia are in a better position than directly after the crisis in two respects and Czechia in one respect, while Poland has deteriorated in all three. However, the extent to which the countries in the region will be affected by the expected next crisis and the extent to which public debt is crisis-proof, remain a matter of concern.

Notes

[1] The European Central Bank shows the composition of government debt taking into account FX swap operations.

[2] The Polish public debt manager only sets an ATR benchmark (2.8–3.8 years) for domestic public debt, which was achieved in June 2018 (3.24 years).

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