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Inflation, the global financial crisis, and COVID-19 pandemic

Abstract

In the years 2021–2022, world inflation has drastically increased. The analyses of the main characteristics of the 2007–2009 financial crisis and of the economic crisis caused by the COVID-19 pandemic as well as of the rise in total debt of the non-financial sector suggest that the growth in inflation was triggered by excessive debt growth of the government sector in 2020–2021. In that period, the main goal of the debt growth of the government sector was to finance the aid schemes limiting the negative effects of the COVID-19 pandemic. These aid programmes were indispensable to avoid deep and long-term global economic recession, however, their value was too high to keep inflation in the world under control. The fiscal intervention of particular countries should be co-ordinated internationally, as the cumulative result of the operations undertaken by particular states might have detrimental effects globally.

Keywords: inflation, COVID-19, financial crisis, fiscal policy, public debt, private debt
JEL Classification: E31, E51, H12, H30

Introduction

Over the past 15 years, the world has witnessed two global economic crises. The first one, the global financial crisis, started in 2007 in the sub-prime mortgage market in the US. The second one was caused by the COVID-19 pandemic, which broke out in the first quarter of 2020. Governments and central banks worldwide have taken a whole variety of measures to mitigate the negative effects of both crises. One of the main differences between the two crises is the inflation rate during and after the crises. In 2021, inflation worldwide amounted to 6.4%. On the other hand, in 2010 when the global financial crisis ended, it increased only by 4.3% [IMF, 2022a]. Certain central banks, e.g., the European Central Bank (ECB), were faced with the problem of too low inflation after the crisis. In order to increase inflation, the ECB implemented a number of unconventional monetary policy tools. The reasons behind the increase in prices after the COVID-19 pandemic as well as the methods applied to fight the inflation rate have become a subject of lively discussions among economists. The thesis of the article is that the debt growth of the worldwide government sector in the years 2020–2021, which was caused by the urge to finance the aid schemes curbing the detrimental effects of the COVID-19 pandemic, was too excessive to keep the world inflation under control.

The paper proceeds as follows: the second part contains an overview of the literature debating the possible causes of inflation; the third part describes the research method used in this article; the fourth part compares the main characteristics of the two crises under research; the fifth part interprets the obtained research results; the sixth and final part presents conclusions for the economic policy.

Literature overview

The literature on the subject presents a variety of causes underlying inflation. Bonam and Smădu [2021] focused on the long-run effects of the pandemic on inflation in Europe. They analysed 19 pandemics in Europe since the 14th century. According to them, the pandemics significantly lowered the inflation trend within more than 10 years after their outbreak. Thus, the effects of these historical pandemics on inflation were opposite to what happened during and after the COVID-19 pandemic, when the inflation increased.

In November 2021, in the US Andre et al [2021] conducted surveys among the academic economists, households, and company managers, asking them about the causes of the present inflation. The economists most frequently pointed out supply chains disruptions, state expenditure, and the monetary policy. The householders talked about labour shortages, supply chain disruptions, and politics. The managers mentioned labour shortages, supply chain disruptions. and the COVID-19 pandemics [Andre et al, 2021, p. 2].

Rees and Rungcharoenkitkul [2021] claim that the supply chain bottleneck had an enormous impact on the increase in inflation in 2021. Due to the economic recovery that followed

the economic crisis caused by COVID-19, there could be observed a strong surge in the demand for raw materials, intermediaries, and logistics services. The demand exceeded supply, which caused the increase in prices of the above-mentioned goods, which in turn generated higher prices of consumer goods. As a result of such an excessive surge in the demand, not all placed orders could be fulfilled. Companies, intending to avoid production downtime, started to increase their stocks, which only further boosted the demand and the price growth [Rees, Rungcharoenkitkul, 2021, p. 1].

According to Ha et al [2019], the main cause of the inflation in the period 2008–2009 was a demand shock related to the global financial crisis, whereas since 2010 it has been the changes in oil prices that played the same role [Ha et al, 2019, p. 173].

Koester et al [2021] analysed the causes underlying the low inflation rate in the Eurozone in the years 2013–2019. According to them, the main factor responsible for the inflation decline was the economic stagnation and lowering of the inflation expectations. Economic stagnation is understood as significant unused production capacity, i.e., a large gap between actual and potential GDP [Koester et al., 2021, p. 7]. Inflation expectations in the Eurozone diverged from the ECB inflation target. Other factors, less influential but also exerting their impact on inflation, were globalisation, digitalisation, and demographic trends.

According to Nersisyan and Wray [2022], the low inflation rate in the US, which could be observed for a couple of decades, was caused by a number of factors. The first one was the globalisation of supply chains, which meant that production was relocated to the countries with lower labour costs. It allowed companies to maintain low production costs and sell products at a lower price. Another cause of low inflation was the change in the organisation of production in many companies, which involved the minimisation of stocks, which in turn reduced the costs of stock maintenance. Lower inflation was also caused by the decrease in the states' budget deficits and greater reliance on the monetary policy in keeping a low unemployment rate. Other causes of the decline in inflation were the technological progress and productivity growth, which meant that many well-paid worker positions became eradicated from the market. Finding alternative oil suppliers to OPEC countries made it possible to curb the oil price growth, which had been made by this cartel. Limited room for oil price surges resulted in the lower inflation rate worldwide. Frequent and more acute financial crises that brought about the increase in unemployment prevented rapid wage growth, which slowed down the inflation rate [Nersisyan, Wray, 2022, pp. 4–5]. On the other hand, the causes underlying the inflation increase during the COVID-19 pandemic are supply-related: disruptions in supply chains and raising prices by large corporations in order to increase their margins.

The reasons for the increase in inflation have also been identified in the quantity theory of money. According to it, the main cause of changes in the value of money is a change in the amount of money in circulation [Humphrey, 1974, p. 2]. If the amount of money in circulation increases, then its value decreases, and thus the prices of goods increase. If, on the other hand, the amount of money in circulation is reduced, then its value increases and the prices of goods fall.

Method

The research method adopted in the present paper consists in a comparison of the case studies of the 2007–2009 global financial crisis and the economic crisis caused by the COVID-19 pandemic. The comparison deals with the main causes of the crises and their following characteristics: the incidence of lockdown and credit crunch, interest rates levels before the crisis, changes in interest rates, fiscal policy, utilisation of QE, supply chain bottlenecks, changes in GDP and inflation. Moreover, this article provides an analysis of the changes in the credits value for the non-financial sector worldwide in the period 2007–2021 against inflation and GDP changes. The non-financial sector comprises the following groups of entities: the government sector, non-financial enterprises, and households. The change in the credits value for the non-financial sector was chosen here for analysis as it constitutes a cash flow that exerts a direct impact on the real economy. I adopt the hypothesis that when a private entity takes out a new credit, it does so in order to acquire goods or services, whereas the government sector takes out a credit in order to finance public expenditure. Thus, the entities under analysis exert a direct influence on the real sphere of the economy and, subsequently, on the price level.

Quantitative easing (QE), i.e., the acquisition of assets at a large scale by central banks, does not constitute a subject of the present analysis, as it has no direct impact on the goods and services market. QE is one kind of unconventional monetary policy alongside negative interest rates, credit operations, and forward guidance [Potter, Smets, 2019, p. 2]. As Schenkelberg and Watzka [2011] have argued, quantitative easing has no effect on inflation. The purchase of securities by central banks results in changes in the balance sheet of the seller. Following the above-mentioned transaction and changes in the balance, the seller of securities undertakes further economic actions. They can be different in their nature: they do not have to support the economic growth or price increase. For instance, a commercial bank after it sells its securities to the central bank can decide to keep its reserves in a central bank account and not to change its credit policy as well as to refrain from the purchase of any other securities. Thus, it does not exert any influence on the real economy. It can also increase its lending activity or purchase other securities. However, this requires a trustworthy entity that is willing to take out a credit or a credible issuer of securities [Lavoie, Fiebiger 2018, p. 141]. Quantitative easing then does not automatically increase lending activity and monetary aggregates, nor does it increase expenditure or demand. The central bank can purchase treasury bonds directly or indirectly from the government. Consequently, QE can be a source of financing for the budget deficit. Through securities purchases, the central bank can also act as a lender of last resort to the government [Buiter, Rahbari, 2012, p. 1]. The data on the changes in the credits value for the non-financial sector are calculated on the grounds of the database of the Bank for International Settlements (BIS), which contains information on the volume of credits granted to the entities under research [BIS, 2022]. The changes in the credits value (i.e., cash flows) are calculated on the basis of the credits value in local currencies in given

years and subsequently converted into USD. It allows for minimising the influence of changes in the USD exchange rate on the changes in the credits value. The data shared by the BIS contain both the debt securities and credits [Dembiermont et al., 2013]. The year 2007 was chosen as the initial year in the present analysis as it was the last year prior to the beginning of the acute phase of the financial crisis in 2008. The analysis compares information from 38 countries that had available data from the years 2007–2021. In 2020, the total GDP of these countries constituted 84% of the world GDP, which means that this group of countries had a decisive impact on the global economy.

Comparison of the main features of the crises under analysis

Table 1 comprises a simplified comparison of the most important features of the global financial crisis in the years 2007–2009 and the economic crisis caused by the COVID-19 pandemic.

Table 1. Simplified comparison of the main features of the global financial crisis in the years 2007–2009 and the economic crisis caused by the COVID-19 pandemic

	Global financial crisis 2007–2009	Economic crisis caused by COVID-19
Main cause	subprime mortgage credits default	the COVID-19 pandemic
Crisis features		
Lockdown	no	yes
Interest rates before the crisis	higher than before the crisis caused by COVID-19	lower than before the global financial crisis
Changes in interest rates	sharp decrease worldwide	interest rates decreased at a smaller scale
Fiscal policy	significant state intervention	significant state intervention
QE	yes	yes
Supply chain bottlenecks	no	yes
Credit crunch	yes	no
GDP	declined	declined
Inflation	inflation declined during the crisis	inflation declined during the crisis

Source: own elaboration.

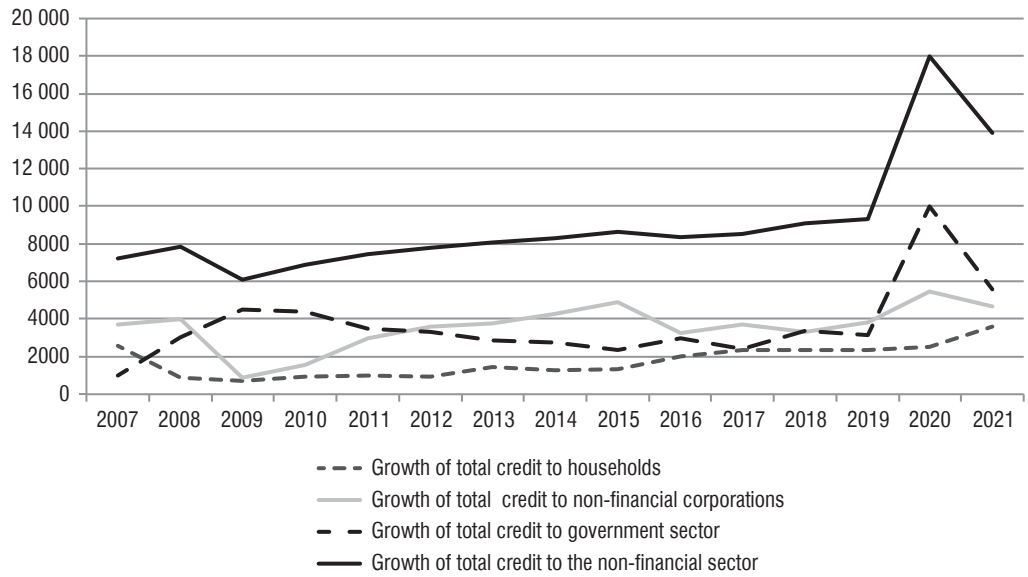
The discussed crises show both common features and substantial differences. The most significant among the common features are the GDP decline and inflation decrease during the crisis as well as the loose fiscal and monetary policy aimed at the alleviation of the crises effects. Both crises witnessed the use of an unconventional monetary policy tool, which is quantitative easing. The differences between the two crises consist in the direct causes for their outbreak. In the case of the global financial crisis of 2007–2009, its direct cause was subprime mortgage credits default, whereas in the case of the economic crisis it was the COVID-19 pandemic that was its main cause. In the case of the economic crisis caused by COVID-19, there could be observed a number of lockdowns and supply chain bottlenecks, however, there was

no credit crunch. Prior to this crisis, the world interest rates were lower than before the global financial crisis of 2007–2009.

Despite the fact that during both crises the states increased their debt, in relation to the economic crisis caused by COVID-19 their debt growth was considerably higher. The changes in debt of households and non-financial enterprises were also significantly different. The anti-crisis measures undertaken by specific countries in order to mitigate the effects of the global financial crisis comprised the following: reducing interest rates, providing additional liquidity for the markets and financial institutions, easing the requirements on the collateral for operations conducted by central banks, purchasing securities at a large scale, providing guarantees for the financial institutions, forward guidance, increasing budget deficits, and implementing fiscal programmes stimulating the economy [Claessens et al., 2014, pp. 467–468). The aid schemes intended to support the economy during and after the COVID-19 crisis comprised: the purchase of securities at a large scale by central banks and loose fiscal policy. The latter consisted in tax reliefs and various forms of support for the companies and their employees affected by the economic consequences of the pandemic. Similar measures were undertaken by a majority of countries, however, the scope of these actions largely varied [IMF, 2022b].

The total change in the debt (financial flow) of the non-financial sector and households, non-financial corporations and the government sector in selected countries is presented in Chart 1.

Chart 1. Growth in the total credit granted to households, non-financial corporations, the government sector, and the non-financial sector in selected 38 countries, 2007–2021 (USD billion)



Source: own calculations based on BIS database.

In 2007, the credit value for the non-financial sector in 38 selected countries increased by 7.2 trillion USD. The year 2007 was marked by a high economic growth and high inflation rate worldwide. It should be noted here that in that year the increase in public debt amounted to 978 billion USD and constituted only 13% of the total debt growth in the non-financial sector. The year 2008 witnessed an acute phase of the global financial crisis. That year, the dynamics of the debt growth in households dropped by 67% to reach the amount of 855 billion USD. What is interesting is that the debt of non-financial corporations increased more than in the previous year and amounted to 3.98 trillion USD. Due to the public debt growth, which substituted the debt decline of households, the total debt of the non-financial sector also increased more than in 2007 and amounted to 7.869 trillion USD. In 2009, there could be observed an enormous decline in the debt growth of the non-financial corporations. The debt increased only by 873 billion USD, i.e., it decreased by 78% in comparison to the previous year. The debt growth of households also slowed down. Despite the substantial public debt growth, the total debt growth decreased by 23% in comparison to the year 2008 and amounted to merely 6.09 trillion USD. In 2010, there was an increase in the dynamics of the debt of households and non-financial corporations, however, it still did not reach the levels observed prior to the acute phase of the financial crisis. The debt growth in the government sector remained high. Only in 2011 did the total debt growth exceed the growth noted in 2007 and it amounted to 7.45 trillion USD.

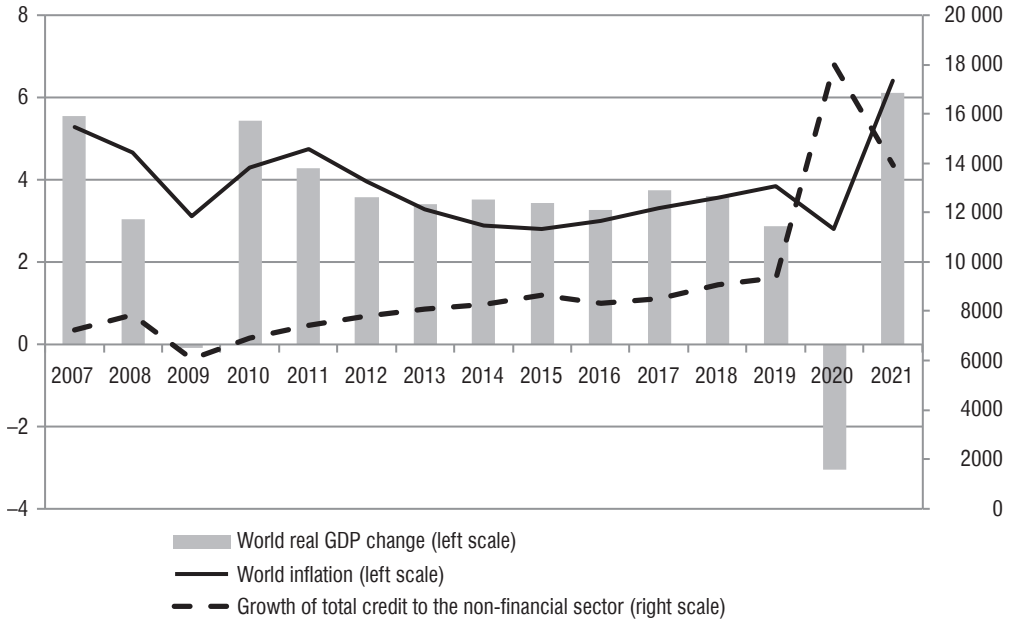
The period 2012–2019 witnessed a steady increase in the total debt growth of the non-financial sector. It should be noted here that between the discussed crises, i.e., in the years 2010–2019, the debt growth of households was rising very slowly. In 2019 this growth was lower than in 2007. The debt growth of non-financial corporations was rising faster by far. In 2013, though, the debt growth of non-financial corporations was higher than in 2007.

In 2020, the world saw the outbreak of the COVID-19 pandemic. There were lockdowns and the production of goods and services, and their purchase was much limited. This caused a supply and demand shock at the same time. In order to mitigate the effects of the economic crisis, the countries worldwide decided to implement aid schemes, which required a substantial public debt growth. In 2020, the total debt of the non-financial sector increased by 17.99 trillion USD, which means that it exceeded the debt growth in the previous year by 93%. It was possible due to the public debt growth by 10 trillion USD, which was more than 219% as compared to the level in 2019. What is interesting is that the debt of non-financial corporations increased by 5.42 trillion USD, i.e., by 42% than in the previous year. The households also witnessed an increase in their debt, however, it was only infinitesimally higher than in 2019. In 2021, there could be observed a rapid debt growth of households, which was 44% higher than in the previous year. On the other hand, the debt growth of the government sector significantly decreased, however, it was still considerably higher than in 2019 and in the period 2009–2010, when the governments tried to alleviate the effects of the global financial crisis. Similarly, the debt growth of the non-financial corporations was on the decrease. In 2021, the total debt growth of the non-financial sector much exceeded the growth prior to the COVID-19 pandemic.

What is significant is that during the entire period under research the debt did not decrease. It pertains both to the total debt of the non-financial sector and to the debt of its different groups. What could be merely observed were the periods of higher or lower debt growths.

Another issue under analysis is the world inflation (end of year) against the total debt growth of the non-financial sector and the changes in the world real GDP. The relevant indices are presented in Chart 2.

Chart 2. Growth in the total credit granted to the non-financial sector in 38 selected countries (USD billion), with the world inflation (%) and world real GDP change (%), 2007–2021



Source: own calculations based on BIS database, IMF World Economic Outlook database, April 2022.

Following the outbreak of the global financial crisis, the economic growth worldwide slowed down from 5.6% in 2007 to –0.1% in 2009 and the world inflation dropped from 5.3% to 3.1%. The total credit growth for the non-financial sector worldwide decreased from 7.2 trillion USD in 2007 to 6.1 trillion USD in 2009. The period 2010–2011 witnessed a rebound of both the economic growth and inflation. The debt growth of the non-financial sector also rose, but it did not exceed the values quoted in 2008. From 2012 to 2019 there could be observed a balanced economic growth, stable inflation rate and stable debt growth of the non-financial sector in total. On the other hand, following the COVID-19 outbreak in the years 2020–2021, there was an enormous total debt growth of the non-financial sector. It failed to stop the recession and the decrease in inflation in 2020. Therefore, there were delays in the fiscal policy transmission. By contrast, in 2021 there could be noted a dynamic growth of inflation and GDP worldwide.

Discussion

Following the global financial crisis of 2007–2009, in the years 2010 and 2011 the inflation rate did not surge as it did in 2021, because the total credit growth for the non-financial sector in the period 2009–2010 did not reach the level from 2007 which preceded the crisis. Only later on, in 2011, did this growth exceed the levels quoted in 2007. In the years 2008-2011, the total debt growth of the non-financial sector, which constitutes the cash flow directly influencing the real economy, was too low to generate a substantial increase in inflation. In the period 2012–2019, after the global financial crisis, the debt growth of the non-financial sector was also too low to induce a high inflation worldwide. The years 2020–2021 witnessed a rapid debt growth of the world non-financial sector, which significantly exceeded the debt growth noted prior to the COVID-19 outbreak. Especially high was the public debt growth. This debt growth of the non-financial sector generated the increase in the world inflation rate in 2021.

In 2020, there was no crowding-out effect of the private debt by the public debt. On the contrary, there could be observed a reverse effect. There could be noted both the public debt growth and the substantial debt growth of the non-financial enterprises. The growth in these two types of debts can be interpreted as follows: the aid schemes financed mainly from the states' debt growth contributed to the increase in global demand. The sequence of events was the following: first, there was an increase in states' debt, afterwards aid schemes were launched, which in turn influenced the rise in demand. The enterprises, in order to meet the increasing demand, took on more debt to be able to finance their necessary expenditure, such as the growth in demand for working capital and indispensable investments.

The lack of a credit crunch during the COVID-19 pandemic was an important factor in allowing corporate and household debt to grow. In the period under research the changes in inflation were not proportionate to the changes in the debt value of the non-financial sector. The years 2011–2015 witnessed the increase in the credits value granted to the non-financial sector worldwide and the inflation drop from 4.7% to 2.8%. On the other hand, in the period 2016–2019, when there could also be observed the increase in the debt growth of the non-financial sector worldwide, the inflation jumped from 3% to 3.8%. The present analysis points to the fact that the infinitesimal changes in the growth in credits for the non-financial sector do not affect inflation. The significant changes in the credit value only exert any influence.

Though the growth in the credits value constitutes the main cause for the inflation increase in 2021, it is not the only factor at work here. Factors such as supply chain bottlenecks and the higher margin of the enterprises also exert their influence, but in order to induce them an increased demand is needed, i.e., the entities having funds and willing to purchase goods and services. In 2021, the funds for these purchases were provided by the debt growth of the non-financial sector described here.

The states' debt growth, which was a reaction to the crisis caused by the COVID-19 pandemic, was too high to keep the world inflation stable. However, had it not been for the state

substantial expenditure, the outbreak of an acute and long-term global recession would have been more than likely. Thus, high expenditure was necessary in order to prevent the latter. What is indispensable, though, is additional research on the optimal scale and wide-ranging economic consequences of the aid schemes and mutual influence of the changes in the amount of debt of particular non-financial entities.

The aid schemes implementation in specific countries in the years 2020–2021 was purely a national decision. An exception to that was the European Union and the Eurozone, where the decisions were made both at the Community and the national levels. However, at the global scale, there was a lack of co-ordination in aid schemes between the states, which would allow for determining and controlling the optimal value of the support for the world economy. As a result of these independent actions undertaken by particular countries, the total value of the aid schemes and the public debt growth worldwide were too high to maintain the world inflation stable.

Summary

The conclusions from the present research for the economic policy are as follows.

Firstly, substantial debt growth of the non-financial sector influences the inflation increase.

Secondly, debt growth of the government sector might affect positively the debt growth of the non-financial corporations and households. The decision on the debt growth of the government sector should take into consideration its possible influence on the debt dynamics of other entities.

Thirdly, fiscal interventions of particular countries, financed by debt growth, should be co-ordinated at the international level, as the accumulated effect of operations conducted by specific states might have detrimental effects at the global scale.

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