PUBLIC DEBT AMIDST LOW INTEREST RATES: THE MAGIC PENTAGON AND ITS SIGNIFICANCE FOR ECONOMIC AND SOCIAL POLICY

VEŘEJNÝ DLUH V PROSTŘEDÍ NÍZKÝCH ÚROKOVÝCH SAZEB: MAGICKÝ PĚTIÚHELNÍK A JEHO VÝZNAM PRO HOSPODÁŘSKOU A SOCIÁLNÍ POLITIKU

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Abstract

This article focuses on the new reality that has emerged after the financial crisis in 2008, when most European countries increased their public debt level, and the paradigm of relative indebtedness has prevailed in economic policy. Simultaneously, central banks applied the policy of low interest rates both for stimulating the economy, but also to make the new higher levels of public debt sustainable. That was considered as a one-off event and new regulations were enforced so that it will not repeat. Recovery programs have been run so that the European countries will get out of debt traps by increasing GDP and later having mild inflation targets. But new unexpected crisis struck again, this time aggregate supply side shock caused by Covid pandemics, which to some extent negated previous improvements and led to public debt increase again. Thus, we can see that we must deal with new paradigm of public debt, and we can consider whether the classic magic square of economic policy has not expanded to magic pentagon, the fifth element being the level of public debt, as it might be difficult to do monetary policy as it was possible when the indebtedness was seen primarily as absolute phenomenon and being able to repay in the long run. Also, the space for central bank's interest rate adjustments might be limited when we consider the debt service changes caused by changing the interest rates. The article aims to explain these phenomena and discuss the ways how to deal with them, pointing out the main areas of social policy that can be influenced.

Keywords

public debt, monetary policy, social policy, money stock, magic square

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Abstrakt

Tento článek se zaměřuje na novou realitu, která se objevila po finanční krizi v roce 2008, kdy většina evropských zemí zvýšila úroveň veřejného dluhu a v hospodářské politice převládlo paradigma relativního zadlužení. Současně centrální banky uplatňovaly politiku nízkých úrokových sazeb jak pro stimulaci ekonomiky, tak také pro zajištění udržitelnosti nových vyšších úrovní veřejného dluhu. To bylo považováno za jednorázovou událost a byly spuštěny nové regulace s cílem zamezit jejímu opakování, a programy obnovy, aby se evropské země dostaly z dluhových pastí zvýšením HDP a později cílováním mírné inflace. Znovu však udeřila nová nečekaná krize, tentokrát šok na straně agregátní nabídky způsobený pandemií Covid, která do jisté míry negovala předchozí zlepšení a vedla k opětovnému zvýšení veřejného dluhu. Vidíme tedy, že se musíme vypořádat s novým paradigmatem veřejného dluhu, a můžeme zvažovat, zda se klasický magický čtverec hospodářské politiky nerozšířil do magického pětiúhelníku, přičemž pátou proměnnou je úroveň veřejného dluhu, protože by mohlo být obtížné dělat měnovou politiku tak, jak to šlo, když zadluženost byla vnímána především jako absolutní jev a založena na schopnosti dluh v dlouhém období splatit. Prostor pro úpravy úrokových sazeb centrální banky může být také omezený, vezmeme-li v úvahu náklady dluhové služby způsobené změnou úrokových sazeb. Cílem článku je vysvětlit tyto jevy a diskutovat o způsobech, jak se s nimi vypořádat, a poukázat na hlavní oblasti sociální politiky, které mohou být ovlivněny.

Klíčová slova

veřejný dluh, měnová politika, sociální politika, peněžní zásoba, magický čtyřúhelník

JEL: E40, E50, E62

INTRODUCTION

We have been living in times, where money stock became flexible, to some extent virtual and former anchor to gold standard or other fixed asset (at least in short run) was abandoned (Garber, 1993). We may even say that money stock has become a tool of monetary policy, some economists calling it elastic money (Head & Qiu, 2011). When thinking this way, it becomes easier to borrow the money and actually create money through commercial banks' chain. Therefore, this shifts the shortage of money to the government budget and to the private budgets in economy, as central bank and to the vast extent commercial banks, too have got always enough money to supply when the monetary policy's settings are set to do so.

The price of money is the interest rate, even those have been very low (Baimbridge, Litsios, Jackson, & Lee, 2017) and central banks in OECD countries fought for last decade with the tendency to have even negative interest rates. Therefore, we live in a new paradigm: money is very cheap, easy to create, and the government budget and fiscal policy is simultaneously under pressure to manage budget balance (deficits), tax revenues and public expenditure well. Also, the financial crisis in 2008 brought new challenges and paradigm changes to the financial system mechanisms and regulations, as reflected in synthetic publications (Hynes, Love, & Stuart, 2020).

So, the aim of this article is to reflect this reality, think about the issues that it arose and present the innovative useful concept of magic pentagon, which tries to incorporate the public debt into basic macroeconomic variables' relationship. This is supported by the fact, that unlike it the past, where the public debt was designed to repay as soon as possible, now the majority of OECD countries simply "carries" their debt and tries to manage it in time. This can work well but may also be harmful when the crises (economic downturns) come too fast one after another, and a country cannot recover well because of structural problems or external shocks, such as Covid-19 pandemics, occur.

The existence of this pentagon is of course just a hypothesis of this article, the author is aware that while the magic square of four variables (GDP, inflation, unemployment, balance of trade) has become a classic widely used concept in macroeconomics (Kaldor, 1971; Lovell, Pastor, & Turner, 1995), the pentagon is a suggestion how we can look at the current phenomenon of maintaining high levels of public debt throughout longer periods, either because of being unable to repay them, or even thinking that having some debt level might be under some circumstances actually better than forcefully create fiscal surpluses, thus being advantageous for the economic growth and living standards. We also recognize, that in the past there were efforts to expand the classical four-variable approach, such as the graphical analysis of country economic performance using 24-angle polygon (Nachtigal & Tomšík, 2002), generalized multi-variable concept of "hypercube" (Rivano & Teixeira, 2017) or attempts to add to the magic square another 1–2 specific variables (e.g. socially or environmentally based) that are considered important by the author for the evaluation of socioeconomic development within specific context (Savoiu, 2017). That said, we consider the level of public debt a macroeconomic variable being general enough to be analysed together with the other four variables which it is related to, especially in current environment that has changed the paradigm of public debt into a persistent phenomenon in developed countries' fiscal policy. This heightened the significance of public debt and brought new issues with its management, influencing the whole socioeconomic environment. By this change that we can observe empirically, our emphasis on a pentagon containing the public debt is stemming from.

Before 2020, many articles claimed that the capacity for economic policy (fiscal, monetary) have not fully recovered after the previous crisis (Hein, Truger, & Treeck, 2012; Teulings & Zubanov, 2014), even now some economists say that we are covering or postponing problems more that resolving them. However, 2020's Covid-19 development was true external shock with causes out of economic or financial nature, so it cannot be blamed for previous failures, the situation is that the fiscal and monetary policy's capacity has been already lowered and paths to recovery therefore might be longer.

On one hand, it is advantageous for governments and businesses, because the debt service is kept low this way, on the other hand it encourages to borrow more and take debt as a solution to fiscal policy problems, where in reality it is mainly postponing them. We saw in the literature, that this approach could be taken to kind of extreme ends – an example being the modern monetary theory (MMT) (Fullwiler, 2010; Connors & Mitchell, 2013). While this is theoretically interesting concept, we believe that its assumptions are so bold that it is hard to imagine this could be applied in real life. Therefore, we remain in this article on "classic" position, that the public deficit and debt must not be directly monetized by the monetary policy and the public debt is seen as a burden that a country must carry with itself, albeit it evolved from absolute to relative form (Izák, 2010). The solution offered by MMT, that monetary policy can ease this burden as long as there is not significant (measured) inflation, we do not see as viable option, together with some other well-known economists (Mankiw, 2020).

QUANTITATIVE THEORY OF MONEY

It is worth mentioning at first, that strictly said and in the long run, changing money stock hasn't got the power that some people and even some empirical evidence from expansive economic policies attribute to it. The pure form of this type of thinking is called the quantitative theory of money, which is based on the following simple equation (Mach, 2019).

$$M \times V = P \times Y$$

Based on this simple equation if we follow it money is completely neutral. Thus, when Y and V is constant, changes in money stock result in proportional changes of price level only. From this relationship the famous simple recommendation "just increase the money stock as much as the real GDP growth is" outcomes. But this is probably true mainly in the long run and as overall equilibrium, and without considering the dynamic effects in economy. On the other hand, this theory was criticised as being too static and neglecting the endogenous money, role of money as a store of value (and connected speculative motive of holding money). Therefore, in the short run and as the economic cycle fluctuates, there is some space for monetary (and fiscal) policy, which usually tries to salvage the economy at hard times and diminish the overheating at economic peaks. Anyway, this theory provides a framework that we cannot neglect in principle, we must be aware that in the long run, after the economy reaches new equilibrium, probably the money stock and price level are tightly related, especially if real economic growth does not occur. In this sense, although kind of weakening all the interventions we are designing and arguing about, we must remember this simple equation and the consequences it might have for the results of monetary policy.

THE MECHANICS OF PUBLIC DEBT – ABSOLUTE AND RELATIVE APPROACH

The issue of public debt has become more important in the context of the recent economic crisis, when, as part of an extensive economic policy aimed at macroeconomic stabilisation, public debt increased quite significantly in most developed countries. Whereas until then the debate on the level and nature of public debt was mainly a topic for academic economists and government fiscal policy adjustments, we are now seeing a significant increase in the general interest in the evolution of public debt and how to manage it.

Let us first look at the basic mechanisms involved in public debt. Debt itself arises as a cumulative result of government fiscal management - it varies over time according to the annual balance of government (public) budgets (surplus, balanced, deficit), and in the case of recurrent deficits it is increased by their progressive sum. Like any credit, it is not free, and it is necessary to spend funds on the so-called debt service, which consists in paying interest to the relevant creditors (citizens, investment funds and other holders of government bonds in Czechia and abroad). Thus, in the classical concept of public finance, public debt is the aggregate financial commitment that a state makes in the financial market to raise funds for fiscal policy if it cannot/will not raise these funds at the moment through the tax system (Izák, 2010).

This concept is the basis for the absolute form of deficit and public debt, which is historically older and, for example, at the time of J. M. Keynes was practically the only form used in real fiscal policy. In this view, debt is seen as a 'necessary evil' that will enable the economy to weather a recession at some cost but will be repaid in good times with the aim of sustaining public finances over the long term. It should be noted that at that time there was also still a gold standard and therefore monetary policy was guided by less bold principles than today. The importance and volume of public debt in this absolute form is relatively low, as there is a general tendency to minimise the debt service of the state in the long run. In the 1970s, economist Robert Barro further developed these principles when he formulated his Barro-Ricardian equivalence (Barro, 1974). It consists in the hypothesis that households are even able to internalize (neutralize) an expansionary fiscal policy of the state based on an increase in public debt. For they are aware that this debt will have to be repaid at some point, and through an increase in tax revenues that will cause a reduction in their disposable income in the future, for which they tend to save and thus limit to a large extent the effectiveness of the fiscal impulse. This hypothesis has cast significant theoretical doubt on the efficacy of fiscal expansions for which the state borrows, but it only applies under certain conditions that may not occur in reality (Buchanan, 1976).

The practical problem with fiscal policy is that the conditions that promote restraint in public borrowing are not always met. At the same time, in most countries, as the economy has grown, the public sector, and to some extent public indebtedness, has grown. Thus, another, relative form of public debt has gradually developed. It is possible that one of the inspirations has been the practices of the commercial sector, where some firms have in practice maintained an "optimal" debt-to-equity ratio over the long term.

Another assumption was the abandonment of the gold standard and the move towards inflation targeting in monetary policy. The basic principle of this form is that the ratio of public debt to GDP, i.e., to the performance of the economy over time, is primarily monitored. Its sustainability over time is also an economic policy objective in its own right and leads to a higher dynamism of available resources in the state's economy than the classical absolute concept of "borrow-repay".

At the same time, the relative form of public debt provides additional opportunities for practical fiscal policy. If we disregard the absolute debt as an expression of the liability in units of national currency, the relative debt level can be monitored in the context of economic policy, not only through the repayment of principal, but also in the context of general economic development, as GDP and inflation rates are at work. To give a fictious theoretical example: if we do not consider debt servicing costs and we do not borrow further, then with economic growth of Y % (in real terms) and inflation of ∏ % per annum, every year the relative debt is changed (reduced) by approximately

$$\frac{1}{\left(1+\frac{Y\,\%}{100}+\frac{\Pi\,\%}{100}\right)}$$

which is the equivalent to

$$\frac{1}{\left(1+\left(\frac{Y_1}{Y_0}-1\right)+\left(\frac{P_1}{P_0}-1\right)\right)}$$

where Y is real economic growth and P is price level in two successive years.

E.g., if economic growth be 3% and inflation be 2%, then when having public debt 500 / 1000 = 50% GDP, next year we shall have GDP 1050 billion CZK, the new relative debt size will be 500/1050 = 0,4762, which also according to the above equation gives 1/1,05 * 50 = 47,62%.

This is, of course, a rather tempting path, since the creation of large budget surpluses is not currently part of the typical fiscal policy repertoire of developed countries. If we add to this the current environment of low (or even zero) interest rates, which in real terms minimise the cost of servicing public debt, this option (despite its theoretical questionability) becomes one of the practical pathways for economic policy.

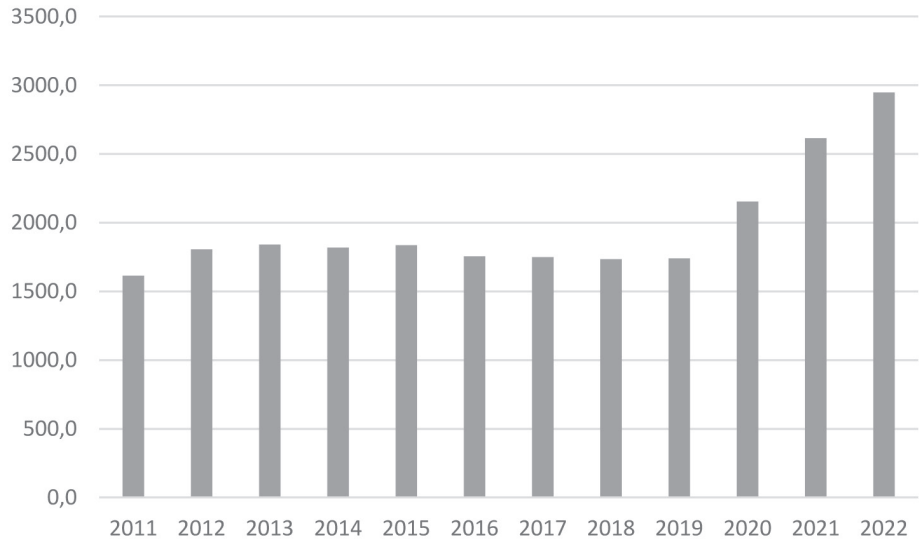
Of course, it is not without risks: to some extent, this practice in economics is akin to "riding a tiger", which, if calm and well-fed, can continue to operate in this way in the long term, but if the key parameters of the magic square change, it can easily corner the country. The safety of relative debt is thus closely dependent on the macroeconomic stability of a country.

This is described by the so-called debt trap, where relative debt increases even if the country no longer borrows - typically because the interest rate on government debt is higher than the GDP growth rate in a given year. Thus, it can happen that a reduction in a country's creditworthiness, together with developments in the financial markets, causes a country, even by simply servicing its debt, to sink rapidly towards unsustainable public finances, a rising debt-to-GDP ratio and the threat of sovereign bankruptcy. This too is ultimately a "solution" to the debt problem, but only the last one, because at that point the state gives up one of its most important assets – the national currency. The consequences for creditors and debt holders are extreme and there is a long-term loss of confidence in the country. As regards deficit budgets as the cause of the increase in debt, these are mainly the result of an expansionary fiscal policy aimed at satisfying the demands of the population (which cannot be underestimated, but should be moderated), and also of the fall in public revenues during the economic crisis, when tax revenues fell out, especially from companies and banks (if they reduced profits or even made a loss because of the crisis), but also from the population, due to the increase in unemployment and the reduction in consumption.
These principles are behind many of the steps that we have seen in practical economic policy in recent years (Hermitte, 2017), including the construction of the European Stability Mechanism (ESM), which increases the lending capacity available to European countries and makes its use conditional on country-specific stabilisation programmes (Kapp, 2014; Atik, 2016). They also explain why there is so much pressure for fiscal consolidation on “problematic EU member states” such as Greece, Italy or Portugal – there is a fear that they may not be able to keep their considerable relative debt under control over time and, if they are members of the eurozone, this threatens the euro itself. Conversely, countries with robust economy, such as Germany or Sweden, can make good use of their “tiger” because they are able to predict and influence macroeconomic parameters with a high degree of probability as part of their economic policy.

CZECH EMPIRICAL DATA

As for the empirical data on Czech economy, see the following pictures. On the first graph, there is government debt in absolute terms. We can see the (almost – slight growth up to 2013, slight fluctuation after that) stagnation of absolute debt level in last 10 years (2011-2019), before the Covid-19 epidemic started.

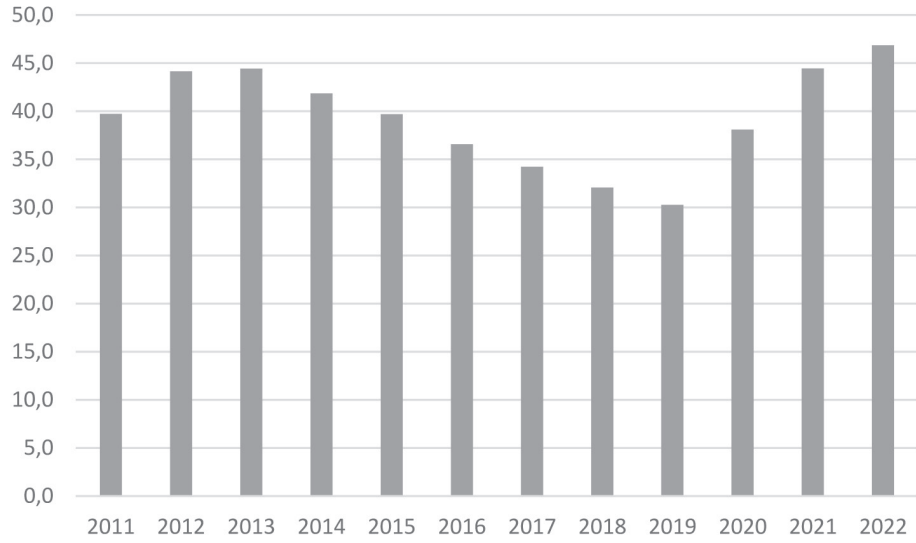
Picture 1 Government debt (ESA2010) (CZK bln, current prices)



Source: data CNB Forecast – spring 2021 (CNB, 2021). 2021-2 est.

On the second graph, we can see the relative debt development. We can observe that in 2013–2019 the relative debt decreased while the absolute debt stagnated. This is the empirical proof of the theoretical principles about absolute and relative debt we spoke about in the first part of the article.

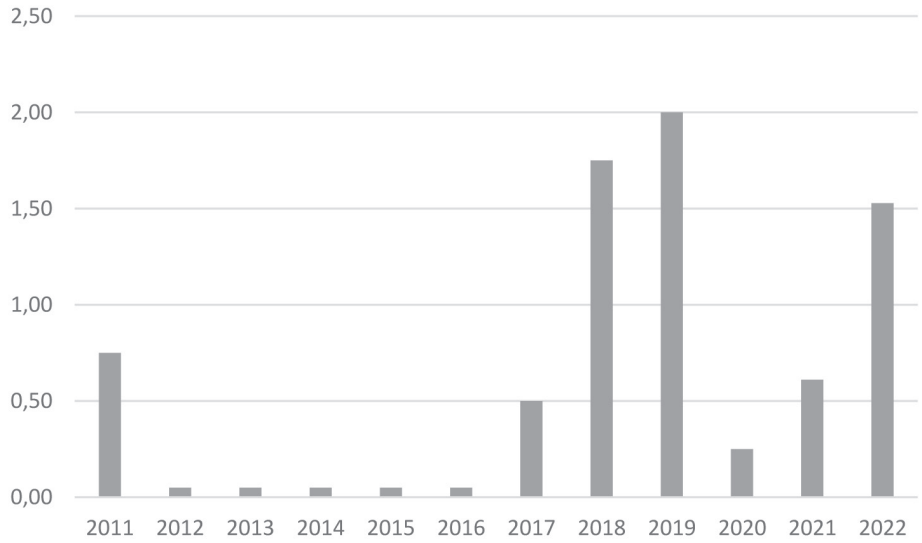
Picture 2 Government debt/GDP (%, nominal terms)



Source: data CNB Forecast – spring 2021 (CNB, 2021). 2021-2 est.

On the next graph, we see the central bank's behaviour during the analysed period. We can observe, that between 2012–2016, the central bank was at the limit of its principal tool – interest rate (more precisely said two-week repo rate). Therefore, in those years money was really very cheap, actually they could not be made cheaper using this standard tool, which led to controversial usage of CZK's exchange rate control by interventions on the market.

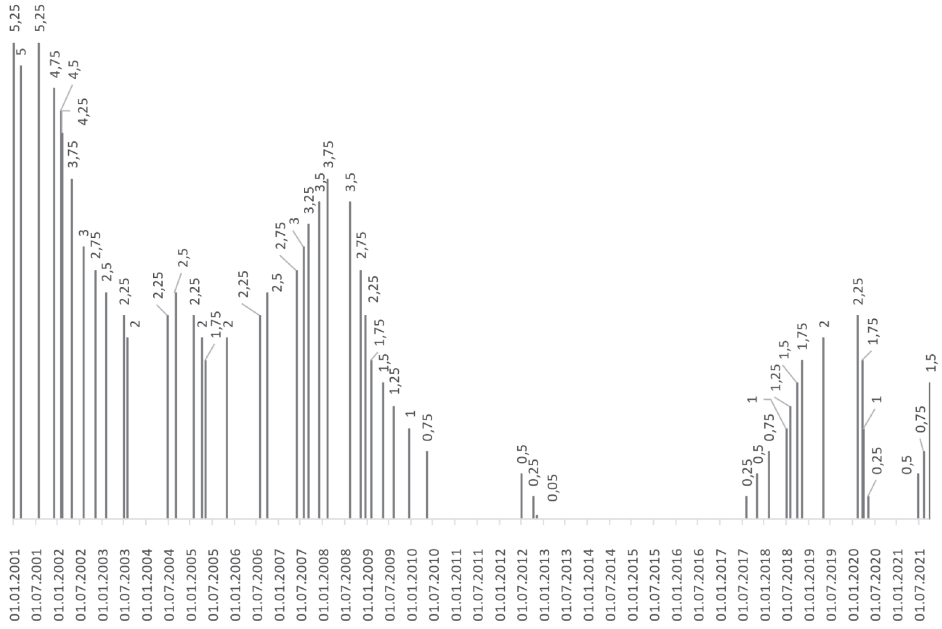
Picture 3 Czech central bank's 2W repo rate (%, annual average)



Source: data CNB Forecast – spring 2021 (CNB, CNB forecast – Spring 2021, 2021). 2021-2 est.

On the following picture, we can see that the situation in the last decade was new for central bank. This graph is interesting, because it is created so that on horizontal axis there is real time span, thus not averaging values and showing the time when exact changes of repo rate occurred. The decade before the interest rates were much higher, so also the room for monetary policy was bigger and the prices of loans were generally higher, so the money was not cheap. We can say, that the phenomenon of very cheap money for a long time is really a thing of the last decade, after the economic crisis that happened after 2008.

Picture 4 Czech central bank's 2W repo rate, changes in time, (%, 2001–2021)



Source: data CNB (CNB, 2021a)

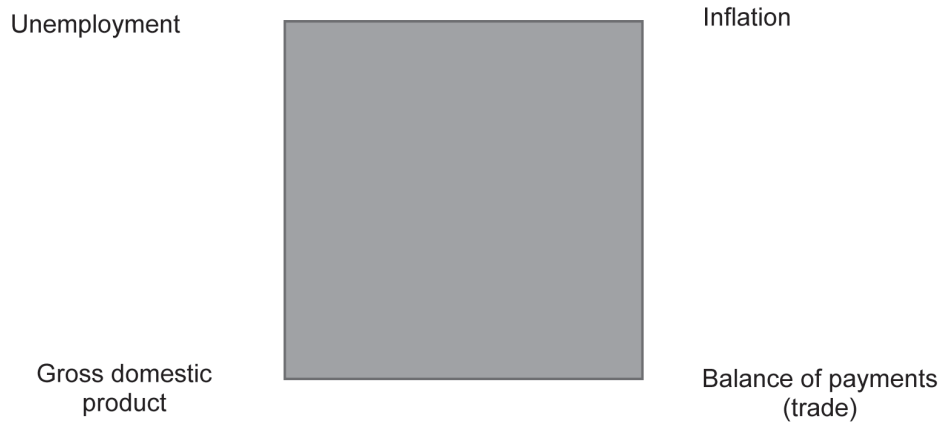
Thinking about this further, we can say that this policy of cheap money and low interest rates had two principal reasons. First, to stimulate the economy to get out of the crisis. But also the second, to keep the public debts that accumulated during the crisis sustainable. Only at the end of the decade, Czech central bank has started to tighten the screws a bit, European central bank was even slower in this process and its interest rates remained low (since 2016 it has been zero) even when the Covid-19 pandemic struck.

There was a good reason for that process in Czech central bank – the money policy makers knew they could not keep that cheap money forever and after finishing the exchange rate interventions in 2017 they started to project and follow the return path (as seen on Picture 3 and 4). For example, in Czechia, it was even accompanied with regulations (or recommendations) for mortgage buyers, and everything seemed such a way, that central bank wants to get the economy slowly but surely into more standard environment. But then, sudden external supply side shock, Covid-19 emerged, and the rates must have been lowered again, cancelling this path that was started before.

THE MAGIC SQUARE AND THE SUGGESTED PENTAGON

If we now come to the magic square of economic policy, we can first show how it looks in its classic form (Kaldor, 1971), which was then further developed and improved (Rivano & Teixeira, 2017). We know that its magic is rooted in the fact, that it is relatively easy to achieve 2–3 variables (corners) of this square, but very hard and under some conditions unattainable to achieve all four of them. Therefore, they in many cases stand against each other. For example, high tempo of economic growth will generate higher employment, but also a higher rate of inflation. Lower inflation rates reduce economic growth and induces higher unemployment. By using empirical analysis of developed countries' indicators (e.g. at the level of OECD or EU), we can also estimate the optimal values for the individual variables, for example inflation at the level of central bank's inflation target (typically 2%), the unemployment at the natural unemployment rate and so on.

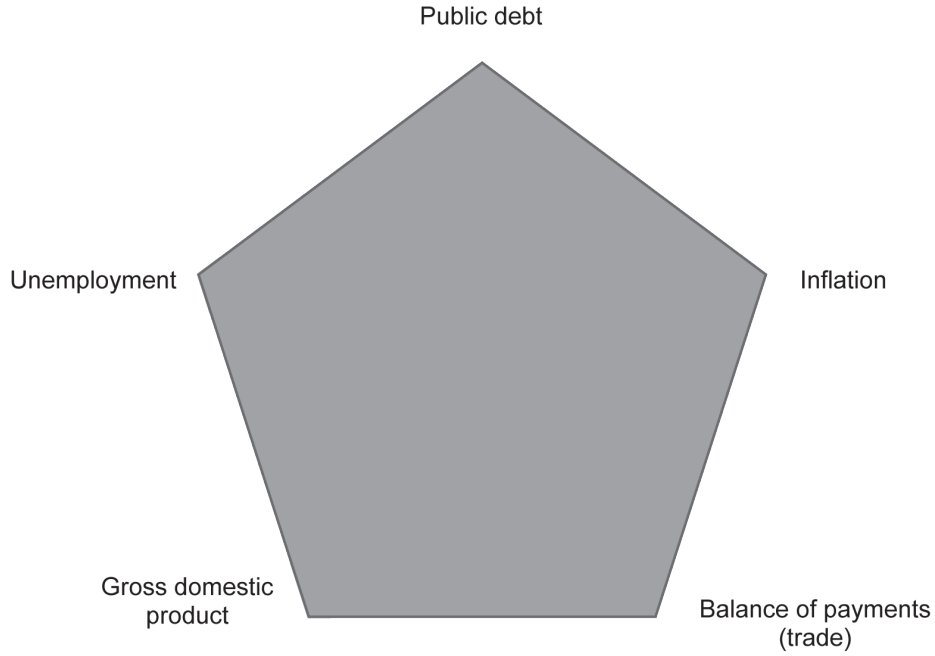
Picture 5 Magic square



Source: author

If we are following the logic of this square further, we might see that in the current environment, we are sometimes escaping from the bad situations or economic crises by expansive monetary and fiscal policy, while increasing public debt and carrying it further even when the crisis ends. Therefore, a question arises, whether we are not doing it at the expense of tampering with fiscal sustainability. This fiscal approach has been criticised by independent fiscal authorities, such as Czech Fiscal Council (Czech Fiscal Council, 2021). This leads us to thinking within the framework of "magic pentagon", which is shown on the following picture.

Picture 6 Magic pentagon



Source: author

Public debt in this pentagon is directly related to inflation and real GDP growth, and indirectly connected also with unemployment and the balance of payments. Analytically, within the pentagon it seems useful to work primarily with the relative form of public debt here: this way the changes in inflation and GDP are most prominently seen in the indicator of indebtedness (% GDP). This was also proven by the equation about relative public debt, where those variables were included. Anyway, also the absolute debt value matters (especially fiscally) because it provides the base (principal) for debt services costs, since the interest rate is paid annually from this absolute value and although we now have been living on the pillow of low (to some extent neglectable) interest rate, this need not be sustainable forever.

DISCUSSION

The crucial question for the future is whether, to what extent and how long real economic policy in the European Union and the OECD countries will continue to allow and support the concept of sustainable relative public debt and low interest rates, including using quantitative easing and other extensive monetary policy instruments. If so, its sustainability is a function of economic development and stable monetary policy linked to inflation

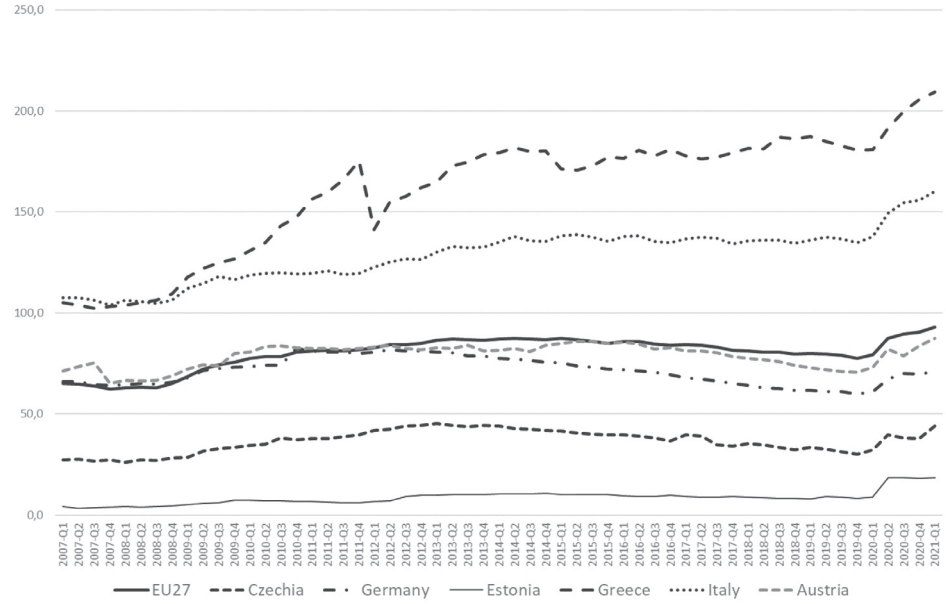
targeting, as well as adequate public debt management in the construction of public budgets. Should there be a future departure from such a policy with a preference for an overall reduction of the debt burden, the debt burden can be gradually reduced over time through balanced or slightly surplus budgets (if accepted as part of the public option) with the aim of optimising both relative and absolute debt and the resulting debt service, which may limit the theoretical risk associated with a possible increase in interest rates in the future (Artzrouni & Tramontana, 2014). However, this only applies to economies that are macroeconomically stable.

The last resort in the case of a debt trap remains debt restructuring, coupled with some form of sovereign bankruptcy and a declaration of insolvency of (part of) the liabilities, or privatisation of state assets, if available. It is always theoretically possible to forgive part of the debts, but the economic rationality of such steps is problematic. For the economically weaker countries in the euro area, this may involve pressure to leave the currency union, or to leave and re-join on less favourable exchange rate terms. However, these scenarios are extreme and are always accompanied by a substantial reduction in living standards, so they can only be used as a last resort.

Thus, in the case of the most indebted countries with unfavourable macroeconomic parameters, such as Greece, Portugal, Spain or Ireland, stabilisation programmes are used, organised, for example, within the framework of the aforementioned European Stability Mechanism (ESM) (and its predecessor, the European Financial Stability Facility). Their essence is the provision of loans on favourable terms (spread over time and low interest rates), strictly and specifically conditional on macroeconomic stabilisation steps in the areas of public finances, banking system regulation (credit policy, bank recapitalisation) and structural economic policy (economic growth and employment). Some countries, such as Ireland, have successfully made use of these programmes in difficult times, have stabilised their situation and do not require further assistance.

The development trends in selected European countries with different levels of public debt we can see on the following graph, that show quarterly data and ends at Q1 2021, therefore include the impact of Covid pandemics, and we can see that European countries worsened their relative indebtedness again. This happened both because of the increase in absolute debt level and because of the decrease of GDP, making both values in the debt/GDP ratio mathematically worse. Annual data for every EU member state we can see in the following table.

Picture 7 Quarterly relative debt/GDP ratio, selected EU countries (%, 2007 Q1–2021 Q1)



Source: Eurostat, 2021. Quarterly government debt. Retrieved from https://ec.europa.eu/eurostat/databrowser/view/GOV_10Q_GGDEBT__custom_1208817/bookmark/table?lang=en&bookmarkId=9341a814-d547-4a00-88e4-f2770eb32f74

Tab. 1a Annual relative debt/GDP ratio, EU-27 countries (%, 2007–2013)

	2007	2008	2009	2010	2011	2012	2013
Greece	103,1	109,4	126,7	147,5	175,2	162,0	178,2
Italy	103,9	106,2	116,6	119,2	119,7	126,5	132,5
Portugal	72,7	75,6	87,8	100,2	114,4	129,0	131,4
Spain	35,8	39,7	53,3	60,5	69,9	86,3	95,8
Cyprus	54,0	45,5	54,3	56,4	65,9	80,3	104,0
France	64,5	68,8	83,0	85,3	87,8	90,6	93,4
Belgium	87,3	93,2	100,2	100,3	103,5	104,8	105,5
Croatia	37,2	39,1	48,4	57,3	63,7	69,4	80,3
Austria	65,0	68,7	79,9	82,7	82,4	81,9	81,3
Hungary	65,5	71,7	78,0	80,0	80,3	78,1	77,2
Slovenia	22,8	21,8	34,5	38,3	46,5	53,6	70,0
Finland	33,9	32,6	41,5	46,9	48,3	53,6	56,2
Germany	64,2	65,7	73,2	82,0	79,4	80,7	78,3
Slovakia	30,3	28,6	36,4	40,8	43,3	51,9	54,9
Ireland	23,9	42,5	61,8	86,2	110,5	119,7	120,0
Poland	44,5	46,7	49,8	53,5	54,7	54,4	56,5
Netherlands	43,0	54,7	56,8	59,2	61,7	66,2	67,7
Malta	61,9	61,8	66,3	65,5	70,0	66,6	66,4
Romania	11,9	12,3	21,8	29,6	34,0	37,1	37,6
Lithuania	15,9	14,6	28,0	36,2	37,1	39,7	38,7
Latvia	8,4	18,5	36,7	47,7	45,1	42,4	40,4
Denmark	27,3	33,3	40,2	42,6	46,1	44,9	44,0
Sweden	38,9	37,5	40,7	38,1	37,2	37,5	40,3
Czechia	27,3	28,1	33,4	37,1	39,7	44,2	44,4
Luxembourg	8,1	14,6	15,3	19,1	18,5	20,9	22,4
Bulgaria	16,3	13,0	13,7	15,3	15,2	16,6	17,0
Estonia	3,8	4,5	7,2	6,7	6,2	9,8	10,2

Source: Eurostat, 2021. Annual general government gross debt. Table sorted by 2020 debt level from high to low. Retrieved from https://ec.europa.eu/eurostat/databrowser/bookmark/c82a6713-7ccf-49a5-80b5-e4fa3276af47?lang=en

Tab. 1b Annual relative debt/GDP ratio, EU-27 countries (%, 2014–2020)

	2014	2015	2016	2017	2018	2019	2020
Greece	180,3	176,7	180,5	179,5	186,4	180,7	206,3
Italy	135,4	135,3	134,8	134,2	134,4	134,3	155,6
Portugal	132,9	131,2	131,5	126,1	121,5	116,6	135,2
Spain	100,7	99,3	99,2	98,6	97,5	95,5	120,0
Cyprus	109,1	107,2	103,1	92,9	98,4	91,1	115,3
France	94,9	95,6	98,0	98,1	97,8	97,5	115,0
Belgium	107,0	105,2	105,0	102,0	99,9	97,7	112,8
Croatia	83,9	83,3	79,8	76,7	73,3	71,1	87,3
Austria	84,0	84,9	82,8	78,5	74,0	70,6	83,2
Hungary	76,5	75,7	74,8	72,1	69,1	65,5	80,1
Slovenia	80,3	82,6	78,5	74,2	70,3	65,6	79,8
Finland	59,8	63,6	63,2	61,2	59,8	59,5	69,5
Germany	75,3	72,0	69,0	64,7	61,3	58,9	68,7
Slovakia	53,7	51,8	52,4	51,6	49,6	48,1	59,7
Ireland	104,3	76,7	74,3	67,8	63,1	57,2	58,4
Poland	51,1	51,3	54,2	50,6	48,8	45,6	57,4
Netherlands	67,9	64,6	61,9	56,9	52,4	48,5	54,3
Malta	62,1	56,3	54,6	47,7	43,6	40,7	53,4
Romania	39,2	37,8	37,3	35,1	34,7	35,3	47,4
Lithuania	40,5	42,5	39,7	39,1	33,7	35,9	46,6
Latvia	41,6	37,1	40,4	39,0	37,1	36,7	43,2
Denmark	44,3	39,8	37,2	35,9	34,0	33,6	42,1
Sweden	45,0	43,7	42,3	40,7	38,9	34,9	39,7
Czechia	41,9	39,7	36,6	34,2	32,1	30,0	37,7
Luxembourg	21,9	21,1	19,6	21,8	20,8	22,3	24,8
Bulgaria	27,0	25,9	29,1	25,1	22,1	20,0	24,7
Estonia	10,6	10,1	10,0	9,1	8,2	8,6	19,0

Source: Eurostat, 2021. Annual general government gross debt. Table sorted by 2020 debt level from high to low. Retrieved from https://ec.europa.eu/eurostat/databrowser/bookmark/c82a6713-7ccf-49a5-80b5-e4fa3276af47?lang=en

In the Greece's case, the situation is more complex as the conditions of the programmes have only been partially met and the initial debt level is high. However, if debt restructuring is not on the table, what is left in practice is a long and gradual stabilisation of the economy, coupled with sustained fiscal discipline (but not a contraction of the economy) (Vlachopoulou, 2012).

Let now us discuss the impact for Czech social policy. With the recent increase of interest rate done by Czech National Bank (increase by 0,75 percentage points to the level of 1,5%, while European central bank's rate remains near zero), Czech monetary policy gave clear signal that it is independent from the government public and fiscal policy. That is obviously positive sign, on the other hand many citizens and politicians got used to living in the environment where money is very cheap and both government and the citizen can borrow money very easily. With the current development of macroeconomic variables, especially inflation, this may not sustain in the following years.

This situation can affect these main areas of social policy.

The first and foremost one is the government budget situation, because it will not be that easy and cheap to borrow money further. Also, the debt service and the interest rates on government bonds will gradually increase, as new tranches of bonds will be emitted under new, less favourable conditions. This can limit the expenditure side of the government budget and since social policy has got by far the largest share of government budget, its power to provide social security and available fiscal capacity can be decreased. Moreover, the rising inflation can cause problems with those social security benefits (mainly of non-insurance type) that are not valorised automatically. Again, we got used to that in the near zero inflation environment, the value of these benefits remained almost stable throughout the years; that will not be the case if inflation and interest rates increase.

The second is the situation in housing policy. In Czechia, using a mortgage has become the most frequent way to provide financing for housing. Since the other forms of housing financing and building were deprecated since the beginning of the transformation, many citizens took the opportunity of low interest rates that occurred to buy mortgages, overseeing that the fixation of interest rates is typically 5 or 7 years. When their nominal interest rates increase, they will be faced the new calculation of fixation and will have to pay these increased interests from their nominal income. To illustrate very briefly what this can mean, see this simplified example.

When a client has got a mortgage for 3 000 000 CZK with interest rate 2% p.a., he pays interest 60 000 CZK annually (neglecting the decrease of the principal over the years). If this interest rate increases in the future by just 1 percentage point (to 3% p.a.), this means additional 30 000 CZK annually to pay (and earn if the client lives on the income from work). It is thus clear that some clients will not be able to cope with that development or will be forced to decrease their other expenditure significantly, actually lowering their standard of living in order to make the mortgage run further.

The third is the area of general loans and indebted people (often in social need), where with the increase of loan's prices the pressure on the indebted can also increase. Given

the fact that in Czechia already many people have problems with foreclosures even in the more favourable period of the past (Hospodka, Buben, Randáková, & Bokšová, 2017), this risk should not be neglected. While the principle that who borrows the pay ought to repay them back according to the contract, he agreed to is obviously valid and desirable, we must pay attention to the systemic risk, which can force many borrowers being unable to repay even if they initially truly wanted to.

By mentioning these issues, we do not want to say, that it is desirable to keep money cheap forever. Of course, the monetary policy must be independent, and its primary goal is to keep inflation low and price level stable. But we would like to point out, that many economic entities, including the government, have gotten used to the environment of cheap money and adapted their financial decisions to this environment. Thus, social policy lived kind of on this pillow of cheap money, where many times when there was a pressure felt in some area it was resolved with a loan, either government's or individual's. In the following period, however, more sophisticated and systematic solutions will have to be found, because the macroeconomic indicators have started to show that the previous approach may not be feasible to continue with.

CONCLUSION

Three basic forms of public debt paradigm can be seen in theory: absolute debt which serves as burden in absolute form and is expected by everyone to be repaid in the future (and in pure form need not have positive effect on economy if we follow Barro-Ricardian way of thinking), relative debt to the performance of economy that might be carried on and managed as economy runs in time, and ultra-modern monetary theories which see money stock and fiscal balance just as a tool to make economy run well and without significant inflation. We followed the second paradigm in this article, as it largely prevails in practice of OECD countries and whatever we think about it, it is currently the one that is regularly used empirically.

In summary, with sound economic policy and stable macroeconomic development, public debt, even in its relative form, can be managed and refinanced quite well in the long term according to the current market situation. If the government already prioritises debt increases over tax revenues as part of fiscal policy, the funds should primarily be used for investment activities with a foreseeable return. Of course, global risks such as financial crises or structural phenomena such as Industry 4.0 (Mertl & Valenčík, 2016) also affect a country's ability to meet its obligations, and in this sense the level of risk associated with relative indebtedness needs to be well considered, as it is potentially more fragile than for countries that are not overly indebted (even in absolute terms). It should be borne in mind that the nature of debt is to spread financing over time at some cost and to dynamize the available capacity for fiscal policy, although of course conditions can change over time for better or for worse.

Covid-19 pandemic, being an external supply-side shock to economies worldwide, vastly complicated the planned "exit" from the framework of near-zero interest rates and very cheap money. We saw on data from Czechia, that the attempt to achieve this goal occurred gradually since 2017, but was stopped in 2020 facing the new, sudden economic downturn. ECB simply stayed with its previous policy, as it was behind CNB in this regard. In 2021 the CNB's policy was resumed and the return to higher interest rates has started.

The solution of 2007–2009 crisis was aimed at financial and banking sector as it was the root cause. The current situation with Covid-19 is more prominent in public budgets as they suffer from low revenues and high expenditure because of pandemic measures. Therefore, now the main effort would be to "directly" achieve balanced budgets again, as they are not a result of bailouts or downturn caused by stock market failure or banking sector problems, but simple classic downturn based on big supply reduction especially in some sectors like travelling, flying, culture, restaurants etc. Comparison of handling the "inner" crisis rooted in banking sector 2007–2009 and external supply shock in 2020, which came before the European public budgets and central bank interest rates could fully recover from the previous one. It is not true that nothing has been improved in financial regulation and fiscal arrangements, actually a lot of changes and measures have been adopted, but as discussed there was a hope that next crisis will come later and won't be that deep.

By adding one variable, the relative public debt level, to classic magic square of economic policy we presented the concept that we call the magic pentagon. This concept reminds us, that if we take public debt as a long-time burden, we probably ought to evaluate it together with other significant macroeconomic variables. Especially, when in its relative form, its level is affected also by the changes in real GDP and inflation. Given the current (2021) tendencies in inflation levels, the significance and relevance of this approach becomes more obvious.

One further research question this article indirectly raises is also the ways how to do the measurement of inflation for the purposes of monetary policy. We cannot be sure, if the current indices of inflation based mainly on consumption goods are right in the sense that the prices of some assets (houses and real estate in general, paintings, postal marks, old cars) may rapidly rise while the prices of consumption goods need not. We are not calling for the redefinition of consumer price indices, as the methodology behind them is solid and internationally compatible, but just raising a question (which might be dismissed in further research or reactions to this article) whether for monetary policy the central banks should not look more also at those other prices' development, e.g. housing costs. Thus, watching, if the money stock changes do not simply "spill over" to the prices of those investment assets or even commodities, in the case of real estate harming the availability of housing to common population that depends on their wages to pay for housing costs.

Looking at the macroeconomic variables including the debt level, European countries (and to some extent USA, too) are in tough situation, as they resolved their downturns

at the expense of public debt twice. Within the paradigm of cheap money, this is probably sustainable in the short run, but it can be dangerous to ride on this tiger forever, especially for countries that struggle with economic growth. Therefore, finding a path to more standard environment, both in fiscal and monetary policy is essential. Then monetary policy will have room for necessary adjustments again and interest rates will start to serve better as a price of money and measure for private business projects' evaluation, as well as for reasonable households' decision about mortgages and other types of loans. For example, it might not be sustainable further for everybody to resolve their housing needs by utilizing an individual mortgage. Thus, other forms of housing policy and housing financing tools, such as municipal housing or housing cooperatives should be considered and expanded, especially in the areas where the housing prices skyrocketed in recent years.

In the social policy, the areas that will be affected the most are the housing market and policy, the loans for consumers and the government ability to run social security systems, both with insurance-based and non-insurance-based benefits, the later one being even more directly dependent on the government's budget capacity. The policy makers have been utilizing the environment of cheap money up to now to overcome many of the systemic problems in social systems. With an inevitable rising of interest rates in the future, this may not be feasible further and more balanced solutions will have to be found and approved in public choice.

ACKNOWLEDGEMENTS

The result was created in solving the junior project "Possibilities of supporting cross-generational cooperation in the workplace" using institutional support for long-term conceptual development of research of the University of Finance and Administration.

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