

Where are real interest rates heading ? Inflation and growth paradoxes in our Central European region.

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SUMMARY: The systematic decline of real interest rates and the synchronization of fluctuations are in contradiction to some textbook theorems. We assumed that high inflation in our region could have had the effect of reducing public debt.

Attention was paid to the special way of depreciation: a forced growth can “eat” some debt as well. We called for an inflationary regime shift. We used macro financial data, inducing forecasts. Surprising blocking emerged in our region as well: common movement in the up and down cycles. The degree of depreciation effect was surprising, too. We found depreciation is expected to reach 14 % of the sovereign debt in the region in years 2014-2026, that is 7 % of their GDP. While depreciation of debt is minimal in countries using the euro, it is considerable (10-25%) in the others. Global growth pressures have reduced the burden of public debt. As we have shown, the losses have been passed on to the debt financiers, including small and medium-sized enterprises in need of financing, while creating a growth paradox for them by curbing their growth potential.

KEYWORDS: Inflation, Interest Rates, Sovereign Debt, Credit, Depression

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1. Introduction

The Hungarian state and the Visegrad countries have recently experienced a partially, in some respect favourable interest rate environment for borrowing. This favourable interest rate environment has been reinforced by the acceleration of inflation, which has been higher in the countries of the region than in the international environment.

The history of interest rate developments is instructive in itself, showing – as some historical examples illustrate – that despite increasing co-movements, the final effects may differ across regions and countries. Our historical analysis on interest rates

points to the importance of spatial correlations („herding effects”). It is striking that real interest rates have shown a downward trend over the longer term, and have even turned negative in some regions (as measured by the calculated real interest burden).

A particular aspect of our analysis was that the 7 countries in the Central European region we analysed (Czech Republic, Croatia, Hungary, Poland, Romania, Slovakia, Slovenia) also differ in terms of currency use. A fundamental difference for our study is that 3 out of the 7 countries in our region have the euro as their currency (Croatia had previously converted the kuna into euro at a quasi-fixed exchange rate, it was a quasi-euro country). Four of the countries in our study have national currencies, but the euro currency effect is also important in their case, as a significant part of their public debt is foreign currency debt.

2. Method

Both the ex post and ex ante analysis of real interest rates were used. Accordingly, we conducted our real-time impact assessment partly backward looking and partly forward looking. Importantly, we measured the interest rate effects by the interest actually paid per year, relative to the public debt outstanding at the end of the year (can be called implicit interest rate). The real interest rate therefore represents the magnitude and extent of interest we have calculated. It is a calculation result of the impact assessment and not a standard statistic.

When looking at the domestic impact assessment it seemed important to look for a benchmark. The global regional context is interesting in many respects (some examples are given), but as a first approach we considered the Visegrad region to be an obvious target.

Our main objective in calculating the relative debt depreciation – in other words, the deflation – of public debt relative to debt stock and GDP in the region under study, in euro and national currency countries, was to show the depreciation of each country.

The convergence reports prepared by each EU Member State for 2023-26 provide a good basis for the calculations (stability reports for countries using the euro have been prepared for a similar time horizon – with almost similar data). The data from these reports can be found in summary form in the European Commission (2023). The annual data used from the convergence (or stability) reports are GDP, debt ratio, GDP deflator, government interest expenditure/GDP. For the financial developments expected for each country after 2023, we have used some data from the SandP credit assessment reports published in the second half of 2023.

In the calculations, we used the already mentioned implicit interest rate, where the nominal interest rate was obtained by dividing the total annual public interest expenditure by the average stock of debt at the end of the previous year. The interest rate trends in Hungary and Romania show a high degree of similarity over the 13 years¹. Therefore, for several tables, the data for the two countries are aggregated.

1 As is the case with the 3-euro state

To depict the effects of the negative interest rate effects we used the term „interest rate differential”. This is an amount, which is the difference of the interest payment actually in a year and an hypothetical interest payment obligation at zero real interest rate.

It should be mentioned that the indicator of inflation was the GDP deflator, and not the consumer price inflation. To avoid any misunderstanding, it should be stressed that in our study we analyse the evolution of public debt and the interest paid on it, which is not the same as the external debt of the country. The two types of debt are often confused in public discourse.

3. Literature background of the chosen topic – low productivity and population ageing?

There are two main explanations in the literature for the trend decline in real interest rates: one is that productivity is falling (lower real yields correspond to lower interest rates). The, and the other, a completely new approach, is that the population is ageing, i.e. a demographic reasoning. The ageing of the population significantly alters the trend in savings (savings saturation has been referred to in several statements by former Fed chairman B. Bernanke). Longer old age requires the population to save more, so there is a mass effect on the supply side, which pushes down interest rates. We believe it is likely that the founding of the Kalecki and Keynes (Keynes, 1965) school² is still valid today (the prominent figure of the school in Hungary, Péter Erdős), that the benchmark for monetary processes should remain the examination of investment, including the propensity to invest. The cyclical and growth-driving effects of investment are only made more pervasive by the financialisation of the era. In the macroeconomic analysis of real interest rates in a monetary and income theoretical context, a forward-looking study has been published (Tease, W. 2021, OECD)

The alignment of financial processes with investment can also be seen in the analysis of Kei-Mu Yi, a financial expert at the US Federal Reserve (Kei-Mu). He showed a decline in real interest rates for the G7 countries and an increasing alignment of country processes.

The analysis of debt ratios focuses on the relationship between real growth and the real interest rate on (public) debt ($R-G$ differentials) in each country over time. The last 3 years have seen a lively debate on Blanchard's analysis published in 2019, in which he concluded that in the long run, debt ratio increases are not a problem if real GDP growth exceeds the real interest rate (Blanchard, O. 2019).

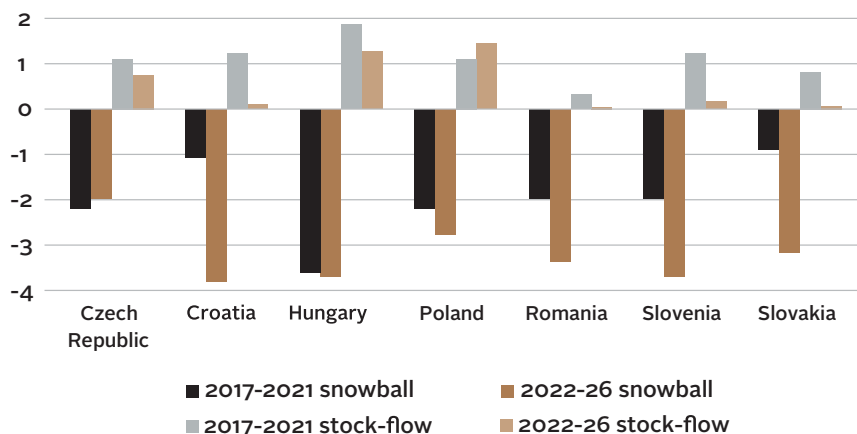
2 In his *The General Theory of Employment, Interest and Money* (1936), J.M. Keynes developed a general theory of interest and money (building on the theory of national income, investment and the business cycle first developed by M. Kalecki). Peter Erdős, in his *Wage Profit Taxation*, used this as a basis for his analysis of the business cycle in the USA.

The difference between GDP growth and the real interest rate is described by what is known in the literature as the snowball effect. Its calculation is useful because it is able to show in aggregate how macroeconomic developments beyond the primary balance (which is an indicator of government spending) affect the evolution of the public debt ratio.

The annual indicator is calculated by subtracting the inflation rate from the country's economic growth rate and then subtracting the value of government interest expenditure as a share of GDP. If the snowball effect takes a negative value, the country benefits because it indicates that the debt ratio will fall over the period as a result of growth and/or low interest rates (in case of a neutral budget). Conversely, a positive value of the indicator indicates a negative situation, i.e. that even with a zero primary balance, public debt is increasing due to weak growth and/or high interest rates. In the last few years, the EU has frequently used this indicator in its macro-financial analysis (Snowball, EU, 2022).

In many cases, the use of the snowball indicator is complemented by combining the impact of additional factors affecting the debt ratio into another indicator. This is the so-called stock-flow effect, which is an indicator of relevant financial factors (e.g. changes in government debt due to relativ devaluation). In the following, we will break down the effects on the real debt burden into the most important factors. First, the evolution of the EU complex indicators is presented.

Figure 1: The negative snowball and the positive stock flow effect per country, sub-periods and 13 years together as a percentage of GDP



Source: own editing based on European Commission (2023)

4. Interest rate, real interest – historical synchronisation with detours

In this paper, we do not deal with interest rate theory. Nevertheless, we think it is important to draw attention to some historical context. Our study shows that, as we can see in everyday life, the well-perceived passage of time „plays with us” through interest rates. ‚How much, what?’ It is difficult question related in time.

We will not analyse this complex issue, but only refer to the literature on the subject and present the history of interest rates with the interest rate that essentially drives international financial markets. It is well known that the US financial markets play a leading role. In the period under study, the geopolitical endowment is the dominance of dollar flows. Also within the dollar flows, longer-term confidence (expectations of future returns) is represented by the evolution of money market interest rates. It is the sign of confidence in the liabilities of the US government that is the starting point for mortgage lending for real estate investments. For this reason the literature takes the US Treasury bond as its reference point in studying interest rate (yields) effects in the long This is also the case here, since the financial resources provided to the US government are highly secure and also provide an indication of the degree of economic confidence in the geopolitically interdependent economic areas.

Later, we will analyse in more detail the combined movements in interest rates.

The geopolitical „price” of debt, the longer-term evolution of real interest rates, is characterised by the US 10-year government bond yields (see Figure 2).

Figure 2: Real yields on US 10-year government bonds

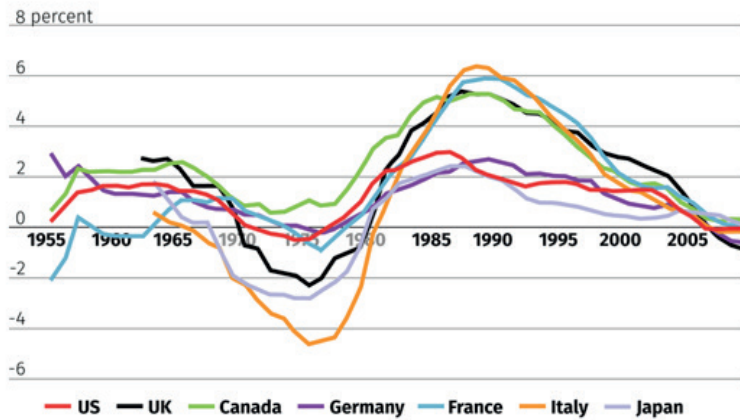


Source: Federal Reserve Bank of St. Louis

The figure shows that real interest rates have been on a downward trend over the 40 years shown, despite the significant spikes. In terms of investment returns, 40 years is a rather long time horizon.

In the following figure (no. 3), Kei-Mu Yi (2016) focuses on the cyclical evolution of interest rates and the apparent co-movement. He has done this by aggregating annual fluctuations by moving average of 11 years. (He has defined interest rates by the year-end policy rate of central banks.)

Figure 3: Real interest rate in G7 countries (Kei-Mu Figure 1)



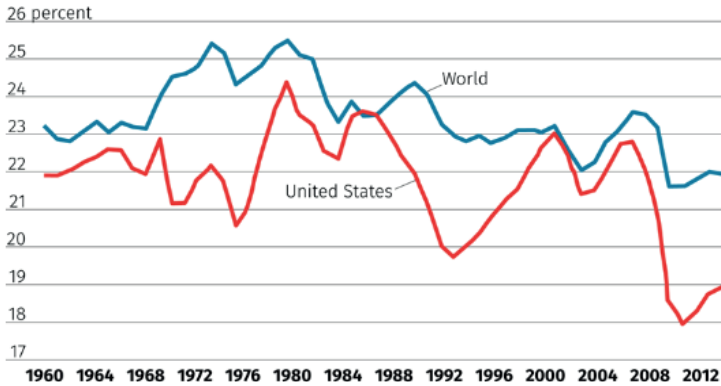
Note 11: 11-year moving average adjusted to the mean

Source: IMF, Haver and author's calculations

The sharp change in the direction after the oil price explosion in 1970, i.e. the interest rate explosion, is striking. The period of high interests was essentially ended by the 2008 crisis. The long post-crisis years were characterised by long series of near-zero interest rates, the so-called liquidity trap. Even the occasional negative real interest rate failed to boost investment.

We also see the alignment of financial flows with investment in Kei-Mu Yi's analysis (Kei-Mu, Figure 4). The synchronisation of interest rate cycles and investment is referred to by the author of the article in the following figure (No 4).

Figure 4: Gross investment as a share of GDP: downward trend since 1980



World= World

United States= United States of America

The cycles within the interest rate trends suggest that timing plays an important role in the processes of borrowing and paying off debt. Consider that a stretched sovereign can find itself in a rather unexpectedly critical situation if it has to borrow to service its debt at the very time when interest rates are spiking and taking a sustained upward trend (see the plight of indebted countries in the 1970s, when the US unexpectedly doubled interest rates and kept them high, after the sharp rise in oil prices).

The fall in real interest rates in the 1970s was followed by a significant rise from the end of the decade, typically in the 1980s. The 1990s brought another fall in interest rates, and the low, near-zero level of interest rates was maintained for a relatively long period.

The previously mentioned timing criteria for real-time effects are astonishingly illustrated in Figure 3. Years of declining real interest rates were followed by a sudden and dramatic shift in the early 1970s to an „unexpected” rise in real interest rates. This means that the price of borrowing, which had initially been almost stimulated by the fall in real interest rates, was significantly increased overnight by this sudden shift. Consequently this pushed a number of countries into a liquidity crisis. At such times, the rise in interest rates becomes almost self-acting. The shortage of money further „helps” interest rates upwards.

The situation after the 2008 crisis, as mentioned above, was characterised by a liquidity trap. The US Federal Reserve, learning from the downturn after the oil crisis, opted for a tactic of prolonging the crisis. She kept interest rates at artificially low levels, making it easier for indebted states and failing banks to manage the crisis. This was in contrast to the situation of the severe credit crunch of the 1980s, when debt was even accelerated by sharp interest rate rises. The newly emerging problem of secular stagnation is highlighted by Tibor Tatay and Eszter Kazinczy, in which

they quantify the untapped growth potential of secular stagnation (Tatay-Kazinczy, 2023, p. 80). Their findings show that for years (7 years) after the 2008 crisis actual economic growth remained below potential growth, by more than 3 percentage points in one year. After that, growth remained low, more akin to stagnation.

This new, active approach to crisis management has been further reinforced by the Fed's so-called quantitative easing. This meant stepping out of its former tightly held position – essentially more of an interest rate policy – and injecting money directly into banks and later into companies by buying up their dubious financial liabilities. This was the so-called quantitative easing, Q1 and Q2, for which Ben Bernanke was awarded the Nobel Prize. In essence, what happened was that the Fed 'stepped in' to the payments system, preventing defaults, i.e. defaults on payments, from being automatically rolled through the system. (This behaviour has been described by one critic as a violation of the rules of the game, like the referee himself stepping in to the players at a football match.)

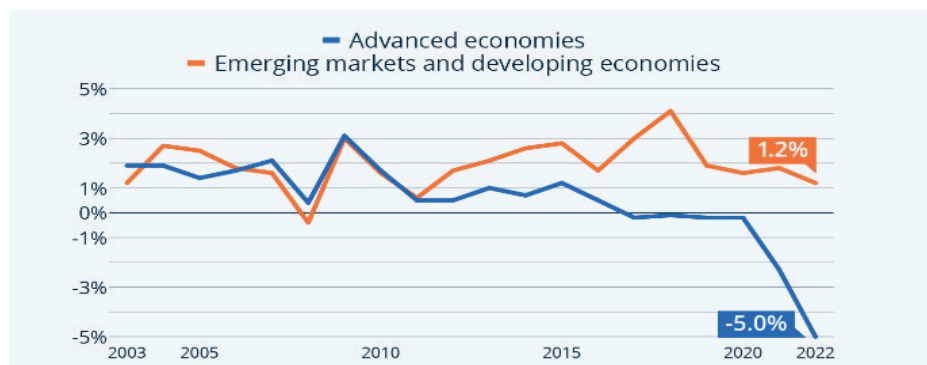
There is now a school of thought in finance that the traditional monetary policy toolkit has been insufficient to maintain financial equilibrium, as a positive economic environment creates a herd mentality, with rising investment itself becoming a driver of investment due to positive expectations. Monetary policy has not been able to withhold this drift, and in a negative direction, as the great crisis of 2008 proved. It was therefore recognised that, in addition to micro-prudential instruments, macro-prudential instruments were needed to roll back the investment 'run' (Giese, J. 2023).

From the problem raised in our article we have come to a significant finding, that the 2000's were a long series of years characterised by low, even negative real interest rates in many respects, which is historically curious. The liquidity trap that the literature had shown earlier became a reality for a long series of years. As we shall see from our analysis, low real interest rates have, to varying degrees, eased the difficult situation of countries with significant debt over the period we are examining.

A major rise in interest rates was prevented by the fact that it could lead to massive bankruptcies (we see the backlash effect of an interest rate rise in this), and would almost automatically increase the level of sovereign debt and in many cases lead to sovereign defaults. The historically high level of public debt in the United States (over 100 % of GDP) has also put the Fed's interest rate policy in an extremely delicate position (in addition, the Fed has become a major financier of the public sector).

While we have previously highlighted the global convergence of interest rates, we are now also seeing a divergence. While in developed countries, as one analysis put it, inflation „outpaced” interest rates (Buchholz, K. 2023), real interest rates in developing countries remained positive in 2022. This is illustrated in Figure 5 below.

Figure 5: Inflation is driving up interest rates in developed countries



Source: Buchholz

Advances Economies= Developed Countries

Emerging Markets and developing economies

*real interest rates = interest rates after inflation

Sample of 34 developed and 25 emerging/developing countries

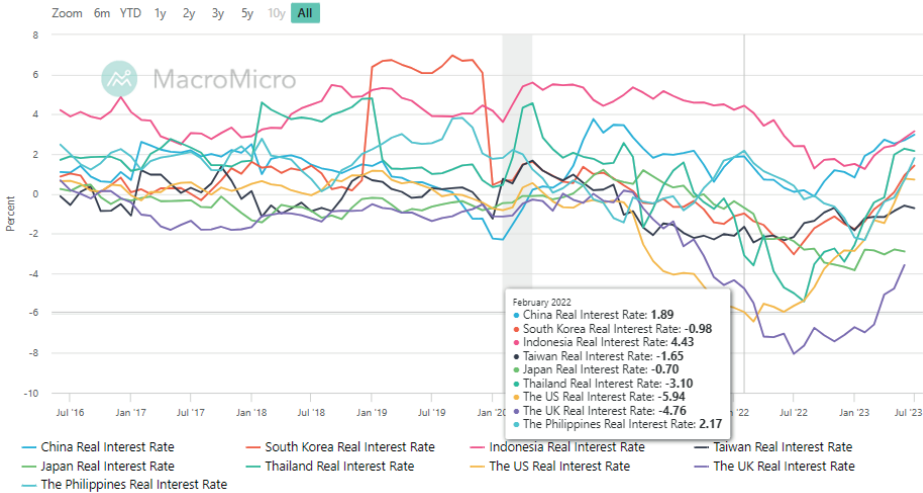
Bond maturity > one year

Source: IMF

Alongside quantitative monetary policy, signalled by QE on global flows, the Keynesian school has been strengthened, seeking a solution to the positive feedback trap in the financial system. The above figure also shows that wealth flows in a spatial context are not necessarily synchronised. One reason for this is the phenomenon known in the financial profession as „rat racing”, which can occur particularly during a change in the direction of the economic cycle, such as mass short selling or mass withdrawals of depositors from banks. The previously accepted risks are suddenly increasing, whereupon the distressed area becomes even riskier as the risk premiums are rising. The Keynesian school of thought is looking for a new way of dealing with the resulting liquidity trap. This was probably done at the Keynes Lecture 2024 at the University of Cambridge. According to Princeton University Professor Marcus Brunnermeier, the well-posed question is how to mitigate the asymmetry that arises over the cycle – e.g. a liquid money surplus on one side, a liquid money shortage on the other – by means of financial exchange rate adjustment. To address the spatial asymmetry, Brunnermeier advocated a new kind of financial intermediary at the 2024 Keynes lecture event³.

3 2024 Keynes Lecture. The annual Keynes Fund Lecture, organised by the Keynes Fund at the School of Economics, University of Cambridge. Lecturer Markus Brunnermeier (Princeton University). His lecture was entitled „The International Monetary System and Safe Assets”. Source Internet. <https://www.youtube.com/watch?v=SE5oFhycSLw> Retrieved 30/06/2024.

Figure 6: Real interest rates in the world



Source: <https://en.macromicro.me/charts/3724/global-real-rate>, Retrieved 31 July 2023.

Over the past 5 years, real interest rates have gradually turned negative, with the exception of China, Indonesia and Taiwan, as shown in Figure 6. The UK’s real interest rate has been significantly negative for most of the period, the US has quickly caught up with the UK in this respect, and both countries have seen real interest rates fall again after 2021.

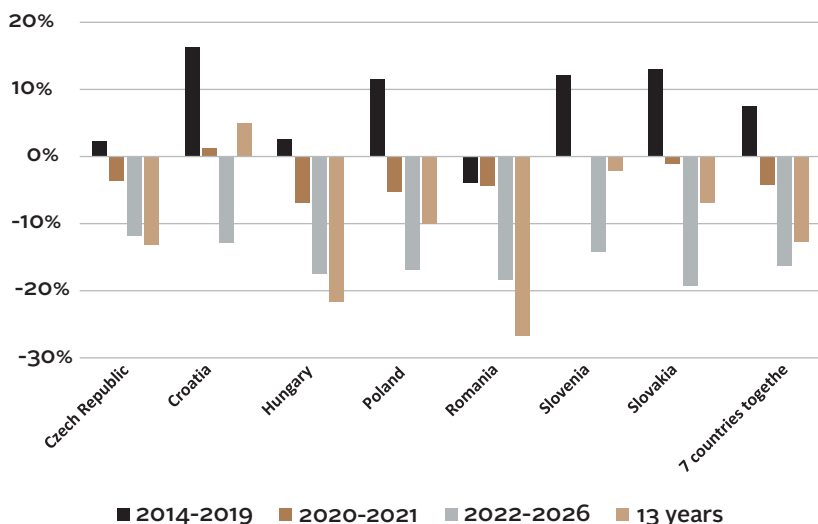
5. Curiosity in the history of money in our region – 2024 will be the year of change

In the first part of this article, we pointed out that we have experienced a historic period in interest rates, which is currently undergoing a trend change. Financial systems, including inflation and monetary policy operations, have adapted to this trend. Previously, the system had been ‘struggling’ with an unimaginable financial problem – inflation that was too low (or, more precisely, persistently lower than the inflation targets of central banks). After covid, the previously relatively stable inflationary conditions changed radically. Inflation soared and, even more dangerously, inflation expectations shifted towards high inflation. This shift of the regime was highlighted by the BIS inflation studies as well. Monetary policies in this case are already having to cope with a transition between two inflation regimes (slow in the past, accelerating in the present, high in the future). Monetary policy has to deal both with this transition and at the same time with future expectations (see

the analysis of this theoretical mapping – „The two regime view of inflation”⁴). The question raised in our article concerned precisely this transition: how the so-called inflation „regime shift” affects the public finance burden in our region during this transition period. In our analysis, we have used a so-called in situ, mapping method. This meant looking at the size of the actual nominal debt service burden year by year, taking into account the acceleration of inflation. The latter was used to reduce the real debt burden. This approach led to unexpected results.

A curiosity in monetary history that in the last two years (2022 and 2023) is the amount of negative interest difference, which exceeds the total interest payment of states in the region as a whole. The 7 countries in the region, with a GDP of €1,600 billion, have a public debt of €915 bn (2023). For the region as a whole, we estimate that the negativ interest difference (due to deflation, debt depreciation) is expected to be €146 bn over the full 13-year period – equivalent to 16% of total debt.

Figure 7: Real interest rates by country and together in the three sub-periods and in 13 years as a percentage of the national debt



Source: own calculation

Figure 7 shows that the inflation-adjusted interest rates on government debt were significant (a negative value means that the interest rate reduces the debt in real terms.) To use another term, we can see the real value of the interest rate effect over the 13 years⁵

4 Borio, C. et al (2003) The two-regime view of inflation

5 When calculating the multi-year data, the real interest rates for each year were added together.

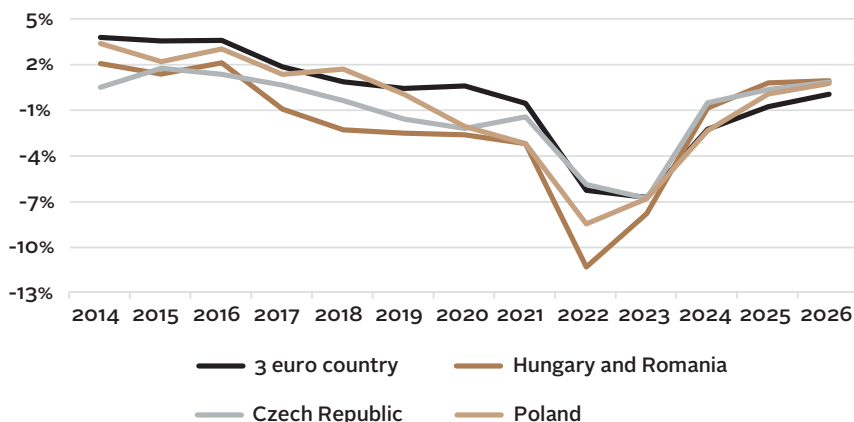
The figure shows that the interest difference is 12.7% of the debt over the whole period (over 13 years for the 7 countries combined). The indicator is high for the last 5 years (16.3%), and lesser for the two years 2020-2021 (4.2%). In contrast, in 2014-2019, the real interest rates increased the debt by 7.8%.

In addition to the co-movement shown in the graph, important currency effects have also emerged. The interest difference for the three euro country is 2% over 13 years (although the last 5 years this indicator for them is 16%). The interest difference for both Romania and Hungary is at least 18% over 13 years, while the Czech Republic and Poland fall between the above 2 groups of countries.

How did this effect come about? On the one hand there is a delay effect, on the other hand a boosting, accelerating effect. Delay is about the synchronisation of interest rates on repayment debts with inflation in the present with a significant time lag. Accordingly, from 2022 onwards, the gap between the interest rates payable on past liabilities and inflation in the current year has widened significantly in the region. While the level of interest rate on public debt has started to rise as a result of the monetary deterioration, it has lagged far behind the pace of price increases. The real interest rate became negative, and by a significant amount, in the range of minus 6 to minus 10%. This unusual impact persist maximum 2-2.5 years. New bonds issued to finance public debt are now carrying higher interest rates than before. They can reach double-digit levels on short-term debt, and new bonds issued to replace maturing longer-term debt already promise bond buyers interest rates of 4-8% (nominal) over their subsequent 5 or 10-year maturity. The level of real interest rates in the region will approach 0% in 2024 and will be generally positive in 2025-2026, although still at low levels.

Annual and partly currency effects cannot be in detail figured out in our earlier table with aggregated data for periods. The negative real interest rate in Figure 8 with annual data also shows that part of the public debt is being inflated. However, the monetary system effects are clearly visible. In this respect, the 3-euro country are markedly different from the others. In these 3 countries, the amount of interest difference over the 2022-2026 period is roughly equal to the positive real interest rate they paid before 2019, i.e. overall the process can be considered neutral for them. In contrast, in the other 4 countries, there was a moderate amount of interest difference already in the 2020-2021 period, but this has been significantly boosted in the 2022-2023 period by a large fall in real values.

Figure 8: The annual real interest rates in the three euro countries and the four national currency countries as a percentage of the national debt

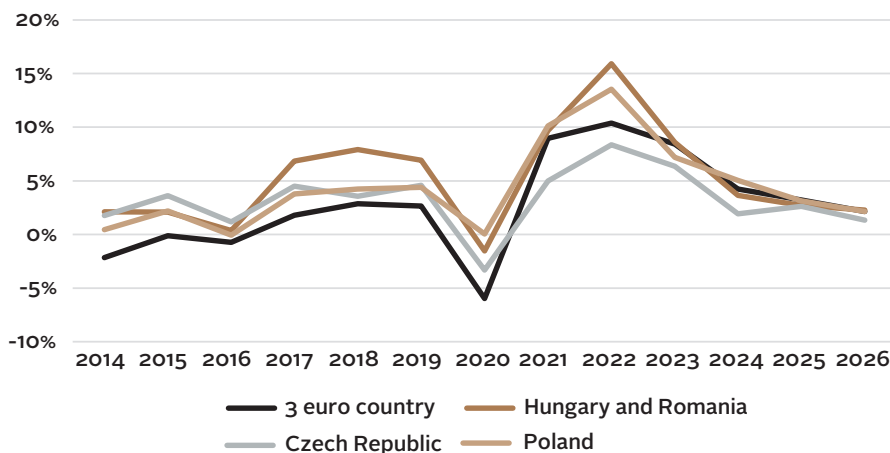


Source: own calculation

The accelerating effect is triggered by the fact that macro-prudential monetary policies (as we saw in the first chapter), which stimulate growth at the global level, are anticipating the higher performance of the economy by increasing future interest payments. By the time the inflation burden has increased, the economic base will be larger – that is the calculation GDP is expected to grow steadily. Although the growth rate was low in 2023, due to inflation, as well as stagnating supply chains and falling credit, governments expect a rate of 2-4% per year thereafter. In contrast to the corrective effect of the growth slowdown, the immediate debt-increasing effect of the growth slowdown is strikingly illustrated by our graph with the indicator discussed in the following paragraph (Figure 9). See again the collapse in the trend of the real interest rate in 2020 and then its sharp rise again. This marked steepness also indicates that the growth effect may be even stronger than the inflation effect, e.g. in 2020 and 2024, when the real interest rate is already positive.

This can be analysed by a most recently published indicator of the literature, the „real growth minus real interest rate („y-r”)”. This enables a growth-biased impact analysis. The („y-r”) indicator is shown in Figure 9. In the period up to 2019, the situation was favourable in this respect, with GDP growth rates above the real interest rate, except for the first 2-3 years of the euro-oriented countries’ indicators. Then, in 2022 and 2023 the GDP growth minus real interest rate indicator has reached a high value of 6-16% per year in the region. This was due to both the exceptionally negative real interest rates and the pick-up in growth.

Figure 9: The indicator “GDP minus real interest rate” in the three euro countries and the four national currency countries*



Source: own calculation

At such a time – a historically graceful time – the question rightly arises: couldn’t we reduce the public debt ratio? The question is also relevant to the domestic literature on the sustainability of public debt. In the following discussion, we see that only two of the seven countries in the region (Hungary being one of them) are expected to achieve a meaningful reduction of the public debt burden. In our view, however, we cannot speak of „missed” years. This is because debt deflation and debt depreciation must be examined in the complex system of effects. What the state gains from negative interest rates can only mitigate the inflationary consequences for the national economy, but cannot eliminate them. Here, we simply point out that there are always losers as well as winners, since depositors and bondholders mostly experience inflation losses. The demand for credit is reduced from the resource-poor retail and corporate (especially small and medium-sized) sectors. This relationship is discussed in more detail below.

In what follows, we also provide a more detailed analysis of the evolution of the factors analysed earlier (growth, inflation, interest rate). This will highlight both the country and the regional effects.

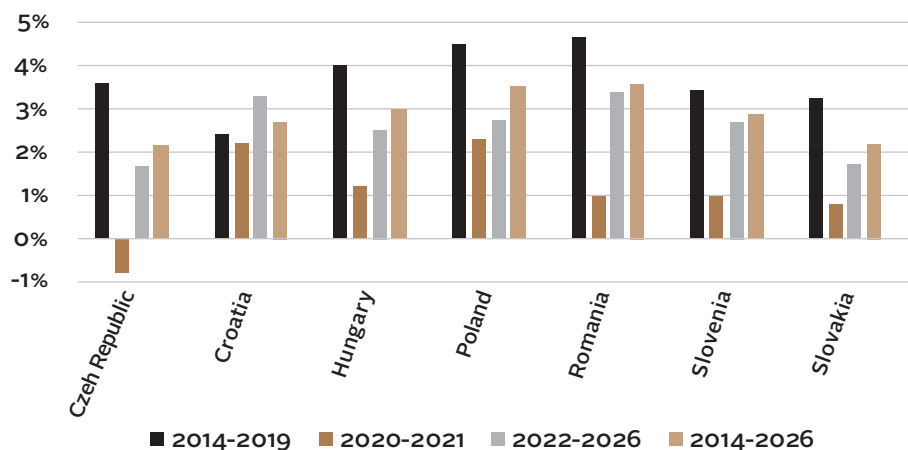
5.1. Intra-regional co-movements and divergences: growth and interest rates

In the 2014-2019 period, all countries showed substantial growth. In 2020, the covid closures triggered a decline in economic performance, but in 2021 the level of 2019 was reached again. Looking at the performance of individual countries, the higher growth rate of Romania is striking. However, the two Czechoslovak successor states and Croatia show more modest results.

Over the five years 2022–2026, GDP per country will increase by at least 10%, with a peak close to 20%. The main driver of growth is the rise in household consumption.

This is strongest in Romania, where a rise in the trade deficit is also projected in this context. Investment falls only in Hungary at the start of the period, but in Slovakia, for example, investment growth is particularly dynamic over the same period. GDP growth for each country is shown in Figure 10 below. This figure also clearly shows the blocking of growth within the region, as already indicated in Figure 7.

Figure 10: Real GDP growth by country in sub-periods and 13 years together

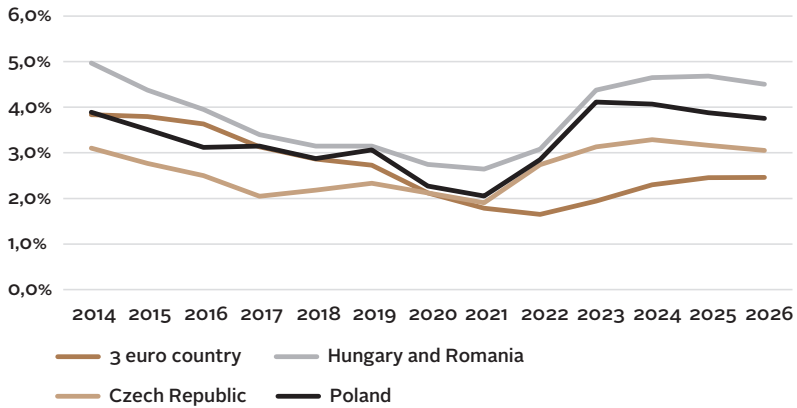


Source: own calculation

It is striking that the inflation rate (measured by the GDP deflator) in the three euro-oriented countries was lower after 2013 and did not increase significantly even in 2018-19. In the other countries, in contrast inflation started to accelerate somewhat from 2015-16 onwards, and then picked up across the region in 2022-23. The annual GDP deflator reached levels of 7-8% everywhere, and in some countries even 15%. Price rises gradually normalise in 2024-2025 – i.e. by the end of these two years, inflation is expected to be in the 3-4% range, even in Hungary and in Poland.

The evolution of nominal interest rates is shown in the following graph (Figure 11). A comparison of this figure with the previous one, Figure 7, suggests an effect called the inflation „lag”. The character of the curves is similar, but the upward shift in nominal interest rates shows the high level of the nominal inflation effect. Furthermore, this figure also highlights the blocking within the region. Nominal interest rates are on a firm downward trend, bottoming out during the covid and then turning into a rapid rise everywhere, partly due to the economic tensions caused by the covid. The changeover in euro area countries occurred later. It can be seen that the interest rates in the 3 euro-oriented countries were already much lower than in the other 4 countries.

Figure 11. Nominal interest rates in the three euro countries and in the four national currency-countries, as a percentage of the national debt



Source: own calculation

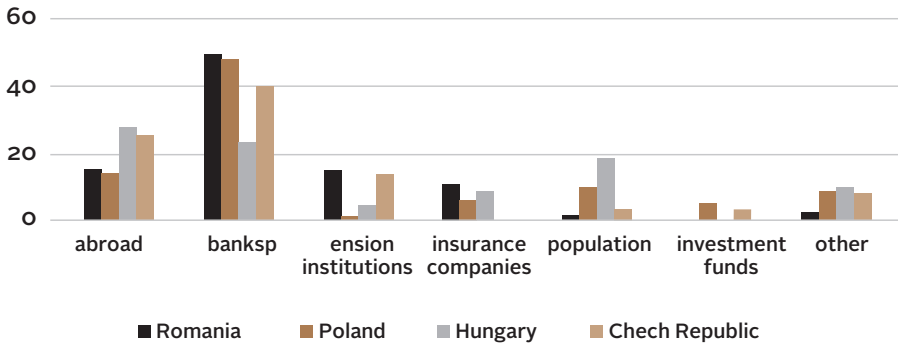
The above context highlights the paradoxical effect of inflation on public debt over this period, reducing rather than increasing it. It is also striking that inflation has not put a restraint on growth. On the contrary, debt servicing is triggering a systemic growth imperative. The slowdown in growth has pushed nominal interest rates up sharply everywhere (higher interest burden on relatively lower GDP). With the covid-induced fall and damage to commercial chains, it is clear that inflation has been a supply, and not a demand inflation. Raising interest rates in this situation, as opposed to demand inflation, does not reduce inflation, but even inflates it. Once growth starts to pick up, nominal interest rates can be seen to moderate, but they are now stuck at high levels. This sticking has lasted longest in Hungary.

The losers are the debt creditors

The downside of the favourable debt devaluation is that the actors financing the sovereigns are clearly on the losing side (the complex process of loss sharing in the second round, such as loss pass-throughs, is only partially mentioned here).

Figure 12 shows which actors financed the national currency debt in 2022 in the 4 countries. It can be seen that financial institutions dominated. Within this, commercial banks played a dominant role. The foreign share was 15-30%.

Figure 12: The weight of public debt financiers in 2022 in four analyzed countries %



Source: own calculation

There are two differences as regards the moneylenders of sovereign debts in own currency. One is the difference in the share of the population. This was high for Hungary. The other is the weight of pension funds. The latter was significant for countries with mandatory private pension funds (Romania, Croatia, Slovakia). They hold 2/3-3/4 of their accumulated assets in government bonds.

It should be noted that deflation occurs mainly in the case of medium and long-term debt. In the case of bonds with an annual or one-year maturity, interest rates have largely followed inflation and the rise in central bank rates, albeit with a lag of a few months. Holders of longer-dated securities tend to hold these securities for several years, so that they can recover later on a significant part of the inflation loss.

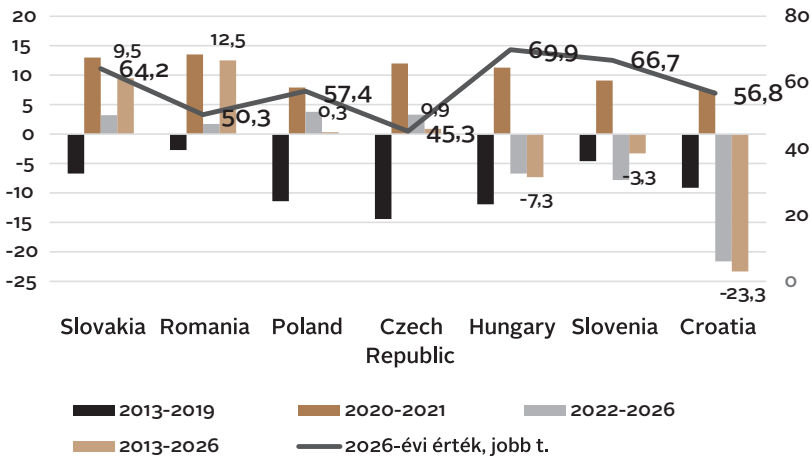
Commercial banks should be mentioned distinctly. Despite the sharp rise in consumer prices, they have raised deposit rates only slightly, so that they can pass on a large part of the negative impact of the deflation to their depositors (the banks' high earnings positions do not suggest significant untransferable losses for commercial banks).⁶

6 In a study of a sample of 103 EU banks in 2022, Serrano, A.S. found that higher nominal interest rates resulted in higher net interest income and thus increased banks' profits. This relationship showed the shape of an inverted U-shaped curve over time. In addition, some banks turned loss-making.

5.2. Debt ratio and inverse balance effects.

In addition to direct effects, it is also very important to monitor indirect effects, such as inverse, opposite effects. Such inverse effects are highlighted below.

Figure 13: The change in the debt ratio by sub-period and together The change in the debt ratio by sub-period and together in 2026 (right axis)



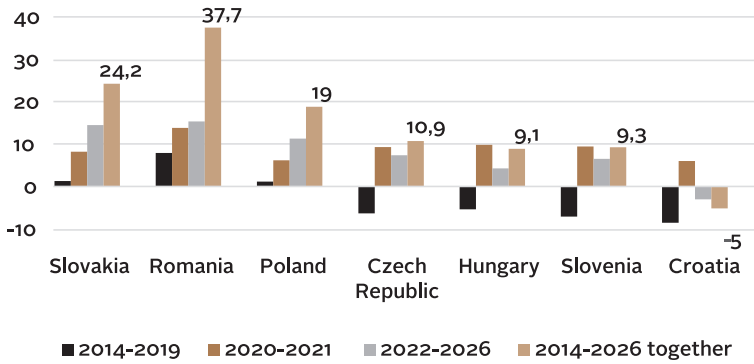
Source: own calculation

Figure 13 shows that debt ratios declined everywhere in 2014-19, with 4 countries having debt ratios falling around 10 percentage points. In contrast, the covid has drastically interrupted this trend. In 2020-21, the impact of the downturn and the moderating public spending has increased the ratio by around 10 percentage points. Between 2022 and 2026, the rate falls markedly for Croats, Slovenes and Hungarians, while it rises slightly in the other countries.

Blocking within the region is also evident here. It is worth noting that the divergence between countries in the region is decreasing. While in 2021 the gap between the least and most indebted countries was close to 30 percentage points, in 2026 it will be 25 percentage points. In addition, there will be a shift: Croatia's debt ratio will fall below the critical 60% level by the end of the period, while Slovakia's is expected to be well above that level.

The general government primary balance in the period up to 2019 has resulted in a revenue surplus in four countries (an inverse, or restraining, effect on the economy). In three countries, it indicates a fiscal deficit or deterioration, which has a stimulating effect on the economy. In the two years 2020-2021, primary balance deficits were significant in all countries. When looking at the whole period, the contrast is striking between the restraining Croatia and the 3 countries stimulating with at least 19% of GDP (Romania, Slovakia, Poland) (see Figure 14).

Figure 14: Stimulating/restraining effect of the primary balance of the general government per sub-period and over 13 years as a percentage of GDP

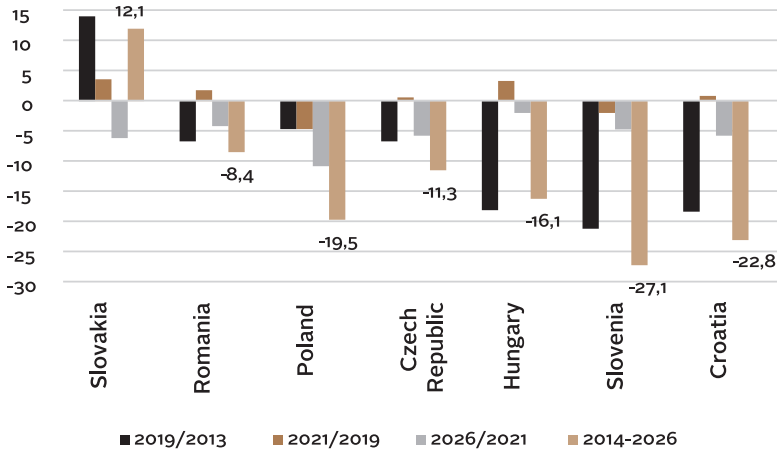


*revive positive range, restrain negative range

Source: own calculation

If one does a more careful analysis, one should also take into account the impact of economic developments on private sector credit. Figure 15 shows the change in the value of private sector credit relative to GDP.

Figure 15: Stimulating/restraining/ effect of the general government primary balance per sub-period and over 13 years as a percentage of GDP



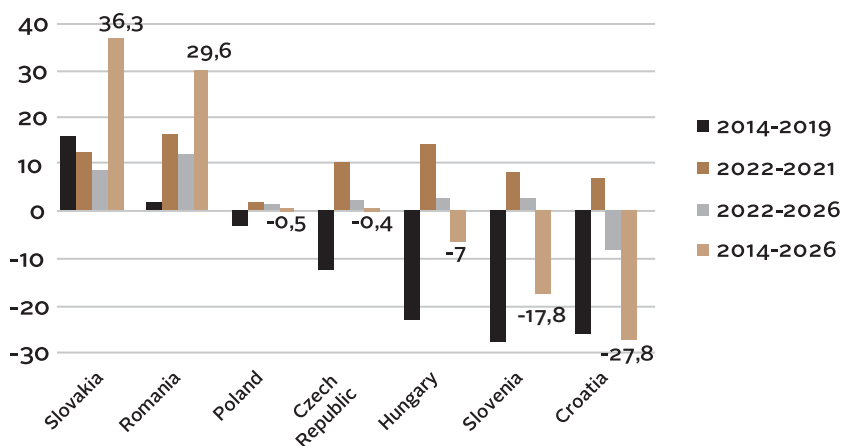
Source: own calculation

Lending had a restraining effect on the economy in the first period of favourable growth. This was largely due to a cautious approach to borrowing by the private sector as a consequence of the previous foreign currency crisis (lending was only

buoyant in Slovakia). The stimulus was minimal in the 2 years after the covid. From 2022 onwards, a relative (to GDP) decline in credit is observed in the region, with the most marked decline in Poland (11 percentage points). In addition to the downturn due to the covid crisis and geopolitical turbulence, the significant rise in market interest rates is also a factor in this, holding back investment in both the residential and business sectors. Over the period as a whole, private sector lending is expected to pick up only in Slovakia, while a markedly dampening effect occurs for the Slovenes, the Croats and the Poles.

Looking at the combined impact of economic lending and public finances on demand developments, the impact until 2019 was almost neutral in Poland and Romania, with a stimulus in Slovakia, but a significant demand contraction in the other countries. From 2022 onwards, the picture is that the combined effect of fiscal and monetary policy is restraining in Croatia, stimulating in 2 countries (Romania and Slovakia) and broadly neutral in the others. Over the full 13 years, Slovakia and Romania show marked stimulus, in contrast to strong moderation in Croatia and Slovenia (see Figure 16). The aggregate impact for the region as a whole is a small stimulus of 6 percentage points, nevertheless it varies strikingly widely.

Figure 16: The combined /restraining/ stimulating effect of lending and state primary balance per sub-period and over 13 years as a percentage of GDP



Source: own calculation

6. Conclusions

In the evolution of real interest rates, we have shown that there is a co-moving, synchronizing drift in the trends and cycles of the growth-inflation-interest rate triad, both internationally and in our region. The question we raised was precisely how inflationary trends affect the real burden of public debt. Our hypothesis has

been confirmed by the studies we have carried out. A systematic comparison of nominal and real interest burdens with real GDP growth in the regions and with some financial indicators of public finances led to surprising results. Our primary finding is that inflation has reduced the real burden of debt in our region by an average of 14% over the (partially projected) period under review (2014-2026). This is 7% of GDP aggregate. The amount of interest difference relative to GDP has been minimal in countries using the euro, but substantial (10-26%) in countries using national currencies.

The effect is the opposite for the financiers of debt, so we have also decomposed the processes for the financiers. The financiers are, in the order listed, banks, the rest of the world, the public and other financial institutions. We have shown that banks, as lenders, suffered the largest losses in the „first round“. We also know that banks were able to pass on this effectively by charging extremely low interest rates on retail deposits. In real terms, we have seen that the biggest losers have been the economic and social strata in need of financing, as reflected in the permanent drag on the economy's credit (the credit squeeze has hit small and medium-sized enterprises particularly hard). This has reduced the growth potential of this growth bearing sector.

Although not the direct subject of our research, an important wider context emerged. In the period under review, inflation globally was not cyclical but rather depressed. A new theoretical orientation towards secular stagflation has emerged in an attempt to escape from the liquidity trap. Michau proposes a solution based on a completely new philosophy of stimulating growth. He proposes to reduce consumption not by „cutting“ but by the dynamics of the process. The opening is to increase the marginal utility of household wealth growth over the marginal utility of consumption growth (Michau, B. 2018).

This has led to a macro shift in the approach of the global financial institutions that control them. Central banks, in short, are intervening to stimulate the economy. This so-called macro-prudential regulation causes inflation, but – this was the assumption – growth more or less cancels out some of the inflation. And it does so by running the economy ahead of the restraining effect of depressed inflation. The global field of force could thus be put into a growth drift. But this has become an adjustment hurdles in financial terms. Raising interest rates to adjust inflation is constrained by the so-called „backlash effect“. This effect is seen in the fact that the Fed's successful quantitative financial regulation is severely curbing actual financing in economies that are more in need of financing. This has also been reflected in our region, as we have shown, in a decline in the financing of the economy, reducing the growth potential of the sector that is sensitive to financing, despite the stimulative real interest rate environment. The global increase in money issuance alongside has increased the shortage of money (credit) for those who need it most – thus reducing growth potential among catching-up countries and economies.

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Databases

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BIS Statistics

<https://www.bis.org/statistics/totcredit.htm>

European Central Bank, Statistical Data Warehouse

<https://sdw.ecb.europa.eu/reports.do?node=1000003967>

Eurostat

<https://ec.europa.eu/eurostat/data/database>